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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station
Unit 1)

Docket No. 50-322-OL-3

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

3

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

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9 Court of Claims
State of New York
10 State Office Building
Room 3B46
11 Veterans Memorial Highway
Hauppauge, New York 11787
12

Thursday, July 19, 1984

13

14 The hearing in the above-entitled matter resumed

15 at 9:05 a.m., pursuant to recess,

16 BEFORE:

17 JAMES A. LAURENSON, ESQ., Chairman
Atomic Safety and Licensing Board
18 U. S. Nuclear Regulatory Commission
Washington, D. C 20555
19

DR. JERRY KLINE, Member
20 Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
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22 DR. FREDERICK SHON, Member
Atomic Safety and Licensing Board
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Washington, D. C. 20555
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25

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APPEARANCES:

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C O N T E N T S

E X H I B I T

L A Y - I N

Sim 1-1

P R O C E E D I N G S

JUDGE LAURENSON: We are back on the record.

Mr. McMurray.

Whereupon,

MATTHEW C. CORDARO

CHARLES A. DAVERIO

SYDNEY W. PORTER, JR.

- and -

RICHARD J. WATTS

resumed the stand as a panel of witnesses and, having been previously duly sworn, were further examined and testified as follows:

CROSS-EXAMINATION (Resumed)

BY MR. McMURRAY:

Q Gentlemen, please turn to page 13 of your testimony.

(Pause while the witnesses comply.)

Mr. Daverio, you say in the first full sentence that "Farmers would be advised to withhold their milk from commerce and store it at reduced temperatures."

Do you see that?

A (Witness Daverio) Yes, I do.

Q How long would they be asked to withhold their milk from commerce?

A As we discussed yesterday, if the sample went

Sim 1-2

to the lab right away and was analyzed in the way Mr. Porter discussed, you are talking maybe a couple of hours that we would have a feel for whether they had contaminated milk or not. If the milk was not contaminated, of course, you would then not tell them to withhold it from the market.

If the milk had some contamination level, depending on the level, appropriate action would be taken.

Q My question is how long would they be asked to withhold the milk from commerce? May be you can give me a range of time.

MR. IRWIN: I think the question was just asked and answered in the terms he was just putting in.

JUDGE LAURENSON: The question is can you specify a range of time. I think he has refined the question. So to the extent that is an objection, it is overruled.

WITNESS DAVERIO: Someone else on the panel may want to add to this. I think you are talking about a couple of hours if it is uncontaminated. If it is highly contaminated, you may ask him to remove it from the market and we would compensate him for it. It would depend on the accident and the conditions.

BY MR. McMURRAY:

Q That is right, but how long, if it was contaminated, would they be asked to withhold their milk? And I am talking about you are asking them to store it

Sim 1-3

at reduced temperatures. How long would they be asked to hold it themselves?

A (Witness Watts) That, as Mr. Daverio said, depends entirely on the scenario that you are talking about. If you give us, for instance, a defined scenario, we could give you that answer, but it depends on several different conditions.

Q You are unable to give me a range of time over which you think farmers would have to withhold their milk from commerce?

A I can give you a range of time if you give me a specified scenario.

Q Let's say then that the milk is contaminated up to 50 percent of the FDA limit.

(Witnesses conferring.)

A (Witness Watts) If the analysis determines that the activity, the activity of iodine, for instance, in a particular batch of milk is 50 percent of the preventative action guide, then the farmer would not be requested necessarily to withhold that milk any further for any further length of time.

A (Witness Cordaro) There is also a policy concern here and even a public relations concern even on an ad hoc basis. Depending on the degree of contamination and the number of dairies involved, we may just elect to

Sim 1-4

purchase that milk in a sense by instructing the farmer to dispose of it and compensate him for it.

It depends on the situation at hand and what is involved and the extent of the problem. So there is a policy, public relations and community relations type concern in something like that beyond the technical factors which determine whether there is a health hazard or not.

Q Mr. Watts, isn't it true that under some circumstances you may ask farmers to withhold their milk and store it for some days?

A (Witness Watts) Yes, that is conceivable.

Q And do you know whether or not the dairy farms have the capacity to store milk that would be coming from several milkings over the course of several days?

A Well, that would depend on the individual dairy farm.

Q And have you made the inquiry into whether or not individual dairy farms have this capacity?

A No, I have no. As Dr. Cordaro said though, in the event that there was a problem in storing the milk for several days where perhaps there was a possibility of spoilage,then LILCO does have a policy where they would compensate the farmer for the spoiled milk.

Q Dr. Cordaro, you said that the farmer would be asked to dispose of the milk. Where in the plan does

Sim 1-5

it advise farmers how to dispose of contaminated milk?

A (Witness Cordaro) I am not aware of any particular location in the plan or the implementing procedures which instructs the farmer how to dispose of contaminated milk. We could give him those instructions at the time that action was recommended, however. I don't think it is a very, very complicated situation.

Q Is there any place in the plan where it says that whoever is making contact with the farmer should instruct the farmer on how to properly dispose of the milk?

A Not to my knowledge, nor have I see that in any other plan where ingestion pathway concerns have been addressed.

A (Witness Watts) I might mention that Attachment 18 of OPIP 3.6.6 does provide the opportunity for any detailed directions to be passed along to the farmer and certainly recommendations as far as milk disposition could be used, or could be communicated by this vehicle.

Q As I look at Attachment 18, I don't see any specific recommendations for how to deal with contaminated milk.

A Well, certainly, that is true because Attachment 18 is a form that is used for communicating details

Sim 1-6

regarding protective actions and any other instructions to individual food producers.

However, that does provide the means through the communication from the emergency operations center to instruct any kind of food producer to take certain actions, and that does not preclude any information to be pased along that might involve the disposition of food stuffs.

Q Well, what instructions would you give the farmers as to how to dispose of the milk, contaminated milk?

A (Witness Porter) This potential situation obviously arose during the Three Mile Island Unit 2 accident in March of '79. Essentially what Metropolitan Edison did was to hire two tank trucks, have them standing by and as the situation turned out they were never needed. However, they were there and they could have stopped by, picked up the farmer's milk and the thing was done with.

It is not a big deal. We are only talking six or seven potential farmers within the entire 50-mile radius. This is just not a problem area. This is one of the easier things the utility has to deal with in a serious emergency.

end Take 1
Sue fols

#2-1-SueT

Q Mr. Porter, is that procedure set out in the LILCO plan anywhere that you know of?

A (Witness Porter) It doesn't need to be. You cannot have procedures for every contingency in the world. The --

Q The question is it in the plan, Mr. Porter?

A No. And it doesn't need to be in my opinion.

Q Thank you.

A (Witness Watts) As I mentioned, though, the communication of any detail like -- any additional instruction which may come up based on the situation at hand, any recommendation relative to that, to disposition of any type of foodstuff could be passed along through use of things like Attachment 18 in OPIP 3.6.6. And that is an implementing procedure which is part of the plan.

Q Attachment 18 doesn't offer any specific instructions about anything, does it, Mr. Watts?

A The specific instructions would be coming from LERO through the Radiation Health Coordinator who would be speaking with other officials, be talking with LILCO, would most likely be talking with other government agencies, and arriving at recommendations on things like what to do with potentially contaminated or verified contamination in foodstuffs.

And certainly this Attachment 18 could be used to

#2-2-SueT 1 pass along those recommendations. So the mechanisms are
2 set up to pass along those recommendations to individual
3 food producers and dairy farmers.
4 Q Attachment 18 is a notification form for various
5 suppliers and food producers, correct?
6 A That's correct I might also add that this
7 form was used in a series of LERO drills that were held in
8 June where we went into a discussion of various options
9 that would have to be considered for things like milk. And
10 we also set up the radiation health communicators reporting
11 to the RAD health coordinator to utilize Attachment 18 and
12 to pass along those types of recommendations.
13 So, we have been using and practicing with this
14 form in recent drills.
15 Q Let me ask you this. Would your recommendation
16 in some circumstances be that the farmer withhold the milk
17 until it had -- until contaminants had decayed to acceptable
18 levels and then return it to the marketplace?
19 A (The panel members are conferring.)
20 That is an option because of the half-life of
21 iodine, the relatively short half-life of iodine. However,
22 it is also conceivable that the individual dairy farms would
23 not have the capacity to store the milk for the length of
24 time required, in which case it may be up to the processor
25 to either store the milk or to divert the milk for other

#2-3-SueT

uses, to convert the milk into a dehydrated form or to produce butter or cheese, for instance --

Q Are you saying --

A -- which would allow them the proper amount of radioactive decay to take place.

Q Are you saying then, first of all, that a processor would buy contaminated milk from a farmer that the farmer was withholding?

Is that a realistic possibility?

A Probably not. However, in the case where the processor does have a quantity of milk on hand already at the processing plant, those types of options that I discussed for diverting milk to other uses could be used.

Q In the case of the individual farmer then, would there be a recommendation that after withholding the milk for a certain amount of time it could be returned back to the market?

A As I mentioned, that is an option. But I could foresee instances where that could be a problem to return the milk to the market probably because of storage time and potential spoilage.

Q You don't see any other problems?

A Well, as I mentioned, I think the spoilage is the biggest problem at that point.

Q On Page 14 of your testimony, you are talking

#2-4-SueT

about processors now, and you say the processor could be advised to freeze and store contaminated milk for a specified period of time.

Mr. Daverio, who would specify the period of time involved there?

A (Witness Daverio) That would be defined by LERO by analyzing the milk and determining what was there and the decay and half-life and depending on what level it was. So, LERO would specify that from inputs from many sources.

Q How is the time determined? And let me specify what I mean. Is it based on the longest-lived isotope in the milk or the one that is most soluble in milk?

A I would say the longest half-life.

(Witness Watts) It would be a function of the longest-lived isotope and also the concentration of that isotope that is present in the milk.

Q You also say that the processor would be advised to divert in some cases fluid milk to the production of dry whole milk and other milk products.

Do you see that?

A (Witness Daverio) Yes, we do.

Q Okay. And is it your testimony that after a certain amount of time -- or, let's assume that the milk at the time it was received by the processor exceeded

#2-5-SueT

acceptable levels of contamination. And are you saying that after the milk products had been stored for awhile and after the contamination level had fallen below acceptable levels that then that food would be returned to the marketplace or be available for consumption?

A (Witness Watts) Well, certainly you would assess the kind of radionuclide that was in that foodstuff. If we are talking about milk and it has been diverted to -- and converted to a different form, based on the concentration in the nuclide that you are measuring, for instance, iodine 131, you can calculate fairly accurately what the concentration is going to be at any time in the future, taking into account the half-life of iodine 131 which is approximately eight days.

And there is an additional step that you would do, and that would be to resample and just confirm your calculations before releasing this foodstuff back into commerce.

So, yes, it is conceivable it could be done just that way.

end #2

Joe flws

Q Also, on page 14, you say that dairy farmers and processors would be notified that LILCO would fully compensate them for any unsalvageable milk.

How do you define, 'unsalvageable,' Mr. Daverio? Or how does LILCO define unsalvageable in implementing this particular plan?

A (Witness Daverio) I think others may want to add to get a precise definition, but unsalvageable could be because of the radiological contamination, and therefore not suitable to be placed back in the market, or a foodstuff that might spoil because we have asked them to take it off the market for a period of time while we were analyzing it, and it spoiled even though it wasn't contaminated. I think that is unsalvageable.

Those are the -- probably the two I can think of. Someone else may want to add.

A (Witness Cordaro) Unsalvageable also in the economic sense. If the farmer is incurring a loss because of any action he had to take due to the accident, then he would be compensated for that loss.

Q On page 15, Mr. Daverio, you say that it is extremely unlikely that a dairy farmer within the fifty mile EPZ would not have stored feed on hand at any given point in time. Do you see that?

A (Witness Daverio) I didn't support the answer, but I see it.

Q Do you have any problem with the answer?

A No, I don't.

Q Mr. Watts, what knowledge or experience on your part lets you make the statement.

A (Witness Watts) I think Mr. Porter could help me out on this one. However, my general knowledge indicates that in most situations, in modern farming, that a majority of feed for milk animals is derived from stored feed because of the nutrition requirements involved, and that information that was obtained in researching this question indicated that that was the case.

Q Mr. Watts, did you conduct any research to determine whether or not this was true?

A I did not personally conduct a research, no, but I am aware of some information that was put together to address the situation in the formulation of the implementing procedure.

Q Well, isn't it true that after a winter, it is common for stored feed to be depleted, and for farmers to rely largely on pasteurage?

A My general knowledge indicates that that is not the case.

Q Your general knowledge is not based on any specific research of the issue.

A Only reading the results of research that has

1 been done by others.

2 Q And what research is that?

3 A Telephone contact that was made with the Suffolk

4 County extension agent, who indicated that the majority of

5 feed on hand was stored feed.

6 Q Was this any particular time of the year?

7 A My impression -- I may be wrong -- was that

8 this was an overall average.

9 Q Is that the research that you are relying on,

10 the telephone conversation with the extension agent in

11 Suffolk County?

12 A That is, in terms of my impression of the

13 situation, that is basically it, although there is other

14 information that is available that does support that

15 conclusion.

16 A (Witness Porter) If I may add to the answer,

17 in talking to County Ag Agents throughout Connecticut,

18 New York, Maryland, Pennslyvania and New Jersey, in general

19 the larger farms rely year around mostly on stored feed

20 of one kind or another.

21 Now, it is true that some of the smaller farmers

22 certainly may be low on stored feed at the end of an

23 especially long and difficult winter, but I think that my

24 experience tells me that the larger farms, the big commercial

25 dairy farms in general are used to having large amounts of

1 feed on hand year around, because that is how they manage
2 their milking. They milk cows.
3 Q Have you determined whether or not the farms
4 listed in Attachment 3 are the large -- very large commercial
5 type that you are talking about?
6 A No, I have not determined that. It is my
7 understanding from discussions with the County Ag. Agent
8 that this point was generally true. It has not been
9 specified for each of the six farms we are talking about.
10 Q Was he talking also about the farms in Putnam
11 County and Westchester County?
12 A He was talking -- I am not sure. Let me how
13 many farms are we talking about. I think we are talking
14 about very few farms, aren't we?
15 We are talking about one farm -- no farms in
16 Putnam County within a fifty mile radius, and one within
17 Westchester County. So we are talking about one farm.
18 I refer you to Attachment 3, OPIP 3.6.6.
19 Q And this attachment is a list of the large
20 commercial farms that you have been discussing?
21 A That is correct.
22 Q Thank you.
23 A They are not necessarily large. They are
24 commercial farms.
25 MR. IRWIN: Excuse me. Just a question of

clarification. There was a reference to Attachment 3. You are referring to Attachment 3 of the testimony, Mr. Porter?

WITNESS PORTER: Yes.

MR. IRWIN: Okay.

BY MR. MILLER: (Continuing)

Q On page 16 of your testimony, gentlemen, you talk about the decontamination of livestock, dairy animals in particular. Who is to conduct such decontamination?

(Witnesses confer)

Since nobody seems eager to answer, I will ask Mr. Daverio.

A (Witness Daverio) Again, I didn't support this one.

(Witnesses confer)

Q Well, since nobody is supporting it, or saying anything --

MR. IRWIN: Excuse me. Let me move to strike that comment. It is germane to nothing that these witnesses are testifying to. They are simply conferring, and have been conferring for approximately five seconds.

JUDGE LAURENSON: I don't think the comment of lawyers is part of the record as far as evidence anyway. It is not worth taking the time to talk about.

WITNESS PORTER: It is extremely unlikely that we would come across the situation. However, if it would

arise, the first procedure simply would be to give advice on how to decontaminate, and offer to send someone out to do it should the farmer wish to. Simple washing is all that is needed for this type of decontamination.

End 3.
Mary fols.

Sim 4-1

This has never been shown to be a problem even in the extremely large iodine release in Windscale which is orders of magnitude, five orders of magnitude larger than anything that has ever happened in this country.

Q You are saying that there were no contaminated animals as a result of Windscale?

A None that were contaminated to a level where the authorities felt that decontamination was needed.

Q The accident at Windscale was not five times greater or five orders of magnitude greater than the type of accident at Shoreham that would contaminate the ingestion pathway; isn't that correct?

A You will have to clarify your question. I don't understand it.

Q I am trying to understand the comparison that you have made. You have said that the Windscale accident was five orders of magnitude worse than anything we have seen here.

A Yes. I was comparing it to the Three Mile Island accident.

Q You weren't comparing it to a worse case type of release here at Shoreham, correct?

A I was comparing it to the experience that we have had in the world to date.

Q And that experience is limited, correct?

Sim 4-2

A The experience is limited to what has happened.

A (Witness Watts) I could add to that by saying even if you have a situation where there is contamination on the animal and it has to be removed, that we LERO are prepared to advise the farmer on how to do that correctly. There are very conventional decontamination practices that can be employed for doing that, for accomplishing that task, and LERO would also help in assisting with that operation.

Q Those procedures are not set forth in the plan, correct?

A For decontaminating animals? No.

Q Livestock?

A No. But, again, that is another detail that, you know, based on the situation at hand and just based on normal every day health physics practices can be easily accomplished.

We would further advise the farmer, if the farmer preferred to do the work himself, to certainly wear some form of protective clothing, to wear gloves to make sure he washes his hands when he is done with the operation. Very conventional techniques could be used.

Q You say that such contamination could be removed simply by washing and scrubbing the affected animal. How will the farmer know which animals are affected?

Sim 4-3

(Pause while the witnesses confer.)

A As part of the overall monitoring effort we would know which general areas were affected by deposition of contamination, and certainly we would know in a given region or a given farm what the general levels of contamination would be.

For specifying which particular animal, you could first start off by assuming that all animals, if they were not already sheltered, have potential contamination.

Again, LERO would offer to help in that situation, and part of that help could be monitoring contamination levels on each individual animal if need be.

You could start off with the presumption that if you had a whole herd outside unsheltered during the contaminating event, then you could assume at least initially that the whole herd may possible need the contamination, and by individually monitor certainly eliminate those that don't need it.

Q Well, is it set forth in the procedures that LERO would conduct such monitoring of livestock herds?

A Specifically for monitoring livestock herds, no. However, in general LERO would offer to assist members of the general public in individual cases like that.

Q You say also on page 17 that "There is no significant beef production within the 50-mile EPZ,"

Sim 4-4

1 Mr. Porter. How do you know that?

2 A (Witness Porter) The County Ag Agent,

3 Mr. William Seneck, was questioned about this and this

4 was his opinion.

5 Q What did he mean by significant?

6 A I believe that he meant significant as far

7 as the selling of beef for commercial purposes.

8 Q Well, I am asking you how did he define

9 whether or not the level of beef production was

10 significant or not?

11 A Well, in my opinion, the most knowledgeable

12 person about the production of beef and other agricultural

13 activities in the area is the County Ag Agent and this

14 was his considered opinion.

15 Q I understand that, Mr. Porter, but you

16 haven't answered my question.

17 A Could you restate your question, please?

18 Q Did you ask him specifically how he defined

19 significant?

20 A No, I left it to his expertise.

21 Q What level of beef production would be

22 significant to you?

23 A To me personally? I think that ---

24 MR. IRWIN: Excuse me. I am going to object

25 on relevance grounds. I am not sure that Mr. Porter has

Sim 4-5

1 claimed expertise in the production of beef. You have
2 gotten the basis for what the statement in the testimony
3 is and Mr. Porter's own personal opinion as to beef
4 prodution in Suffolk County is not claimed as a basis
5 for the testimony or relevant to it.
6 MR. McMURRAY: First of all, Judge Laurenson,
7 Mr. Irwin's objection is untimely.
8 Second of all, this witness has used the
9 term "significant," and I am entitled to probe what he
10 means by the statement that there is no significant beef
11 production.
12 MR. IRWIN: He has already given the basis
13 for the word "significant."
14 JUDGE LAURENSON: The objection is overruled.
15 MR. McMURRAY: You may continue your answer.
16 Why don't you start again, Mr. Porter.
17 WITNESS PORTER: I believe the question is
18 what in my opinion is considered as significant beef
19 production, and in my opinion significant beef production
20 would be production of beef for commercial sale to people
21 other than the immediate family and friends of the farmer
22 that is selling it.
23 WITNESS CORDARO: If I could also add
24 something. It is also common knowledge that there is
25 no commercial beef production on Long Island. If you go

Sim 4-6

through a list of any of the agricultural products produced here on Long Island in almanacs, and in fact we even produce an almanac yearly that lists these products and there is no listing of commercial beef.

The only extent of beef production, it is a customary practice for some of the farmers out east to raise one or two cows during the course of the year and then slaughter it usually in a particular month of the year for beef, and that is the total extent of beef production on Long Island.

BY MR. McMURRAY:

Q Let me first follow up on what you said, Dr. Cordaro. You were restricting your answer to your knowledge of Long Island, correct?

A (Witness Cordaro) Yes, and also having reviewed lists of agricultural products produced on Long Island and having a good knowledge of what the leading agricultural products are from reviewing these lists over the course of a year and also testifying in some proceedings where indeed these agricultural products were at issue.

That that comes immediately to mind was our licensing proceedings for the Jamesport Nuclear Power Station and the need to produce detailed lists of the agricultural products produced in Suffolk County. And

Sim 4-7

from that it was very, very obvious that the beef was not a commercial product to any extent in Suffolk County.

Q Mr. Porter, I take it then that it is your understanding of the LILCO plan that it does not account for preventing consumption of beef products that may be contaminated, but that did not enter the marketplace, and I am talking about the private consumption that Dr. Cordaro was talking about?

A (Witness Porter) No, I don't agree with the statement. They have a well designed environmental monitoring program for both normal and emergency purposes, and this program looks at radionuclides through all food chains.

If in the coure of an accident it turns out that the plume goes towards one of the far reaches of the 50-mile radius, and if it turns out that there is a farmer in one of those far reaches that has a commercial herd, then at that point, first of all, there would be EBS messages about this. The ohter thing is that it is my experience that FDA comes in and does a pretty thorough look at this kind of thing if there is a significant accident.

So the utility would first put out EBS messages and then, secondly, there would be backup. The experience in the TMI accident was that there was backup

Sim 4-8

from FDA in trying to locate this type of thing. It is very hard to tell whether a farmer is going to suddenly decide that he wants to have a commercial beef herd.

Q You are restricting your answer to commercial herds, correct?

A No, not necessarily. They are just normally larger than non-commercial herds. That is all. In other words, the thing is that beef ingested is beef ingested. So, therefore, the well designed program, and this is one of them, looks at all avenues of ingestion of radionuclides, and if beef is a viable one, then one takes samples of beef.

Q I take it from your previous responses though that you don't think beef is a viable pathway?

A That is right, because of the fact that you do not have reconcentration of iodine in a beef cow. You only have it in the milk in the lactating animals and it does not reconcentrate particularly in the edible meet of a cow. Therefore, it is extremely unlikely that there would be a significant contamination within the beef cows. And I cannot think of a single example of this ever happening among hundreds and hundreds of years of operation that we have on power reactors.

(Pause while counsel confer.)

Q Let's turn to page 19 of your testimony, gentlemen.

(Pause while the witnesses comply.)

You say that Attachments 1 through 5 of OPIP 3.6.6 set forth preventive and emergency protective action guides for milk, water and food stuffs that have been exposed to cesium 134, cesium 137, strontium 89 and strontium 90. Do you see that?

A (Witness Watts) (Nodding affirmatively)

Q You nodded your head yes, Mr. Watts.

My question is is the presence of these isotopes the only circumstance under which LILCO would purchase the milk, water and food stuffs?

A (Witness Porter) The procedures for analyzing food stuffs are generally to perform a gamma spectrum analysis. The reason that these particular radionuclides are used is that they are an indicator of radionuclides that are normally seen and that other radionuclides would always be seen in combination with one of these.

The gamma spectrum analysis looks at all gamma emitters, and in the extremely unlikely event that there should other radionuclides involved, if we wish to play the what-if game, then we would certainly see them in this spectrum analysis, and there are simple ways of coming up with preventive PAGs for any radionucluide that exists. It can be done in a very few minutes by any qualified health physicist.

Sim 4-10

Q I am talking about the Buy-Out Program, Mr. Watts, and it is only in the presence of these radioisotopes that LILCO would purchase the affected food?

A (Witness Watts) I don't believe the mention of these isotopes was meant as a limitation on LILCO's compensation plan. I think from what Mr. Porter was saying is that we would fully expect, even in the event that other isotopes were present, that we would see indications of isotopic contamination certainly from iodine and possibly other nuclides like cesium which would be indicators of the possible presence of other radionuclides that are not listed.

So, in short, no, we would not limit the compensation to only these nuclides. However, we would fully expect these nuclides to be present should other nuclides also be present.

Q We will get back to this question later.

On page 19 you mention the term "special pasturization." What is that, Mr. Watts?

A My understanding in general of the process is that it is a means of using higher temperatures for longer periods of time for treating milk during processing.

Q Does that do anything to the level of radioactivity?

Sim 4-11

A No, it doesn't. What it does do though is, at least in my understanding, it does allow for the milk to keep for a longer period of time, which would then allow for radioactive decay to proceed at its regular rate, but would minimize, or would certainly help prevent the problem or spoilage due to extended storage periods.

Q Spoilage being a concern because if it is not spoiled, then it could back to the market potentially?

A That is right. If there is some holdup to allow the radioactivity to subside according to half life, then this process gives the milk that much longer that it can be stored for the decay process to take place.

Q Let's turn to page 20 of your testimony, gentlemen.

MR. McMURRAY: By the way, Judge Laurenson, it appears to the County that its estimate is going to have to be lowered for the time that this panel is going to be on the stand.

JUDGE LAURENSON: Do you have a revised estimate?

MR. McMURRAY: I would say that this panel would be done by noon probably, and that is barring unforeseen problems. I am talking about with my cross-examination.

JUDGE LAURENSON: Okay.

Sim 4-12

MR. McMURRAY: Or at least by lunchtime.

JUDGE LAURENSON: Thank you.

BY MR. McMURRAY:

Q On page 20 your testimony you are talking about the contamination of fruits and vegetables. Again, Mr. Watts, you say that "If there is an unacceptably high level of radioactive contamination LILCO will buy all such fruits and vegetables from farmers, vendors and other food chain establishments." Is this all such fruits and vegetables, or only the ones that have a chance of spoilage?

(Pause while the witnesses confer.)

A (Witness Watts) I would like to defer to either Mr. Daverio or Dr. Cordaro.

A (Witness Cordaro) All contaminated fruits or vegetables we will purchase.

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#5-1-SueT

Q You also talk on Page 20, going over to Page 21, about LILCO's instructions to the public to wash, brush, scrub or peel locally grown fruits and vegetables.

Let me ask you this. Yesterday, Mr. Daverio, we talked about the EBS and how LILCO's own system did not extend throughout the entire fifty mile EPZ. Do you recall that discussion?

A (Witness Daverio) Yes, I do.

Q Okay. And you mentioned CBS as, in your mind, a possible channel for warning people, at least to the west of LILCO's EBS system. Let's talk about to the far east of Long Island.

LILCO's own EBS system does not reach all the way to the eastern edge of the fifty mile EPZ; isn't that correct?

A I would have to check that. I really don't remember if it does. I think we cover all the stations out there. I'm not sure. I believe we cover all. I would just have to check that Maybe Dr. Cordaro remembers.

(Witness Cordaro) I don't think you can count on it reaching the edge of the fifty mile EPZ; however, I know I have been at the edge of the fifty mile EPZ and have picked up WALK-FM a number of times.

But from a reliability standpoint, being able to do that twenty-four hours a day, three hundred sixty-five

#5-2-SueT

days a year, I don't think you could insure that. But under good conditions you definitely could pick up WALK at the edge of the fifty mile EPZ.

(Witness Daverio) I think the thing to realize also is that if LERO put out an EBS message that had a message that said: Don't eat locally grown foods, vegetables, or whatever, I would be hard-pressed to believe that that wouldn't be a news bulletin that was on every station very quickly thereafter whether it was part of the EBS network or not.

So, I think we have a double backup. Even if the EBS missed them, I would be surprised if that didn't get on the UP and the AP and was all over on every station and on T.V. and that everyone would find out about it.

Q That means of being warned about ingesting food would certainly not be as prompt necessarily as being warned by the EBS system; isn't that correct, Mr. Daverio?

A I wouldn't think it would follow -- it wouldn't be as prompt, but I don't think the time would be that long either. And I don't think that an ingestion pathway concern is of as immediate nature as some of the plume exposure pathway concerns that you look for in an EBS message.

Q Let's talk about individuals decontaminating the food. Under certain conditions, I take it you are stating, Mr. Watts, that food is going to have to be scrubbed in order

#5-3-SueT

to get the contaminants off of it, correct?

A (Witness Watts) Washing and scrubbing certainly is a technique of doing that.

Q Isn't it true though that certain types of food are just not amenable to anything more than just running it under water because they can't be sufficiently scrubbed to remove contaminants?

A Yeah. There has been quite a bit of research done on that throughout the years. I can think of a series of studies that was done in the late 60s and early 1970s at Cornell by Thompson, who reviewed the success of washing and scrubbing and employing different food preparation techniques for a variety of vegetables and fruits and achieved a variety of results.

And it certainly is not -- my review leads me to the conclusion it is certainly not a surefire, one hundred percent method in all cases. That is true.

I might also mention that the way that this type of technique would be employed would be as an additional contamination reduction measure for the purposes of the general public in perhaps easing the concerns of certain members of the public. Once LERO has already determined that food can be consumed because the levels of contamination are already below the preventative protective action guidelines, this would be an additional measure that LERO would

#5-4-SueT

1 suggest for further reducing the potential intake of
2 contamination.
3 (Witness Cordaro) There is precedence for t is
4 on Long Island, too. During the Chinese weapons testing
5 some years ago, people with vegetable gardens and little
6 private gardens at their homes were advised to wash and peel
7 fruits and vegetables because of the contamination from
8 this weapon testing.
9 So, it's not something that is foreign to people
10 who have raised gardens on Long Island.
11 (Witness Watts) And certainly it is a technique
12 that is used commonly by people for washing off insecticides
13 off of fruits and vegetables.
14 Q The plan though, or at least the indication from
15 your testimony, is not that the public would be advised not
16 to eat the fruits and vegetables but that they would be told
17 to wash, brush and scrub them?
18 A No. That's not the intent of the plan. That
19 certainly is not the way that that would be implemented by
20 the Radiation Health Coordinator.
21 Because of the fact that you cannot guarantee --
22 that if you have a particular foodstuff with a certain
23 level of contamination above the preventative action guide,
24 you cannot guarantee that everyone who washes and scrubs is
25 going to remove enough of that contamination to drop it

#5-5-SueT1

below the preventative action guideline.

Q Well, where is --

A You can't guarantee that, so that -- where is what?

Q I was going to let you finish your statement.

A Okay. So the way that this technique would be employed is as an additional measure, as an ALARA measure, you might say, ALARA meaning as low as reasonably achievable, to recommend to the general public as an additional precaution that could be taken.

Q Where in the plan does it say the public will be advised not to eat fruits and vegetables when there are certain conditions prevailing and under other conditions they will be told to wash, brush and scrub?

A If you can bear with me, I think I can find it in OPIP 3.6.6.

(The witness is searching through documents.)

The types of protective actions that I was referring to are referenced first at Page 19 of 50 in OPIP 3.6.6 under Attachment 7.

Q That's right. And --

A And --

Q Let me just clarify what you said. There is nothing under Section 3.2, referring to the public, that says anything about not eating the food, correct?

#5-6-SueT1

A Under 3.2, that is correct. However, the way that it is implemented is if you advise the people that they can eat the food, that you, under this section, would recommend washing, brushing and scrubbing or peeling. That is the way that we have discussed implementing this procedure.

Q It doesn't state that anywhere in the plan, though, does it, Mr. Watts?

A As I mentioned, that is the way the technique is applied, and that is the way, in my mind, that it has been implemented and discussed in the drill that we have had also.

Q But the plan does not reflect your understanding of how it is to be implemented, correct?

A Again, specifically in the words that you stated, it does not say that explicitly, but in terms of a standard radiation protection procedure that's the way it is applied for the reasons that I stated, knowing the limitations of certain decontamination and scrubbing techniques of foods. That's a well known situation.

Q Mr. Watts, the treatment of fruits and vegetables in commerce also does not mention the fact that fruits and vegetables in some cases just should not be eaten; isn't that correct?

And I'm looking at Section 3.1 of OPIP 3.6.6.

#5-7-SueT 1 A Would you repeat your question again, please?

2 Q Isn't it true that once again the protective

3 action of not eating the foods is not included?

4 A Yes. And my answer is the same as the answer I

5 gave you on individual vegetables and fruits.

6 Q That being that the plan doesn't say it but

7 it is your understanding that that's how you think the

8 plan ought to be implemented?

9 A That, in my mind, is the way, certainly the

10 cleanest way to implement the plan. Certainly, for larger

11 food processing concerns, depending on the kind of material

12 that is to be decontaminated and the techniques available

13 to do that, it's also conceivable on a case by case basis

14 where there is a considerable amount of control applied

15 to the technique it may very well be that you could imple-

16 ment these types of techniques to remove contamination from

17 food that is above the protective action guidelines.

18 But I would only do that -- I would only recommend

19 that under very carefully controlled situations.

20 Q But don't --

21 A As general guidance, however, what I mentioned

22 as good health physics practice, I think should stand, yes.

23 And that is certainly the intent that I would apply this

24 as Radiation Health Coordinator.

25 Q Don't you think that the range of protective

#5-8-SueT

actions for an ingestion pathway should be included in the plan, in the words of the plan?

A Certainly I think they should be. And their intent certainly is in the plan.

(Witness Cordaro) Where there is an established practice for treating this sort of thing which has been applied and adopted in many other locations, I don't think it is necessary to spell it out explicitly in the plan. In professionally addressing this whole issue of ingestion pathway and contamination, there are certain accepted practices which are applied by professionals in the radiation protection field.

And this is one instance where there is a lot of experience, and there are accepted practices which have been adopted. And from my knowledge other plans which address the ingestion pathway, even in New York State the approach to ingestion pathway they don't go into any more detail than we've gone into in our particular plan, perhaps even less I think.

(Witness Watts) Well, again the purpose of the plan is stated in Section 1 where it says: This procedure provides guidance for protective actions that will mitigate the consequences of a radiological release in the ingestion pathway. It is intended that sound judgment and personal assessment of the progress of events will be supplemented

#5-9-SueT 1 with the guidance found in this procedure.

2 So, certainly the judgment and the experience

3 that we have as radiation protection people comes to bear

4 on this situation and how this plan is implemented.

5 Q Dr. Cordaro, you said earlier that in your

6 opinion the fact that in other areas, I guess for other

7 plans, this protective action that we have been discussing

8 is not mentioned, therefore, it need not be mentioned here.

9 Is that your testimony?

10 A (Witness Cordaro) No, I didn't say that exactly.

11 I said in other plans they take it to a certain level of

12 detail and they leave the remaining aspects of that detail

13 to be covered by professional judgment and accepted practices

14 in the field of radioactive,protection against radioactivity

15 and specifically the ingestion pathway in this particular

16 case.

17 Q So, it's your testimony then where there are

18 particular professional practices that those professional

19 practices need not be included in the plan?

20 A Not to any excruciating amount of detail or we

21 could just reprint all the textbooks on radiation protection

22 in the plan. And I don't think that is necessary.

23 Q So that one need not include the full range of

24 protective actions for the ingestion pathway?

25 A Well, the full range of protective actions are

#5-10-SueT

covered in the plan. I think the details of how you approach it from every angle perhaps are not, where an accepted practice is something that is very, very obvious to professionals in the field.

(Witness Watts) Certainly if you read the sentence again that we were talking about in Attachment 7 on Page 19, the full meaning of that is that if things -- if foodstuffs are stored in the open that before you eat them you should remove the contamination, meaning that you should not eat them unless the contamination is reduced or removed some way.

What I was saying is, our experience is that you can't always guarantee a certain level of removal on every kind of piece of vegetation that you might be dealing with.

Q For instance, you can't scrub a head of broccoli?

A It would be very difficult. You can soak it. There are certain things you can do to reduce the contamination. You can boil it. But, you are right. That's a very good point.

And I think the full range of protective actions is covered even in this one case that we are talking about. You are not supposed to be eating this stuff before it is treated. What I'm saying is that we know that certain treatment levels can't be guaranteed so that my judgment, my

#5-11-SueT1

experience, dictates that this should not be eaten if it's above the preventative action level. And any washing or scrubbing that we refer to in the plan could be used once we already know that the contamination levels are below the preventative protection action guidelines.

(Witness Cordaro) In the earlier example I gave about the contamination from weapons testing on Long Island, in that instance the degree of contamination wasn't such that certain limits would be exposed and people would be subject to extreme danger if they consume these products.

However, it was advisable for the people to wash and reduce the degree of contamination so that the dose to people was somewhat less. If indeed the degree of contamination was such that certain limits would be exceeded, or people would receive high doses, absent the provision of washing or scrubbing the vegetables or fruits, then I'm sure they would have been advised not to consume any of these products.

end #5

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Q What you are saying then, is that the levels of contamination from the Chinese testing -- I guess you are talking about bomb testing -- was far below what one would expect from a worst case accident at Shoreham?

A Well, it depends on what your view of a worst case accident is, and we can get into a whole discussion of, indeed, what is released in the event of a worst case accident which I don't want to do here.

But I am sure there are those who would argue with you on a technical basis that probably that weapons contamination is greater than that which would be released in a worst case accident, depending on what your perspective is and what your view of what is indeed released in a worst case accident is.

Q Is that the basis that LILCO used for preparing its plan?

A What basis?

Q The basis that one -- that the worst case accident at Shoreham would not be as bad, would not cause as much contamination as the Chinese testing that occurred, whenever it did occur?

A No.

Q It was based on a wide range of accidents, correct?

A Yes. It was based on the guidelines which have

1 been provided to us for developing emergency plans, and
2 which have been pursued by other operating facilities in
3 the country.
4 Q So the level of contamination that occurred during
5 the Chinese testing is not as much as the upper end of the
6 range of accidents for -- on which this plan is based,
7 correct?
8 A Oh, yes. This plan is based on treating a situation
9 much more severe than what would probably be the case in the
10 event of a worst case accident.
11 Q Let's go to page 23 of your testimony. You
12 are talking about farm stands here. Here, you refer to a
13 list of farm stands attached to the testimony.
14 Mr. Daverio, it is true isn't it that this list
15 of farm stands, which is Attachment 5, is based on a certain
16 guide to food stands published by the Department of
17 Agriculture -- New York State Department of Agriculture --
18 and an article from Newsday dated July 29, 1982, correct?
19 A (Witness Daverio) That is correct.
20 Q Are these the only two sources on which this
21 attachment is based?
22 A Yes.
23 Q Has LILCO made any efforts other than looking
24 at these two sources, to determine the completeness of this
25 list?

A Yes.

Q Will you describe what has been done?

A Sure. We got these lists and were told that these were the best sources of the type of information for Long Island from the Suffolk County Farm Cooperative Extension Agent.

And at the time we prepared the list, they were the best available. In line with keeping the Plan up to date, and doing an annual review of the Plan, we also are in the process of always gathering data, and we do have -- but have in fact additional, more recent information, which will be in the next updated lists, which occur annually.

Q What is the more recent information that you are referring to?

A It is a 1984 Guide To Farm Fresh Food Metro Region that was published about a month ago by New York State, and we have a copy of that, and also we have been in contact with Newsday, discussing when the 1984 article on where the farm stand season on Long Island will be published, and our information from them is they expect it this week or next week. Both of those will be factored into the next update of this list.

Q My question, though, is how do you know whether or not these sources provide you with a complete list of

farm stands on Long Island?

A As I stated, and I think Mr. Porter said earlier, that judgment was left to the Suffolk County Cooperative Extension Agent, who has extensive experience on looking at the farms, and farming, on Long Island, and he told us those were the two sources to use to develop a list of farm stands.

Q But he only told you that those were the most complete listings, right? Not that they were exclusive.

A He provided those to us and said those would be the best thing to use to make up a list that we were requesting.

Q And, therefore, he was not able to represent to you that these were exclusive listings.

A I don't think that I could represent any of our lists are exclusive, but I think we can say with confidence they are the best effort we can make in gathering information and putting together as complete a list as possible.

Q Did you contact county agents from other counties in volved in the ingestion pathway?

A I know we have contacted the Westchester and Putnam, and I believe Nassau County Cooperative Extension Agents.

Q And with respect to this issue of identifying

farm stands?

A I am not sure if we asked them specifically about farm stands. I know we requested agriculture information. I think for farm stands within the fifty mile EPZ, let's say Westchester and Putnam, we relied on the New York State report.

That is the best of my recollection.

Q Do you know how the New York State Department of Agriculture compiles its list?

A No, I do not.

Q So you don't know, Mr. Daverio, whether or not New York State intended this list to be just a guide to some of the better farm stands, or an exclusive list, an exhaustive list of farm stands, do you?

A That is why we, in particularly on Long Island, used the Newsday article. For Westchester and Putnam, I can't say that it is a complete, hundred percent list, but I would imagine it is fairly accurate.

Q That is your assumption?

A Yes, it is.

Q Let's go to page 25 of your testimony. I am sorry. Let's go to page 26. On pages 25 and 26, LILCO answers -- you answer the question of whether or not LERO maintains maps showing land use data, water sheds, water supply intakes, treatment plants and reservoirs.

And the answer is, "Yes, LERO does maintain such things."

They are not in the Plan, isn't that correct, Mr. Daverio?

A That is correct.

Q You talk on page 26 about natural filtration process that occurs when surface water enters the aquifer. That filtration process does not eliminate contamination, isn't that true, Mr. Watts?

A (Witness Watts) What do you mean by eliminate? Do you mean one hundred percent of the contamination?

Q Yes.

A In some cases it certainly may.

Q And in other cases it may not?

A That is possible depending on the radio nuclide at hand. The half-life of the radio nuclide. The amount of time that it takes for the filtration and the downward travel to occur, and the physical chemical characteristics of the soil, and the material that is being filtered out.

But I can foresee for short-lived radio nuclides like iodine, that certainly the hold up in filtration process could be totally effective.

Q Have you made an analysis of how long waterways could remain contaminated in the event of an accicent at Shoreham?

A I have not, no.

Q Has LILCO?

A (Witness Daverio) I am not sure what you mean by, 'waterways?'

Q Such that any source of water, whether it be a well, stream, river, one of the percolation ponds that proliferate out here in Long Island.

A (Witness Cordaro) We have done some studies in the past on migration patterns of contaminated ground water and the dilution effects that occur.

However, we haven't done a specific analysis for the so-called worst case or catastrophic accident which would enable us to put a definitive number or time upon how long a particular water body, or body of ground water would be contaminated.

We could develop that information depending on the sampling that would take place following an accident based on a detailed knowledge of what was released in the accident, and take preventative measures or corrective actions based on what the result of that would be.

For instance, you could treat ground water if it was projected that it would be contaminated for a significant period of time, but I -- I can't conceive of the situation where you have an accident in a power facility and contaminate any significant amount of water

for a long period of time. Drinking water.

Q Well, Doctor Cordaro, are short-lived isotobes, like iodine, the only basis for LILCO's consideration of whether or not water sources would be contaminated or not?

A Oh, no. That would probably be one of our least concerns. It would be more the long-lived isotobes. And the ones that are soluble would be more of a concern than anything else.

Q And if we consider long-lived isotobes like cesium and strontium, contamination of the water sources from those isotobes could go on for a long time? Decades, correct?

A It depends on the scenario you developed. I can't conceive of that situation occurring with any degree of probability, even a very, very remote probability.

A (Witness Watts) I think also what we are saying in the testimony is the real concern, if any concern, is for surface water contamination, reservoirs and so forth, and not the covered water sources or ground water sources that really constitute most of the drinking water supply on Long Island.

For surface water, or open water bodies, these are located at least forty miles away, in the downwind direction if you assume it is going west. In that case also

1 you have the distance and the dispersion of any contaminants
2 should they be carried working in your favor, plus you have
3 an enormous amount of dilution afforded by the volumes of
4 water in each of these different surface water bodies.
5 Q Mr. Watts, is it absolutely inconceivable to
6 you that strontium and cesium could contaminate the water
7 supply in the fifty mile EPZ?
8 A Contaminate? You mean with traces of contami-
9 nation being present? Certainly it is possible traces of
10 contamination could be present.
11 In my mind though, having a major problem where
12 you have to restrict water for a long period of time to my
13 mind is extremely unlikely.
14 Q Doctor Cordaro, since you think it is inconceivable
15 that there could be contamination of water sources from
16 cesium and strontium and other long-lived radio isotobes,
17 isn't that taking a position contradictory to the basis for
18 preparing a plan, which is that you have to prepare for a
19 wide range of accidents, including the worst?
20 A (Witness Cordaro) We prepare for the worst,
21 and it is almost inconceivable. That is how the Plan is
22 designed. I think reality in some instances has very little
23 to do with actually what we planned for.
24 A (Witness Daverio) Mr. McMurray, if you look at
25 OPIP 3.6.6, Attachment 4, we do look at cesium and strontium

in our drinking water protective action work sheet. They are isotobes that we do look at.

And while what Mr. Watts said I think is true; that it is very unlikely, but we still do it.

Q And where such contamination did exist from long-lived radio isotobes, that contamination could go on for decades, isn't that true, Mr. Daverio?

MR. IRWIN: The question has been already asked and answered by Doctor Cordaro.

JUDGE LAURENSON: Overruled.

WITNESS DAVERIO: That contamination could last for a long time, but there may be methods of treatment that could be done to shorten that, or purify the water.

In other words, it is not absolute that your statement is correct.

MR. McMURRAY: Judge Laurenson, this might be a good time for the morning break.

JUDGE LAURENSON: All right. We will take the morning recess now.

(Short recess taken.)

Sim 7-1

JUDGE LAURENSON: Mr. McMurray.

BY MR. McMURRAY:

Q Mr. Watts, when this filtration process takes place we have been talking about, that is when there is material deposited on the ground, contaminated material, and then as the contaminated water moves through the soil some of that material is filtered out, isn't it true that the material that is filtered out in the soil can be brought out of the soil and reintroduced to the environment through the processing of leaching?

MR. IRWIN: Objection relevance.

MR. McMURRAY: Judge Laurenson, I refer the Board to the statement on page 26 where LILCO talks about the natural filtration process that occurs when surface water enters the aquifer.

MR. IRWIN: I understand that, but the mere mention of the word filtration doesn't mean that every phenomenon associated with the filtration has been opened up either by the contention or by the testimony.

The contention, as I understand it, talks about contamination of aquifers and drinking water sources, and if that is what Mr. McMurray is going after, there is no foundation laid for the question, or otherwise I don't understand its relevance at all.

MR. IRWIN: Well, of course, Mr. Irwin didn't

let me ask the foundation question, but all further questions will deal with weather or not one can assure noncontamination of the drinking water through this filtration process.

JUDGE LAURENSON: The objection is overruled.

WITNESS WATTS: I guess I am still not sure what the basis of your question is. I am not sure which way you are going.

MR. McMURRAY: Well, that is not for you to know.

WITNESS WATTS: No, excuse me. My answer, and again I am intersted in giving you my best answer. I have to understand what your interest is in this, and I am not sure what you meant by leaching in this case in the way you used the word.

BY MR. McMURRAY:

Q How do you understand the process of leaching as it refers to contaminants that may have been deposited in the soil?

MR. IRWIN: What a second. Mr. McMurray asked a question using the term "leaching," and I think the witness is entitled to know the sense in which Mr. McMurray intends to use it.

WITNESS WATTS: That is really what I am asking.

BY MR. McMURRAY:

Q And I am asking you for your understanding so

Sim 7-3

that we can come to a common understanding.

MR. IRWIN: If the witness cannot understand Mr. McMurray's question, it is vague and ought to be rephrased or not allowed.

JUDGE LAURENSON: The standard practice that we have used where a question has been asked and the witness doesn't understand a particular word or has a question about the use of the word, the common practice has been to ask the witness what that witness' understanding is of the word. I think that is the practice Mr. McMurray is following here and I don't know of any reason not to allow it.

The objection is overruled.

WITNESS WATTS: I am still having a little trouble, but let me give it a shot.

A case of leaching might be if we have deposition on the ground and perhaps precipitation tends to drive some of that contamination into the ground where it is leaching into the ground.

BY MR. McMURRAY:

Q Can't the process also go the other way where it is leached out of the ground and where it runs into streams or in the case of Long Island settlement basins?

A (Witness Watts) Are you referring to where contamination in the ground is being carried by the movement of water in the ground?

Q This is right.

A Okay, in that sense, yes.

Q So just to clear things up, that is even though material may have been deposited on the ground and didn't necessarily get to underground wells, it can still reach water supplies through the process of leaching, correct?

A After a period of time, and also depending on the kind of material and the chemical characteristics of that material.

Q And where the characteristics are that it is a long-lifed radioisotope, that would be of concern for the ingestion pathway, correct?

A Well, that is one factor. Another factor would be just the chemical chacteristics of that nuclide. Just the chemistry involved might dictate how much hold-up there is in the soil. Certain types of chemicals like cesium tend to be more tightly bound to soil and less transportable than other types of materials.

A (Witness Cordaro) You have to recognize, too, that groundwater movements take a long period of time, very, very long. For water to settle into the aquifers from which most of the drinking water on Long Island is taken from could take years and years for that water to move through the various confining layers, or the

Sim 7-5

contaminated material to move into the various confining layers of the groundwater system.

The way it would work from a practical standpoint in attempting to protect the public from contamination of drinking water from groundwater sources is to survey the ground deposition and if, indeed, there was any significant deposition, to sample the drinking water wells.

Again, we don't anticipate any problems from that. In fact, even with some degree of deposition there may be enough time allowed for decay such that in the event that material did reach the groundwater layers, there would not be any significant threat from dosage due to that material radioactive dosage.

It takes a long time for groundwater to actually move down into the groundwater layers where drinking water is taken from in Long Island. You are talking about wells that are about 240 feet deep where most of the groundwater is taken from.

The immediate concern you have is for a possible shallow well, a well that is used for irrigation or purposes such as that. In fact, that is one reason why these shallow wells are sampling wells which are utilized inour REMP monitoring program.

Q So where the isotopes concerned are long

Sim 7-6

lived ones though, the fact that it takes several years perhaps for the material to get into the groundwater does not mean that the concerning over contamination is eliminated, correct?

A No, you would be concerned and you would sample for it to detect if it did reach the groundwater in any concentrations that would constitute a hazard.

As I said before, you would look for the deposition and if there was deposition, you would follow it up with a comprehensive sampling program lasting over a long period of time to determine whether any hazard, radioactive hazard exists.

A (Witness Watts) This is a normal part of a post-accident follow-up program that would be implemented. Certainly one was implemented at Three Mile Island and one was implemented at Ginna in which I participated in. It depends on the nature of what happened and what levels of radioactivity and what kinds of radioactive substances you would be dealing with.

Certainly if there was the potential that you are referring to, certainly you would be designing a follow-up environmental monitoring program to accommodate that for whatever length of time is required.

Q Is this type of follow-up program set forth in the LILCO plan? And I am speaking specifically of

Sim 7-7

one which would certainly monitor drinking water sources over the course of several years?

A Certainly the initiation of such a program is in the plan, yes. As to how you modify that particular program or perhaps expand it or perhaps relax it, no, that isn't specifically spelled out because again that depends on what kind of situation you are dealing with, but the initiation of the program definitely is outlined in the implementing procedures.

A (Witness Cordaro) It is a routine aspect of the REMP program. We do have a sampling schedule that goes on throughout the life of the plant where we do samply drinking water supplies for the possibility of contamination showing up.

Q You base your sampling, don't you, on the list of community wells and surface water sources which in Attachment 6 to your testimony; isn't that right?

A (Witness Daverio) That is one source.

(Pause.)

I am just flipping to find where we reference that. I think it is referenced on page 28 of our testimony. We also have got a computerized update from the State Community Bureau of Public Water Supply that is the latest up-to-date information as of March of this year on where water is.

Sim 7-8

We also, as we discuss in our testimony, have some Department of Interior information watershed type information where water would flow from rivers to tributaries and how they move around the State.

Q Well, you say, Mr. Daverio, that LERO maintains a comprehensive list of community wells and surface water sources. LERO doesn't have a list of private wells, correct?

A No. Our list would only be community wells. Private wells, if there was an EBS message, everyone would hear about problems with drinking water and also community wells also. So I think people with private wells would be made aware of it.

A (Witness Cordaro) Absent LERO, we have a list for Shoreham of private wells in the vicinity of the Shoreham power plant.

Q I am talking about the ingestion pathway zone.

A Well, these would be part of the ingestion pathway because the list exists. We don't have a list of every private well in the 50-mile zone that I am aware of.

Q In fact, what you have is six wells on site and one well off site that you monitor; isn't that correct, Dr. Cordaro?

Sim 7-9

A As part of the REMP program, yes.

Q Mr. Daverio, are there any EBS messages which advise people with private wells not to drink the water from their wells?

A (Witness Daverio) I think that would be added to any EBS message if we were telling people in the community, a community serving well company not to use water from their well, and we would probably make the same recommendation, depending on the conditions, for people with private wells in the same vicinity of that well.

Q Is there any instruction in the plan to the people developing the EBS messages to include that sort of protective action recommendation?

A If you look at the attachments that you and Mr. Watts were talking about earlier today, there are protective actions for water in there, and the protective action, say in Attachment 8, "Secure outlets of wells for waters identified as contaminated." I think Mr. Watts or any of our rad health coordinators would be aware that there are other wells.

You would call the ones on the community list, but you would also put out an EBS message that would say that anyone in the affected area who has well water shouldn't be drinking from that well.

I think that again gets to the common sense

Sim 7-10

aspects of the emergency plans.

A (Witness Watts) Again, is this an aspect of the plan that we have exercised in recent LERO drills where if there is a particular grouping of protective actions affecting the ingestion pathway, and this could include drinking water. As an example, if we got into a case where we needed to communicate the idea, as is listed on page 18-A of 50 in Attachment 7, water stored in closed containers or vessels prior to the incident may be ingested. This includes refrigerators, storage closed tanks, covered wells, et cetera. That type of recommendation could be included, among others, that is passed along from the radiation health coordinator to the public information people within LERC.

There are several oppprtunities duing the drills that we exercise these types of things where these recommendations are communicated to the public information people for inclusion in emergency broadcast system messages.

Again, when we are recommending limiting ingestion of potable water or limiting the consumption of any other food or milk product, this is a piece of information that is passed along from the radiation health coordinator, discussed in a full briefing and communicated directly to the public information people generating the EBS messages.

Sim 7-11

A (Witness Daverio) I think the thing to realize, as I think we have all testified, is this is not the same as a plume exposure pathway where you are looking to evacuate people in hours. This might be potable water and it might be days before you have a problem. I think people have plenty of time to sit down and compose an EBS message that would effectively get the people to understand the potable water problem.

I don't think this is an immediate concern that you need a prerecorded or prewritten message like we do with other protective action messages.

A (Witness Watts) And again, at the drills, and I am referring to a June drill that was held in 1984 which I participated in where we got to the point in the response where the plume exposure pathway phase was terminating and then we were, as a group at LERO, the senior coordinators and the director or manager all had a briefing in which we brainstormed all of the various recovery actions that would have to be taken with a large emphasis on the ingestion pathway and the need for identifying the protective actions that would have to be taken and the ways in which these actions would be communicated to the general public through EBS and through any other public information means that LERO had at its disposal.

Q Did that include in that drill the question of

Sim 7-12

private wells?

MR. IRWIN: Just a second, Mr. McMurray. I believe Mr. Porter wanted to add to that last answer.

WITNESS PORTER: I just wanted to add that since the topic is wells, and since we are talking about EBS messages that are for immediate problems, it is extremely unlikely that surface deposite radionuclides are going to be able to enter drinking water aquifers in days. We are talking about years and maybe many dozens of years on the average before water would make its way all the way down to the drinking water aquifers.

An EBS is designed for immediate problems and not long-term problems that are a potential for years from now.

BY MR. McMURRAY:

Q Mr. Porter, for those areas which draw their water from surface sources, like reservoirs, it could be an immediate problem, correct?

A (Witness Porter) Immediate from the point of view that it does take a certain amount of time for the plume to make itself all the way up to 40-some miles which I believe is the closest aquifer, surface water aquifer or surface water supply, and the likelihood again of getting any significant amount of deposition 40 miles away is incredible.

Sim 7-13

So, therefore, there is a possibility, and because of that possibility we have done our homework and we have identified all of the water supplies within the 50-mile radius. They are identified and I believe that we have phone numbers of the people that are in charge of these, isn't that correct, Mr. Watts, that are in the plan?

A (Witness Watts) (Nodding affirmatively)

A (Witness Porter) So the plan is up to date as far as the immediate notification of the operators of those particular water supplies.

Q Mr. Porter, what is the basis for your statement that it would take dozens of years for contamination to reach the drinking water aquifers?

A I would like to refer that to Dr. Codaro.

Q Well, wait a second. It was your statement.

A Oh, my statement. Okay, fine. The basis for that statement is just looking at the environmental report where the aquifers are described. I briefly looked at that, and I am not intimately familiar with it, but the feeling that I took away from that was that the water supplies, the drinking water supplies were not in shallow aquifers but were in deeper aquifers.

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Q What environmental report are you referring to?

A (Witness Porter) The LILCO Shoreham Environmental Report.

Q And again what is the basis for your statement, having read this, what information do you have to tell you that it would take dozens of years for the contamination to reach the drinking water aquifer?

A What information do I have?

Q What are the facts, having read this report?

A Well, I just remember a general description of the aquifer. And thinking back to the textbooks c .he amount of time it takes water to reach, you know, surface water to reach deep water aquifers that we are talking about many years. Otherwise, the water wouldn't be pure to drink. You would have bacterial problems.

(Witness Cordaro) There are a number of geological reports on ground water system on Long Island which discusses this in depth, presents transfer coefficients that fit into the models that they use, and discussing ground water movements. And it's obvious from even a casual reading of these that it takes many, many years for any substantial movement to occur in ground water, in confined aquifers in the ground water layers on Long Island.

In some cases, for just a foot or two of movement may take something on the order of ten or fifteen years. We

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produced some detailed reports ourselves in conjunction with the Jamesport situation where ground water concerns were one of the paramount issues in that case where this was discussed in considerable detail.

(Witness Watts) I think you had a question for me also which I never answered. It had to do with LERO drill and whether discussion of ground water contamination was included.

Q The question of private wells.

A Private wells? I do recall that in the drill that I participated in in June that there was a very extensive discussion of the various types of monitoring and environmental concerns that would be a part of the recovery operation that LERO would be getting into. I do recall a discussion on drinking water supplies and the fact that our first priority was going to be surface water contamination with eventual follow-up on ground water if need be.

Again, there was a very brief and general discussion on the fact that because the vast majority of water supply is covered in ground water sources. That would not be an immediate concern for monitoring, but that our focus, should there be any monitoring for water, be on surface water initially. And then once the environmental monitoring program was defined for long term, perhaps the REMP program

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that we had referred to, that would also include ground water monitoring as well. So, at least the initial phase of the monitoring did address the relative urgency of surface water versus ground water contamination.

Q My question though was whether or not the discussions, whether or not the drill focused on monitoring of private wells as opposed to --

A No, it did not focus on that simply because of the relative urgency of checking surface water.

Q Thank you. On Page 29 of your testimony, you state that LILCO's REMP maintains six wells at the site of the Shoreham Nuclear Power Station for routine monitoring purposes.

Mr. Watts, these are onsite, correct? Onsite wells?

A Yes.

Q Monitoring them does not tell you what the contamination could be as far out as fifty miles from the plant, does it?

A It certainly can be used as an indication for any problems with ground water contamination and the extent of the problem is most likely to be close in rather than farther out, so that they can be very useful indicators.

Q Are you saying that the level of radiation for ground water will always be higher on the site than in

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other areas of the ingestion pathway?

A Not in every case. But, in general if you are talking about fifty miles the extent of contamination is likely to be closer in toward the site, not necessarily on the site boundary or within the site boundary, but closer in toward Shoreham than fifty miles out due to the extent of contamination that could be on the ground.

Q How would the wells be used to monitor the ingestion pathway and to determine protective action recommendations for that pathway?

I'm talking about the six wells onsite?

A The monitoring, certainly if there was a concern for ground water, in my mind, LERO would not solely rely on those six wells. But those six wells could be used as an indicator.

And, in fact, one of the wells is located about two miles from the plant. Not all six wells are on the site. Three of them are.

Q Three are onsite?

A Three that I know of are onsite. Yes. I know one is located approximately two miles from the plant.

(Witness Cordaro) One point five four miles from the plant, east southeast.

Q The testimony, Mr. Watts, says that the REMP maintains six wells at the site of the Shoreham Nuclear

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Power Station. Are you changing that testimony?

A (Withess Cordaro) The --

Q Wait a second, Dr. Cordaro.

A (Witness Watts) I will correct myself on that. No, I think the testimony as stated is correct.

Q Let's talk about the one privately owned well. That's two miles in what direction from the plant?

A (Witness Cordaro) As I answered just a minute ago, it's one point five four miles, east southeast of the plant.

Q And that -- monitoring that well would provide useful information only to the extent that the wind was blowing in that direction; isn't that true, Dr. Cordaro?

A If there was deposition as a result of an accident where the wind was blowing in that direction, you would potentially look for contamination at that location, yes.

Q In fact --

A It's not inconceivable, however, because of the way ground water moves that you could have a slightly different direction and still pick up contamination in that well.

Q But this single well located two miles from the plant, you would agree has limited usefulness in determining the extent of ground water contamination; isn't that

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correct, and that limitation is due to wind direction?

A It's not offered as an exhaustive list of where we would sample. It's just that a sampling point, a convenient sampling point where we have a lot of information as to the background radioactive concentrations in that well and one where we would look for contamination if indeed there was any deposition in that vicinity.

We -- if indeed we were concerned about contamination of deep water aquifers, we would sample other locations where significant deposition occurred. This is just one location where we have a lot of information on already and that we would look at in the event of an accident where deposition occurred in that area.

Q But you wouldn't even look at this well if the wind was not blowing in that general direction, correct?

A Probably -- if the wind was blowing in the direction that was totally opposite, for instance, if the accident had a wind blowing in the northerly direction, pushing the plume toward Connecticut, obviously we wouldn't look at this particular well.

However, if there was a southerly component of the wind, we might sample this well.

Q Are there any other privately owned wells outside the LILCO site where, like this privately owned well, there could be an expeditious monitoring to determine what

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the level of contamination was?

A There are other privately owned wells, and we could obtain samples from those privately owned wells.

Q My question is, though, do you treat them the same way as this particular privately owned well which apparently LILCO has predesignated as one which it will monitor?

A Well, the only reason we reference this is because it's in our REMP program, we have a lot of information about it, our sampling teams are aware of where it is, and we can go to it right away.

If indeed it was not useful to sample this well, we wouldn't sample it. We would go to another well that might be a better indicator.

(Witness Watts) I agree with that. We would not limit our interests solely to these single sampling points, but should indications of ground deposition indicate that there was a potential for extensive ground water contamination, certainly we would try to identify as many useful sampling sources as possible for ground water.

As I mentioned before, though, the immediate urgency is to look at what's on the surface, any possible surface water contamination supply, would be the most urgent concern. Ground water could later be addressed. And we certainly would not limit our scope to only these

#8-8-SueT 1 single sampling points.

2 We are simply saying that information from these
3 samples could be useful, depending on the conditions of the
4 accident and which way the wind is blowing. We are aware
5 of that.

6 Q Is there a procedure in the LILCO plan for
7 monitoring these seven wells and coming up with a pro-
8 tective action recommendation, or is this pretty much going
9 to be an ad hoc type of activity?

10 A (The witness is going through a document.)

11 OPIP 3.6.6 does include a procedure for sampling
12 of water, including well water which is found beginning on
13 Page 1.H of 50, Section 5.2.2.

14 Also, for evaluating what to do with that
15 information, Attachment 5 of OPIP 3.6.6 allows the determi-
16 nation of protective actions for foods other than milk.

17 And also for drinking water, Attachment 4 of
18 OPIP 3.6.6 applies directly to the evaluation of drinking
19 water, sampling data.

20 Q I'm talking about the specific wells that you
21 have mentioned in your testimony. Are they specifically
22 referenced in this OPIP?

23 A Those specific wells are not. However, the
24 methodology for obtaining the sample is and would be done
25 in coordination between LERO and the LILCO REMP team, the

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REMP program, the radiological environmental monitoring program.

There is a communication link between the Radiation Health Coordinator and the Environmental Assessment Coordinator, who would be operating out of the emergency operations facility that LILCO would be -- that would be operating at that same time. And the coordination of that sampling would be with the LILCO program.

Whether it was a LERO team member or a LILCO team member that collected the sample, that would be decided at the time.

Q Let me refer you to Page 30 of your testimony. I think throughout your testimony you mentioned that the point you raise here on Page 30, which is that in some circumstances -- at the bottom of Page 30, "In such circumstances, LERO will undertake to purchase the contaminated food item from farmers, vendors, processors and other affected food chain establishments."

Do you see that?

A (Witness Daverio) Yes, I do.

Q Mr. Daverio, there are not any procedures in the plan for how this buy-out program will be implemented; isn't that correct?

A I think if you look in OPIP 3.6.6 where we talk about the ingestion pathway protective action measures,

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which Mr. Watts has been talking about earlier with you, and you go to Page 1.S of 50: Advise that LILCO will compensate for unsalvageable food.

I mean I think we have the procedure to tell them. If you ask me if the procedures include cutting a check, no, they don't. But they do have the procedures in place to tell the people that we will compensate them.

Q But there are no specifics as to how the buy-out program will be implemented? And I'm distinguishing that from just telling people that there will be some sort of buy-out?

MR. IRWIN: Objection. The question was asked and answered in response to the last question.

MR. MC MURRAY: I don't think it was clearly answered, Judge Laurenson.

JUDGE LAURENSON: Overruled.

WITNESS DAVERIO: Would you repeat that, Mr. McMurray?

BY MR. MC MURRAY: (Continuing)

Q While the plan says there will be such a buy-out program there are no specific procedures for how the buy-out program will be implemented; isn't that correct?

It doesn't tell either LILCO or the public how this particular activity will be implemented by LILCO, correct?

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A I don't think the procedures have the detail that you asked me about. They have what I have previously explained.

(Witness Watts) I could add to that. Again, in the last set of LERO drills that have been run, this particular issue was addressed in a full briefing where recovery actions, ingestion pathway actions, were discussed in a fair amount of detail among the Director of Local Response, the Manager of Local Response, and the various senior LERO coordinators, including the Radiation Health Coordinator.

And the particulars of the -- it was decided that the particulars of the LILCO compensation plan would be discussed in detail prior -- and the language for the message would be discussed among these various management representatives before the radiation health communicators initiated their calling of various farmers and food processors.

Again, it depended on the nature of the emergency and the particular language was dependent on what exactly had happened. But the provision again is there in the OPIP 3.6.6 and also Attachment 18 for communicating the specific directive that would be passed along to farmers and food processors.

Q Are you saying that until an actual accident

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occurs that one could not structure the buy-out program and develop procedures for its implementation?

A I think the buy-out program in general is -- has been discussed by Dr. Cordaro and Charles Daverio. The specific language that is communicated, though, would be done after the briefing is held among the various LERO coordinators as to what the communicators are to communicate to the general public on that.

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1 A (Witness Cordaro) One thing that has to be
2 recognized is that this isn't an immediate health threatening
3 type situation. What we want to do initially is to provide
4 assurance to the people producing vegetables and fruits and
5 things of that nature that, indeed, they will be compensated
6 to allay any of their concerns.
7 As far as the details of the program, there is
8 no urgent time element involved here. It would depend
9 on the uniqueness of the situation. Where we set up centers
10 for people to come and with proof of what their losses are.
11 You know, the actual mechanisms for doing so, the locations,
12 would depend on the situation.
13 It would depend on where the contamination
14 occurred. A lot of details which wouldn't be available
15 in advance, and have to be provided at some later point in
16 time.
17 But considering the fact that isn't a health
18 emergency at that point in time, these aspects of the
19 Plan can be developed at that point in time, the time after
20 the accident, rather than have them spelled out in rigid
21 detail in advance.
22 Q I understand from your answer, Doctor Cordaro,
23 that you would agree that mechanisms would have to be put
24 into place for this buy-out program, and that, for instance,
25 as you said people would have to come to certain centers, or

there would have to be some method for them to give some sort of proof to LILCO that they require compensation, and other such mechanisms would have to be put into place before there could be a buy-out program, correct?

A Yes, in sense. But this is no different than the things we have done in other cases. For storms, and emergencies of that general nature where there had to be proof of loss, and then compensation and things of that nature.

Again, it depends on the uniqueness of the situation. The magnitude of the impact. Exactly how many people are you affecting. Where those people are located. Attempting to assure them that they will be compensated on a timely basis, and setting up the most expeditious mechanism for doing so, and that may change with the unique aspects of a particular accident.

From a health standpoint, there is no need to clutter up the Plan with this kind of considerable detail in advance when, indeed, you may change those details depending on the nature of the accident itself. We just don't view it as necessary.

A (Witness Watts) And certainly the buy-out plan is a part of the procedure, OPIP 3.6.6, and the type of issue that we were discussing in the LERO drill was we certainly know that the radiation health communicators

will tell various farmers and food processors that they will be compensated.

But what we were talking about at the briefing was, okay, once that is done, you are still going to be getting a variety of questions from these people as to what their point of contacts are going to be. Where they should go, and so forth, and again it was agreed that that would depend on the type of emergency being dealt with, but the plan itself, the buy-out program, certainly is very much a part of this procedure.

Q The buy-out program, I believe you would agree Mr. Watts, is at least supposed to -- or at least designed to provide some incentive, or to take away the incentive for food producers to put contaminated food into the market. Is that what you would say the purpose of the program is?

A Yes, that is my understanding, yes.

Q And LILCO, wouldn't you agree, has had to resort to this mechanism because it doesn't have the powers to condemn property, or to force people to dispose of food themselves, isn't that correct?

A I am not sure I agree with that, no. I think it is a very creative idea that LERO has come up with to enhance protection of the public, to provide this incentive. And I am not sure that other emergency plans have provided that.

1 I think that is really a very good feature
2 of this Plan.
3 Q That is because other Plans have provided the
4 mechanisms of the police power to make sure that foodstuffs
5 don't get into commerce, isn't that correct.
6 A I am not sure I agree with that.
7 Q Why don't you agree with that, Mr. Watts?
8 A I am not sure that is true.
9 Q Why aren't you sure that is true?
10 MR. IRWIN: I object to this line of questioning.
11 I tried to object, and Mr. Watts answered immediately. Not
12 only is it untimely, but I don't think the question of why
13 this program exists or not is relevant to whether -- what
14 its characteristics are, or in any manner raised by the
15 testimony on the contention.
16 MR. McMURRAY: Judge Laurenson, the witness has
17 already stated that this program is unique. I think I am
18 entitled to probe why it was unique, why it has to be
19 implemented in place of other types of procedures, and
20 whether or not it is going to work. I think the question
21 is relevant and probative.
22 JUDGE LAURENSON: The objection is overruled.
23 WITNESS WATTS: I am not sure I said it was unique
24 in the fact that it is the only case in the country where
25 this happens. I was certainly -- my intention was to say

that I think it is a good feature of the Plan. Simply that.

A (Witness Cordaro) Even in the legal sense, if you condemn certain fruits and vegetables, it doesn't necessarily ensure or guarantee that they are not going to find their way to the marketplace. One good thing about having a compensation program like that is that they have got to produce the material for you to compensate them for it, and if they are receiving the full value of their cost and profit for the crop, there is very little incentive to divert this where it could potentially harm people.

Q That assumes that they can provide the proof that LILCO will deem adequate, correct?

A Provide -- excuse me, I didn't catch the last part of that.

Q That assumes that they provide proof that LILCO deems adequate.

A Well, proof would be the crops themselves. I mean, I don't see any difficulty in that. If the crops are there, we pay them for what exists.

Q And that assumes that they haven't been disposed of.

A Well, if they haven't been disposed of, then we are not going to pay them for it. I mean if they are disposed of in some other manner, where it is possible that

1 they sold them twice, so to speak, then we are not going
2 to compensate them for it.
3 We want proof, or some sort of guarantee that
4 indeed those crops have not been distributed, or sold to
5 someone else.
6 Q Where that type of proof may not be provided,
7 or people are afraid that they can't provide sufficient
8 proof for LILCO, they may go ahead and try to move their
9 produce into commerce, isn't that correct?
10 A I don't know. I mean that is pure speculation.
11 I can't, I am just trying to be reasonable -- we are trying
12 to be reasonable in our approach to this and apply some common
13 sense here, above and beyond the formal legal aspects of
14 condemnation. This is a foolproof way.
15 I know if I was in the place of a farmer and I
16 knew I was going to get full value for my crops, I would
17 not have any incentive to dispose of them in another way.
18 Q What assurance do they have that they will get
19 full value for their crops? The mere fact that LILCO says
20 that?
21 A I guess so. There is no other way, other than
22 to say we will pay them the full market value of their
23 crops, and stand behind our word.
24 Q Is LILCO's financial viability to make this
25 sort of compensation very reasonable, in light of its

1 financial condition?

2 MR. IRWIN: Objection. Relevance.

3 JUDGE LAURENSON: Sustained.

4 BY MR. McMURRAY: (Continuing)

5 Q Do you think that in the aftermath of an accident,

6 that LILCO's assurances are going to be believed?

7 MR. IRWIN: Objection. Relevance.

8 JUDGE LAURENSON: Sustained.

9 MR. McMURRAY: Judge Laurenson, I don't under-

10 stand the Board's ruling. This testimony discusses LILCO's

11 buy-up program, and states that it will substantially

12 reduce the likelihood that the food items will be available

13 for public consumption.

14 This witness has said that people are going to

15 act on LILCO's recommendation. I am trying to find out the

16 basis for that statement.

17 JUDGE LAURENSON: The question of LILCO's

18 credibility is the subject of other contentions which we

19 have already heard evidence on.

20 MR. McMURRAY: Judge Laurenson, the issue of

21 credibility here is one that is subsidiary to the question

22 of how this program is going to work.

23 Now, these witnesses have said this program

24 is going to work. Is the Board saying that I am precluded

25 from going into all, or certain particulars, that will

1 enlighten the Board as to whether or not this program is
2 going to work.
3 JUDGE LAURENSON: The Board has already been
4 enlightened about all the matters concerning LILCO's
5 credibility. I think we have closed that part of the
6 hearing, and we are now on to ingestion pathway.
7 I think if you confine the questions to that
8 matter, we will permit you the leeway we have allowed
9 thus far to question these witnesses. But when you go
10 into areas that are the subject of other contentions,
11 particularly those th-t have already been closed, we
12 are going to sustain objections if they are made.
13 BY MR. McMURRAY: (Continuing)
14 Q Mr. Daverio, how does the LILCO Plan intend
15 to deal with farmers who do not comply, or who do not
16 -- strike that. How does the LILCO Plan intend to deal
17 with farmers who do not participate in the buy-out
18 program because they prefer to move their produce and
19 commerce?
20 A (Witness Daverio) Well, I agree with Doctor
21 Cordaro that I don't see that as a likely scenario. We
22 also in the Plan look at food processors, and if it got
23 to a food processor and he was canning it, or doing
24 something with it, and then going to resell it, and we
25 offered to buy from him, he might sell it to us, if it

1 contaminated, and we offer him the same deal. We do look
2 at food processors, too, according to our Plan.
3 So, we have the second layer of defense. That
4 if the farmer moves it, we may catch it at the food processor.
5 A (Witness Cordaro) It is hard to conceive of that
6 kind of a situation. Especially when there is going to be
7 publicity, that in fact, certain vegetables and fruits might
8 be contaminated. The farmer takes a risk in trying to move
9 it and not having it sold, as contrasted to selling it to
10 the Company.
11 Q I guess it is fair to say then, Mr. Daverio, that
12 you are not really planning for that contingency , correct?
13 A (Witness Daverio) I don't think I said that.
14 I said we would have a second layer of defense, and that
15 we also go to the food processor, where the food would be
16 moved to, and then we would look there, and if it was
17 contaminated, we would offer to buy it from him.
18 I also agree with Dr. Cordaro, as I stated, I
19 don't think that is very likely that a farmer would be
20 doing that.
21 Q Food doesn't necessarily move directly to a
22 processor, right? It could move from the farm stand
23 to a consumer.
24 A It could. There would be an EBS message out
25 to consumers that you shouldn't be -- or should be washing
or scrubbing -- or you shouldn't be eating certain types of

1 food also.

2 That is all part of the Plan. So I think the

3 Plan has that eventuality built in, because we have many

4 ways where we look at the food, and many ways of giving

5 people advisements on what to do.

6 So, I think like Dr. Cordaro that there would

7 be so much publicity, I think most farmers would feel more

8 secure in trying to get full compensation from us than

9 moving it, and finding problems with moving their stock,

10 or their food.

11 Q Let's move to page 32 of your testimony. With

12 respect to poultry farms on Long Island, are there -- are

13 you aware of any -- strike that. Let's go to your testimony

14 on page 33. Here we discuss the possibility that wild water

15 fowl, like ducks, could become contaminated.

16 How is it that LILCO intends to notify areas

17 beyond the ingestion pathway which contaminated animals

18 might move.

19 A (Witness Daverio) I would see us, in that

20 instance, if we thought it was the migration season and

21 there were ducks moving through our area, where there may

22 be a problem with contamination based on analyzing results

23 of ground deposition, we probably would work through the

24 Firm Rap program, and talk to the Federal agencies, Game

25 and Wildlife, and maybe the other agencies through FEMA, to

find out where they think those migrating patterns may be occurring, and through that -- through coordination with the Federal agencies hopefully get messages out to the areas where those ducks might be going, and inform people that before they eat a duck they might want to have it checked for contamination.

That that would be a method we could use.

Q There are no procedures in the Plan for that, isn't that correct?

A No, that would be common sense.

Q Furthermore, -- you are saying there are things in the Plan, then, Mr. Daverio, that are not common sense?

A I think we have stated before that not everything that you can think of is in a Plan. If you are worried about migrating ducks, what we would do at that time is work through FEMA. We don't try to write every possible contingency that anyone could ever think of into a Plan.

Q There is no way for LILCO to really track these types of animals that might be moving out of the ingestion pathway, isn't that correct?

A The way of tracking them is by knowing or looking up, or discussing with someone who knows their migratory patterns, and getting a general feel for where they may be migrating to, and based on that making some judgment as to what to do based on those conditions.

Q LILCO has no intention of tracking these types of animals, right?

A No, we do not.

A (Witness Porer) I would like to add that by nature the fact that these are migratory animals, and being a hunter, they seem to spend very little time in any one place. They stop, they feed, and they continue on with their migration.

And, therefore, the likelihood of having any kind of significant uptake, or any prolonged feeding in one place, is extremely low. So, we are talking about a very, very low probability here. And has been stated earlier in the testimony, if there were some incredible ground deposition involved, then we would ask Firm Rap for help in this very, extremely unlikely circumstance.

End 9.
Mary fols.

Q You do admit though that they would stop and feed in the ingestion pathway, correct?

A (Witness Porter) For an extremely short amount of time. They are migratory.

Q And don't migratory animals stay in Long Island for periods of days sometimes?

A Possibly. Usually they top overnight and keep going.

A (Witness Watts) Again as a radiation health coordinator if the conditions of the emergency and the resulting contamination levels were that high where migratory animals were of a concern, that is certainly something that LERO would take up with the cognizant organization or agency that has the capability of assessing that situation and tracking it appropriately, whether it is the Department of Interior or any other member agency of the FRERP which is the Federal Radiological Emergency Response Program.

If we think that is a problem, we will do everything we can to track it and to resolve it.

Q Mr. Watts, the same problem occurs with fish, doesn't it, that is that they are migratory and can move in and our of the ingestion pathway, correct?

MR. IRWIN: Objection. That is beyond the scope of the contention.

Sim 10-2

MR. McMURRAY: I don't understand Mr. Irwin's objection. Not only are fish mentioned more than once in the testimony, but it is also part of the contention.

MR. IRWIN: I would like Mr. McMurray to point me to where it is. I would refer to Contention 82 which Suffolk County withdrew which specifically referred to the confiscation of fish or other sea life in Long Island which may be contaminated.

MR. McMURRAY: I am referring specifically to LILCO's testimony which talks time and again about commercial fisheries, fin fish and shell fish and also has apparently a provision or a list of fisheries.

MR. IRWIN: The references in the testimony are the compensation, as I recall, of fish and fish products from entities within the 50-mile EPZ.

There was a separate contention, Contention 82, which discussed migratory fish and sea life which was withdrawn by Suffolk County. I think these are two clearly different issues and it is not within the scope of Contention 81 as we have ever understood it or as we have addressed in our testimony, and I just think it is outside the scope of everything except the withdrawn contention.

MR. McMURRAY Well, to the extent that Mr. Irwin thinks that statements about fish are irrelevant,

Sim 10-3

then I assume he will withdraw all refernces to fish and shell fish and what-not from LILCO's testimony.

MR. IRWIN: I don't want my remarks mischaracterized by Mr. McMurray.

JUDGE LAURENSON: The objection is sustained.

BY MR. McMURRAY:

Q You state on page 32, Mr. Watts, that commercial fisheries will be compensated for the loss of food that becomes unsalvagable. Do you see that?

A (Witness Watts) It is in the second paragraph of page 32?

Q That is right.

A Okay, yes.

Q Does LILCO have a list of all of the fishermen who work in the 50-mile EPZ?

A Of all fishermen, individual fishermen?

Q Commercial fishermen who work within the 50-mile EPZ.

MR. IRWIN: Is there is a intention to distinguish between commercial fisheries and commercial fishermen? The testimony refers to commercial fisheries.

MR. IRWIN: Yes, and the question was about fishermen.

WITNESS WATTS: A list of fishermen, no, I don't believe so. I am not aware of that. However, I

Sim 10-4

1 might add, if there is a concern with the possible
2 contamination of fish, again the OPIP 3.6.6 does address
3 that, that monitoring would be performed and advisories
4 communicated to various parties that may be fishing in
5 surface waters that contain the potentially affected fish.
6 Q But LILCO has no way of identifying who these
7 people are, correct?
8 A At any given time, no, other than relying on
9 the emergency broadcast system and getting the word out
10 and implementing monitoring as readily as possible.
11 Q How does LILCO know who to monitor if it
12 doesn't have a list of commercial fishermen?
13 (Pause while the witnesses confer.)
14 A (Witness Cordaro) Our intent would be to collect
15 samples of marine life and analyze those samples to determine
16 if indeed there is a contamination problem. We would sample
17 seawater, we would sample mollusks, we would sample fin
18 fish, all indicators of potential marine contamination.
19 Q But you would not necessarily monitor the
20 fish that may have been caught and may be moved into
21 commerce, correct?
22 A Well, you would monitor indicator organisms
23 and if the indicator organisms showed that there was
24 a contamination problem, then you would take additional
25 steps. These indicator organisms would alert you to a

Sim 10-5

potential contamination problem in advance of fish on a wide scale being contaminated. You would look at the concentrator organisms so that you would see this potential contamination in advance of contaminated fish actually finding their way to the marketplace.

A (Witness Watts) I could foresee this to be a fairly simply thing to do. If you are talking about a plume heading over Long Island Sound, for instance, then we are really not dealing with any immediate concern of having a lot of survey teams out over the land area doing an extensive amount of monitoring, but instead could focus our attention on all of the incoming points where fishing boats would be coming back to shore and principal harbors and doing sampling in suitable numbers of sample of different marine life coming back in on these boats.

Also, the word could be passed along through EBS, as I mentioned, by the Coast Guard which would also be called upon to assist in the response.

Q You would agree that within the 50-mile EPZ fish could move from place to place, correct?

A That is true.

Q Now how is it that LILCO could know whether or not a fish which might have been caught in an area where the plume did not pass had not previously been

Sim 10 6

through an area where the plume had passed?

A Because I think we could cover that situation by monitoring a number of principal incoming shipping points along the Long Island Sound to account for that eventuality or that possibility.

Q I don't understand what you are saying. How would you know that the fish which may have been caught far from the area over which the plume had passed had not in fact passed through that area?

A (Witness Cordaro) That wouldn't be necessary. What you would do is you would monitor in the vicinity of where the plume passed. You would determine whether there was a contamination problem, and if there was a contamination problem, then you would take steps to control the marine life in the entire area, for instance, all of the fish caught in Long Island Sound, the Hudson River and lower New York if indeed it was a contamination problem in ar area where these fish might have passed through. That is what you would do.

It wouldn't be as difficult a problem to control as one might imagine because there are central marking points where most all these fish are diverted to, and you could go to those marketing points and make offers for these catches from the commercial fishermen as they come in. For instance, the Fulton Fish Market is the most

Sim 10-7

outstanding one you can think of. Most all of the fish caught on Long Island go into the Fulton Fish Market.

A (Witness Porter) I would like to add to that two things. No. 1, there is a great deal of experience involved in looking at both aquatic and marine life and in looking for indicator organisms. There are a number of non-mobile indicator organisms that you would normally look for such as all types of shell fish.

They also have much greater reconcentration factors involved for the radionuclides involved than do fish. So, therefore, the likelihood of build-up in the indicator organisms is much greater and they give you much more information about what you are likely to see for the whole fish population.

This whole study has been well looked at in many, many different types of environments, and the technology is well understood. So that it isn't as big a problem as you might superficially think.

A (Witness Cordaro) That is how our REMP program is designed with those in mind. We have singled out indicator organisms that will immediately demonstrate whether there is any potential contamination of the environment, and in that program you would take special care to look at the high concentrators, the shell fish in particular, as Mr. Porter indicated.

Sim 10-8

A (Witness Watts) But also for perspective, given the fact that there is a certain amount of reconcentration among marine life, and given that you have an airborne release over Long Island Sound, as an example, you still have an emormous amount of dilution that would occur from the deposition of this material onto surface water and then the mixing with the millions and millions of gallons of water that are in Long Island Sound.

I think the dilution would most likely more than compensate for any reconcentration that could occur, although to be sure, we would go and look for these indicator organisms as well as fish.

Q Mr. Porter, monitoring shell fish would not give you any inication of whether fin fish caught in one place had actually moved through the area of contamination, would it?

A (Witness Porter) No. It would give you an upper limin on what the activity of the fin fish might be had they stayed in that area.

Q Let me refer you to page 35 of your testimony. I am not sure who sponsors this, but you say that DOE would provide additional personnel if necessary from remote locations with sufficient time to monitor the ingestion exposure pathway. Do you see that?

Sim 10-9

A (Witness Daverio) Yes, I do

Q How many additional personnel are committed by DOE?

A My understanding from conversations with DOE and being at conference they held is they have significant numbers. I don't have a number. On this point when you are talking about time, having time to bring them in, they would be bringing people in from their labs in Las Vegas and all around the country if you needed them.

DOE would bring the entire resource of DOE to bear on a problem if they had to. That is what they have told us. I have been at conferences where they stated that.

Q In that included in any agreement that LILCO has with DOE?

A The DOE from my unmderstanding from talking to DOE and reading their letter is they will do anything that is required to protect the health and safety in an immediate nature, whatever that is, and that is what the letter they have with us I believe states.

Q Does it specifically state that they would provide more personnel than the ones stationed at Brookhaven?

A The letter doesn't specifically state that, but based on conversations and conferences I have been at, I am sure they would. Also, if you read the Federal

Sim 10-10

Register master plan, I think from that you can infer they would bring their total resources to bear.

Q Let's go to the master plan for a second. This is Attachment 7 to your testimony?

A I believe that is correct.

Q This is still a draft plan, correct, Mr. Daverio?

A Yes. I think they have a current plan in effect, or previous, that is dated December 23rd, 1980. This is still a draft plan, but it is our understanding from conversations with FEMA that they expect to have this or some very close verision of this out by summer.

Q So this plan could be amended?

A Correct, but they have a previous plan that is in effect right now. This plan was actually put together, as I think it is stated in here, to be tested at the St. Lucie exercise.

A (Witness Watts) We did have a conversation with a cognizant FEMA representative who is noted on the Federal Register notice that we have in the attachment. He indicated that he does not expect any significant changes to the plan as it is written. He said there may be some very minor amendments, but no major changes in the structure or function of the organization that is described.

Sim 10-11

Q Now, Mr. Daverio, let's look at the first column of Attachment 7. Down towards the bottom of the last full paragraph, the last sentence says that "The FRERP was intended to facilitate and clarify the federal role and mechanisms for providing support to state and local governments in a major radiological emergency if federal support is required," correct? Do you see that?

A (Witness Daverio) Yes, I do.

Q Okay. It doesn't mention anything about providing support to a utility, does it?

A If you will give me a second, please.

(Pause.)

I think if you go on and you look further into it on page 3580, the middle column, item 3, it says "The Federal Government will respond when a state or other governmental or regulated entity requests federal support."

Being a regulated entity, I think we fall under that purview.

I think Item 5, if you go on to read, also would lead you to believe that we fall under this.

Q Where were you reading from again, Mr. Daverio?

A Page 3580, the middle column, item 3, it is No. 3, the first sentence, and Item 5, which states, "The owner or operator of an activity, either private or

Sim 10-12

authorized or regulated by the Federal Government can ask for assistance directly from the appropriate agencies."

So I think under those two paragraghs we would fall under this Federal Register notice.

(Pause while counsel confer.)

Q Wouldn't you agree though that the FERP presupposes state and local government participation, Mr. Daverio?

MR. IRWIN: Objection. I think this question is about to start calling for legal conclusions from the witness. The witness has already answered a question as to whether or not utilities or non-governmental entities are entitled to request assistance under the plan or whether the plan applies to them.

I think the language of the plan either speaks for itself or is a matter for legal argument.

MR. McMURRAY: LILCO has appended this plan to its testimony in support of its argument that it has other resources to draw on, and I am trying to probe whether it does have those resources.

MR. McMURRAY: And Mr. Daverio has just indicated his belief that it does.

JUDGE LAURENSON: The objection is sustained.

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#11-1-SueT1

BY MR. MC MURRAY: (Continuing)

Q Do you see the statement in the middle of the column, last sentence on Item 3, Mr. Daverio, that any Federal response will be closely coordinated with the State and local governments concerned?

Do you see that?

A (Witness Daverio) Yes, I do.

I don't think our plan precludes the Federal government if they respond for our plan of informing the State and local government of what's going on.

I think that falls under Paragraph 5.

(Witness Cordaro) Especially in Paragraph 5 when it refers to the fact that an owner or an operator of an activity requests this assistance. The sentence, which follows the one which Mr. Daverio quoted, indicates that such requests for radiological monitoring assistance or both, in such requests the effected State and local governments will be informed that such assistance was requested.

MR. MC MURRAY: Judge Laurenson, just a moment while we check our notes.

JUDGE LAURENSON: Sure.

(Pause.)

MR. MC MURRAY: Judge Laurenson, the County has no further questions.

#11-2-SueT1

JUDGE LAURENSON: Mr. Zahnleuter.

CROSS EXAMINATION

BY MR. ZAHNLEUTER:

Q In connection with this testimony, have any of you visited any of the dairy farms or other farms or milk processing plants within the fifty mile EPZ?

A (Witness Daverio) I have not.

Q Is that a collective no from everyone?

A (Witness Watts) I have not.

(Witness Porter) I have not.

Q Has anyone on --

A (Witness Cordaro) Not with the development of this testimony, but myself and maybe others on the panel have had occasion to visit these farms for other reasons.

Q I should also state that I mean the OPIPs that you attached to your testimony, too.

And I also would like to ask you if anyone on your staffs have had an occasion to visit these places in connection with this testimony?

A We have occasions to visit a lot of these farms as part of the REMP program where we collect samples of seasonal produce on a routine basis, and so those farms are visited regularly.

Other than -- of course, the dairy farms, too. Samples of milk. To my knowledge -- or, I, in the preparation

#11-3-SueT

of this testimony, I didn't make any special visits to any of those facilities. I don't know if anyone else did.

Q And the answer is the same for the rest of you?

A (Witness Daverio) It is for me.

(Witness Watts) Yes.

Q Some of you, in response to Mr. McMurray's questions, stated that you had an understanding of the geology and hydrology on Long Island.

Do you have an understanding of the geology and hydrology of the counties of Westchester and Putnam?

A (Witness Daverio) As I think we stated, we have a map that is put out by the Department of Interior, which gives us the water patterns in all of New York State, including those counties which we have for use at the EOC. I think we have also identified the reservoirs up there and have those included in our plan, by conversations with officials in New York State and looking at the Atlas. And to that extent we have knowledge of it.

(Witness Cordaro) The main distinction to be drawn is that the upstate sources of drinking water come primarily from surface water sources. And those on Long Island come from wells.

Q But there are community wells and private wells

#11-4-SueT1

in those counties; is that true?

A (Witness Cordaro) I believe so, and I think we have them attached to the testimony, those that exist.

(The witness is searching through papers.)

Q It's not necessary for you to find them, Mr. Daverio.

Yesterday, in response to a question by Mr. McMurray, Mr. Watts, I believe you stated that there would be no problem if the corners, fringes, or part of the surface area of stored feed were contaminated.

Are you aware that silos by design are intended to have ventilation systems so as to reduce the threat of spontaneous combustion?

A (Witness Watts) Yes, I'm aware of some precautions that have to be taken for the buildup of gases in silos. But, my response was in terms of the protection against particulate deposition.

Q Are you saying that it's an assumption that the air that is brought into these silos will be filtered or will not contain any particulates?

A No, I didn't say that. What I was referring to is the fact that the bulk of the stored feed is not going to be affected by the contamination even if the outer covering of it was to some extent.

In terms of the overall mass of the stored feed

#11-5-SueT

1 that would be consumed, it would be uneffected.

2 Q Well, wouldn't you really need to know the

3 amount of stored feed that would be possibly contaminated

4 on the edges, the fringes and the surface area?

5 A I was responding yesterday to the situation

6 where you have many, many pounds of stored feed on hand.

7 And that the surface area contamination would likely to

8 be very small relative to the mass.

9 No, I don't think that's important in every

10 individual case.

11 Q Is there an underlying assumption in your

12 statement that the stored feed is used at one time?

13 A I'm not sure I understand.

14 Q Are you assuming that the stored feed which

15 contains contaminated material on the fringes and contains

16 uncontaminated material on the inside, if you will, are

17 you assuming that that stored feed would be provided to

18 the animals over a long period of time?

19 A I wasn't make any particular assumption.

20 Q Wouldn't it be reasonable to assume that the

21 amount of stored feed consumed in one day would not be

22 the amount of stored feed that was contained in the entire

23 storage facility?

24 A I think that's reasonable to assume.

25 Q And would that bear on your statements?

#11-6-SueT 1 A I'm not sure it would.

2 Q Why not?

3 A I guess I don't understand the intent of your

4 question.

5 JUDGE SHON: Excuse me, Mr. Zahnleuter. I

6 think maybe I can clarify things here.

7 I believe Mr. Zahnleuter is driving at the idea

8 that it may be that the most contaminated portions of

9 stored feed would be used first, since presumably they

10 are the portions that are most exposed to the atmosphere

11 and most readily accessible to a shovel or a pitchfork or

12 anything like that.

13 So that I think he was suggesting that the un-

14 equal or inhomogeneous distribution of fallout material

15 in the feed might mean that the cattle would be getting

16 over a short run, a few days or something like that, feed

17 that was much more highly contaminated than the average.

18 Is this not true?

19 Is that what you were driving at?

20 MR. ZAHNLEUTER: Yes. That's a good, accurate

21 statement.

22 WITNESS WATTS: Assuming that was the intent of

23 your question, yes, I think that possibility certainly could

24 happen. However, again it depends on how that feed is

25 administered and how exactly you use that shovel, and how

#11-7-SueT1

you attack that pile of stored feed. So, it may not always be the case.

(Witness Cordaro) Of course, it's going to be less severe than if the animals were grazing in the pasture where everything they eat would be contaminated. On top of this, you know, we do have a monitoring program which backs this all up.

The recommendation for stored feed is to minimize the potential for any radioactive contamination of the ultimate product. But on top of that, we are monitoring the product and we are monitoring deposition. So, we do know if there is a problem occurring that we have overlooked as a result of relying on the concept of utilizing stored feed.

Q That's true, Dr. Cordaro. I am asking about stored feed and not deposition in the open pasture.

But, Mr. Watts, is it your understanding that the provision of contaminated feed for several days, if it came from a large silo such as the one that we have been discussing, is it your understanding that that would not be a problem?

A (Witness Watts) I don't think that would be a problem. I just don't think that that's -- that there is a high likelihood of that happening.

Even if there was some amount of contamination

#11-8-SueT

introduced into the milk animal, again that's going to be checked afterwards. We are going to confirm whether, in fact, there was a problem.

But relative to what would be outside in that situation, the potential for contamination would be far, far less.

Q Now, on Page 13 of your testimony, you describe how LILCO will use survey teams to sample milk at processing plants.

Are milk processing plants entities upon which LILCO relies in order to implement the LILCO plan?

A (Witness Cordaro) You mean in the same sense as we rely on the Coast Guard and we rely on the Red Cross?

Q Yes.

A No.

Q If the milk processing plants were to deny LILCO access, would you still be able to implement the plan as it exists now?

A That's the second layer. Actually, we try to sample the milk in the field as it's taken from the animals out at the local dairy farms. The processing is the second layer of monitoring which we carry out to insure that we are not overlooking anything. Of course, if someone should arbitrarily deny us the right to take a sample, it

#11-9-SueT

makes things a little bit more difficult. I can't imagine that occurring.

If there is a health concern, I can't imagine any responsible processor denying us the right to take the sample, especially if we are going to offer compensation in the event that there is contamination.

(Witness Porter) I would like to expand on that. In looking at the big picture, it's actually the fifth layer. The first layer is monitoring the releases as they leave the plant. The second one is monitoring the air in the environment. The third is monitoring the ground deposition. The fourth is monitoring the milk. And the fifth is monitoring the process.

So, there are many places to look for contamination.

Q Well, Dr. Cordaro, do you have any -- does LILCO have any agreements with these processing plants to insure that access would be guaranteed?

MR. IRWIN: Objection. Relevance. The panel stated that they are not organizations on which LILCO relies to implement the plan. And I'm not aware of any need for agreements with other entities.

MR. ZAHNLEUTER: Well, Dr. --

JUDGE LAURENSON: The objection is overruled.

WITNESS CORDARO: No, we don't nor am I aware of

#11-10-SueT1

any other plan where such agreements exist.

BY MR. ZAHNLEUTER: (Continuing)

Q Now, at the bottom of Page 13, the last sentence says that, "Environmental survey teams would also take milk samples from tank trucks to the extent practicable."

Could you explain what you mean by "to the extent practicable?"

A (Witness Watts) This is another level of defense, if you will, for monitoring or catching the quantities of potentially contaminated milk, either you would take a sample from a tank truck that was leaving a dairy or you would position yourself at a milk processing plant and monitor incoming milk shipments on tank trucks as they were coming into this processing plant.

So, in terms of strategy that's how you would do it. To the extent that you could do that, that is another level of defense, in addition to monitoring milk at dairies and the processing plants themselves.

Q Would it be fair to say that it means you would take samples from the trucks, catch-as-catch-can, or whatever trucks happen to be in the area when you were there?

A (The witnesses are conferring.)

(Witness Porter) The normal concept here is that you would concentrate on the milk pathway in the areas where you have known ground deposition and, therefore, some

#11-11-SueT1

kind of reasonable probability for contamination of the milk. And so, first of all, you would look at ground deposition. Then, you would look at the individual dairies and you would also follow that milk chain through and make sure that some didn't slip by. And, therefore, you would concentrate on the trucks from the dairies in the area where there was ground, high ground, deposition.

So, the concentration would come from the indicator of ground deposition.

MR. ZAHNLEUTER: I move to strike that answer, because I don't understand how it relates at all to the meaning of the term that I'm trying to probe, to the extent practicable.

MR. IRWIN: The question pending was, I think, a contrast as to whether there is going to be some form of organization or structure or whether it's going to be, as I recall it, catch-as-catch-can. I think it was responsive to that question.

MR. ZAHNLEUTER: But the former organization was with respect to the tank trucks. I think that the answer described a big process before we even got to the stage of tank trucks.

JUDGE LAURENSON: The motion to strike is denied.

#11-12-SueT

BY MR. ZAHNLEUTER: (Continuing)

Q Well, Mr. Porter, are you saying that you would take -- LILCO would take a sample from any tank truck that happened to be in the area when LILCO's survey teams came?

A What I'm saying is that the monitoring regime would concentrate on areas where there is a high probability of having contaminated milk. And what the experience at TMI was, even so there was no significantly contaminated milk, in the areas where we thought it probable that it might have occurred what we did was to find out the pick-up schedules of the tank trucks for the effected farms. We are not talking about many farms here. As you know, there are very few. And so that's not a difficult thing to do to find out what those particular delivery schedules are.

They do vary from season to season and from time to time. And, therefore, you cannot far ahead of time ascertain what they are. So, you have to find out where the high probability of milk contamination is and then ascertain the schedule and then make sure that you get that sample.

Q Is that procedure anywhere in the plan? Is that an assigned function of any person in LERO?

A (Witness Watts) In OPIP 3.6.6., Page 1-H, one of the additional pieces of data that you would get when you are doing milk sampling, if you are sampling from

#11-13-SueT1

a truck is to get data from the truck driver regarding the license number and the various farm sources supplying the contents of that tank truck. That's a useful piece of additional data that you can use in addition to the data that you are gathering from farms and from the processing plants themselves.

end #11

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1 You are catching it at the origin. You are
2 catching it at the processing plant, and to the extent
3 that you can sample individual shipments and individual
4 batches, if you will, that is useful to know.
5 Q I don't want to dwell on this, but how is the
6 truck license number going to give someone an idea of the
7 schedule of pick ups of milk?
8 A It doesn't obviously. I was referring to
9 additional pieces of information that the survey team can
10 gather upon taking the sample from the truck, and as Mr.
11 Porter also spoke, the schedules can be ascertained from
12 talking with the individual dairies upon contact through
13 the use of Attachment 18.
14 Q Okay, let's move on. On page 16, it contains
15 a reference to providing dairy animals with water from a
16 covered source. What assurances are there that dairy
17 farmers will have the capability of providing water from
18 a covered source?
19 A As we have said elsewhere in the testimony,
20 the vast majority of the drinking water supplied on Long
21 Island, and within the fifty mile EPZ, is from ground water,
22 which is already covered. It is a covered water source.
23 Should there be isolated instances where there
24 may be surface water bodies from which the water is
25 gathered--the supply of water is necessary to the animal.

And to the extent that you can have covered water sources the farmer should use that.

Q Well, aren't you assuming that the farmer is providing his dairy animals with water from a covered source?

A We are not necessarily assuming that. But that is an additional bit of information that can be passed along, and is detailed in the OPIP 3.6.6. as a piece of information to be communicated through the use of Attachment 18.

A (Witness Cordaro) I think what we are saying is that if he has the option, he should utilize the covered source, if he has the option of being able to do so.

Q And do you have any basis for asserting that farmers generally have such an option, Dr. Cordaro?

A Well, on Long Island they would. You don't have any major dairies on Long Island. You would have to assume that a major dairy would have to have provisions for handling drought type situations, and the ability to provide well water or some other kind of covered source of water for his animals in the event of a situation occurring such as a drought, where surface water wouldn't be available.

Q Again, this is an assumption on your part, and you have not discussed this or been to the farms.

A Yes, it is. It is an assumption, but what we

are talking about here is a preventative measure, and if this option is available, then the farmer can avail himself of this option to minimize the potential for contaminating the animals.

If he can't, then the product is going to become contaminated in the event of a significant incident, and we will have to compensate the farmer for that product.

Q Also on page 16, there is a discussion of washing and scrubbing dairy animals.

Now, Mr. Porter, is it really your testimony that washing and scrubbing a dairy animal is a simple process?

MR. IRWIN: I believe that was Mr. Watts' testimony, but --

MR. ZAHNLEUTER: Either one. I thought both had answered Mr. McMurray's questions in that area.

WITNESS WATTS: I wouldn't characterize the technique to be used as highly unusual, no. There are conventional techniques for decontamination that can be used.

BY MR. ZAHNLEUTER: (Continuing)

Q Now, Mr. Porter, I believe it was you who stated that you had some information about beef production from the County Ag. Agent, is that correct?

A (Witness Porter) Yes. I had this from tables

1 that had been supplied to me by LILCO.

2 Q Did you personally talk to the County Ag. Agent?

3 A I did not personally talk to him, no.

4 Q So, how did you find out that there is no

5 significant beef production, as you state in your testimony?

6 A Because of the fact that the statement was made

7 to the person performing the survey, and he carefully noted

8 it.

9 Q So that person noted it, and then that person

10 directly turned the information over to you?

11 A Yes. The other thing is that having spent three

12 summers on Long Island, one rarely sees a beef cow is the

13 other point.

14 Q Did the person at LILCO who told you of his or

15 her discussion with the County Ag. Agent also state anything

16 -- or state whether there was an inquiry concerning the

17 sale of calves for veal?

18 A He did not state that, no.

19 Q And by, 'calves,' you understood that I meant

20 both calves from beef cattle and calves from dairy cattle?

21 A I understand it now.

22 Q And is your answer still the same?

23 A Yes.

24 Q Now, on page 18, at the very top, there is a

25 discussion of the FDA's preventive and emergency protective

action guides with respect to radioactive milk, water and

other foods.

Could you tell me, in the LILCO Plan, will LILCO rely on the preventive protective action guides, or the emergency protective action guides?

A (Witness Watts) I am not sure I understand your question. What do you, 'rely?' Both are certainly built into the plan as guidance.

Q Okay. That is what I observed, in OPIP 3.6.6, in Attachments 1 through 5, there are procedures to determine both the preventive protective action guide and the emergency protective action guide.

And those guides are different by a magnitude of about ten, I recall. Which guide will LILCO use when it implements its Plan?

A Well, both are in there because both are dependent on the concentration that would be found in the particular material being sampled, and both are in there because the technical basis for both are based on different doses to the whole body, other organs, or the thyroid.

And depending on the level of contamination, the preventative action guide or the emergency action guide may apply.

It depends on the level of contamination.

Q Could you give me an example?

A Yes. If you will look on page 10 of 50, in

1 Attachment 3, of OPIP 3.6.6, or rather page 9 of Attach-
2 ment 3, and if we take the example of Iodine 131, looking
3 at ground deposition as an example, the units of micro-
4 curries per square meter, now there are really two ways
5 that we can handle this situation.
6 First of all, we have to evaluate the number
7 of microcurries per square meter of Iodine 131 that could
8 be out there. We can do that first by calculation by
9 using OPIP 3.5.3, which is also attached to our testimony,
10 which provides a means of estimating the level of ground
11 contamination that could be present at that given location.
12 And that projected number would go under the
13 projected column for Iodine 131 which you see.
14 We also have the option, and in fact, would
15 very expeditiously get information as to measured levels
16 of ground contamination in the environment, and certainly
17 could use that information as a means of judging whether
18 the number of microcurries per square meter were below
19 the preventative action guides, which are listed in the
20 next column, or below or above the emergency protective
21 action guides.
22 Q Let me focus in on this. Assume for me that
23 the measured value of Iodine 131 was 1.0 microcurries
24 per square meter. How would you use the preventive and
25 emergency protective guides to make a decision?

A Well, the procedure on that worksheet tells you what to do for evaluating the amount of ground contamination that there is for a given radio nuclide.

And again, we would take the number that you refer to of one microcurrie per square meter would fall above -- excuse me -- it would fall between the preventative action guide and the emergency action guide, which would mean that we have not hit the emergency action guide for either the infant or the adult, so we would take the appropriate action that is dictated by the preventative action guide for ground contamination.

Q So, you would ignore the emergency protective guide?

MR. IRWIN: Objection. That mischaracterizes the witness' testimony.

JUDGE LAURENSON: Overruled. You may answer.

WITNESS WATTS: I am simply stating the mechanics of the procedure. Given the situation that you have handed me of one microcurrie per square meter, that is pretty close to 1.3 microcurries per square meter that applies to the emergency action level for the infant.

No, I wouldn't ignore that. I would keep that in the back of my mind also. But according to the mechanics of the procedure, I am going through the logic that is followed.

Q I guess what I am trying to really get at is if there is a situation where preventive protective action guide is called for, what would happen that would be different if an emergency protective action guide were called for in another situation?

A Well, in general, protective action guides are geared to attempting to prevent the introduction of a contaminant into a given food chain in the ingestion pathway. Emergency protective action guides are geared to what you do once you have that particular material in the food chain. The types of measures that you would take to reduce or eliminate that contamination from that particular food stuff available to the general public.

Q Okay. What would be -- what would be a preventive protective action guide for Iodine 131 if the level were 1.0 microcurries per square meter.

A That particular protective action would be geared to the milk pathway in this instance, in terms of removing lactating dairy animals from contaminated pasture, providing the animals with uncontaminated water, attempting to store the individual milkings in separate tanks so that you can take samples and identify the presence or absence of contamination in the milk.

Q If the level were 1.4, in an emergency protective action, what would be called for? What would an example of

that kind of protective action consist of?

A Well, in that case -- you are trying to prevent the introduction of the milk supplies into commerce. You are taking many of the same steps that you have already taken for the preventative protective action level as well.

Q Okay. Now I understand it. Thank you. On page 33 of your testimony, you state that if any particular agricultural product were found to have received an unacceptably high level of radioactive contamination, affected farmers and processors would be instructed to do several things.

What is an, 'unacceptably high level of radioactive contamination,' in that case?

A Again, when we are talking about unacceptably high, we are referring to the numerical values of the protective action guidelines, either preventative or emergency.

Q And I take it that it would be uacceptable if it were above the preventive protective action guide?

A Yes.

Q Okay. Leaving that technical field now, what procedures are there in the LILCO Plan that would ensure that the flow of contaminated fruits and vegetables would not enter into the regional markets and the farmers markets, where retailers purchase goods from wholesalers.

A (Witness Cordaro) I guess the main way we would accomplish this is by first making the appropriate anouncements and contacts with the farmers, indicating that we would compensate them for their crops, and setting up a procedure on that basis to document or verify the fact that indeed they had a loss, and the extent of that loss in dollar terms, and the procedures to compensate them for that loss.

That is our major mechanism for restricting the flow of those crops into situations where they could be distributed further.

Q Is it fair to say that your strategy is one of stopping the flow at the initial point, which would be the farmer, and that points thereafter, such as a farmers market, are not incorporated within your strategy?

A Well, not exactly. That is -- our primary strategy is to stop it at the source. Also, in the sense of food processing plants, we would follow that up and take samples and measurements at that location, which is a backup to the system to ensure that this material does not go further, or does not subject the people to any radioactive hazard.

End 12 Mary fols.

Sim 13-1

Q And if you fail to interdict the flow of this food from the farmer, you have no other procedures to follow it thereafter, do you?

A (Witness Cordaro) Well, again, as we said, at any food processing locations we would conduct sampling. We could also do it on an ad hoc basis. In indeed the situation merits it, there is nothing to prevent us from taking samples at farmers markets if we have any reason to believe that some of this material may have bypassed another system.

Q Now flipping back to page 26, at the very bottom you discuss water supplies, and you state that "There are, however, several reservoirs situation on the periphery of the 50-mile EPZ in Putnam and Westchester Counties."

Are these the reservoirs the ones that are identified in Attachment 6 to your testimony?

A (Witness Daverio) Yes.

Q And doesn't Attachment 6 list approximately 13 reservoirs?

A Exactly 13.

Q Do you have any idea of the aggregate surface area of these reservoirs, approximately of course?

A I think Mr. Porter might. I don't have any any handy. We do have the atlas which you can get that

information from.

Q The atlas did you say?

A The water sources atlas that we refer to in our testimony. It is a document about 150 pages long that lists all the water sources in the State. I will let Mr. Porter add, if he knows, an answer to that.

Q I am just looking for an approximate quantity of surface areas if you could give it.

A (Witness Porter) We have an overlay that gives the size of the watershed involved, and we have the volumes of water from these things, but we do not have the specific surface area for each of these. The surface area can be derived from the watershed, but we do not have that. It would take time to derive that from the watershed data.

Q Okay. On page 27 you state that "The director of local response would undertake the procurement of supplemental potable water supplies." I take it that you mean to the residents of Putnam and Westchester Counties and also Queens County because they receive water from those reservoirs.

What is the capability of LILCO to undertake such a procurement of supplemental potable water supplies to those people?

A (Witness Daverio) The capability would be to have people in those positions get tank trucks and

be able to go get the water to bring in.

Q Which people do you mean?

A The people identified, the logistic support coordinator and the support service coordinator. Those are the people who normally procure things for the company and have ways and deal with buying and expediting delivers to Long Island or wherever. So we would rely on them to find a water source that we could get water from and find a company that would rent us tank trucks and we would go and get water.

Q And is that assignment or duty set forth anywhere in the LILCO plan?

A The position of support services coordinator I think, if my memory serves me right, is the person who procures anything LERO needs, no matter what it would be, or any service LERO needs So while it might not specifically say get a water tank, the general concept of him being the person to provide anything LERO needs would be in his job description.

Q And you don't specifically know if it is, but you think that generally it would cover such a situation?

A Yes.

Q Okay. Now on page 29 at the very top there is another reference to an unacceptably high level of

Sim 13-4

radioactive contamination. This time it applies to water. And my question again would be what is an unacceptably high level of radioactive contamination?

A (Witness Watts) In the context of our procedure it would be above the preventative action guideline.

Q Is there set forth in your attachments to 3.6 6 a preventative action guide for water?

A Yes.

Q Could you show me where that is?

A It is Attachment 4, page 11 of 50 in OPIP 3.6.6.

Q Now further down in the paragraph on page 29, and I guess I should read the whole sentence. It says, "Furthermore, residents of affected water districts would be advised via a EBS bulletin to limit or cease consumption of tap water until further notice."

Under what circumstances would it be appropriate to limit as opposed to cease consumption of tap water?

(Pause.)

Does anyone know?

A (Witness Watts) Yes. We were just looking for the reference in the procedure. In Attachment 7 there is some guidance given with regard to drinking water on page 18A of 50. "With respect to limiting the

Sim 13-5

ingestion of potable water either for drinking or for cooking until the source has been checked and approved for consumption.

Q Do you have any idea to what extent the drinking water should be limited?

A (Witness Cordaro) I think theconcept there is if there is an emergency need for water, that that water could be utilized because the way these concentration limits are developed, they are based on a consumption pattern or an amount of the quantity consumed to determine what the dose is or the harmful dose to the critical organ.

So if indeed there was an emergency need for some water, it is possible for someone to take some amount of water without endangering themselves from a health hazard due to exposure to the radioactive nature of that water.

So you can make ad hoc decisions to allow people to consume some small quantity of that water if indeed it is absolutely necessary.

Q Well, Dr. Cordero, would your EBS bulletin that advises people to limit their consumption of tap water be any more specific than that?

A I don't know exactly the kind of language we would use, but I think in all probability that is the extent of it as far as it being explicit, you know, advising

1 people if there is an absolute need to utilize water
2 for some particular reason that they could, but they
3 should avoid the use of any significant quantities of
4 that water, the consumption of any significant quantities.
5 A (Witness Watts) Certainly the wording that
6 would be used would be pulled from the portion of OPIP
7 3.6.6 that we were just addressing. And, further, we
8 would make recommendations that water stored in closed
9 containers or vessels prior to the incident may be
10 ingested.
11 We would be offering these alternatives to the
12 population of any water that was contained in canned beverages
13 or water contained in refrigerators, closed tanks or covered
14 wells, juices and other sources of closed or protected
15 water could be used, and these types of suggestions would
16 be passed along through the EBS messages.
17 JUDGE LAURENSON: Excuse me. Mr. Zahnleuter.
18 You had indicated an estimate of about 45 minutes for
19 this panel and that is approximately what you have taken,
20 and I just want an estimate now as to how much longer
21 you expect to go.
22 MR. ZAHNLEUTER: I was just going to say that
23 I only have two more questions, and if we could stay here,
24 I would be able to finish them up pretty quickly.
25 JUDGE LAURENSON: Please proceed.

BY MR. ZAHNLEUTER:

Q I take it, Dr. Cordaro, that expect for an instance where there was an urgent need for water from the tap, most of the situations would call for the cessation of the use of tap water?

A (Witness Cordaro) That would be the optimum situation from a dose preventative standpoint. The whole concept here is to minimize the amount of dose that a person receives. If they have other sources of water or covered sources of water, then obviously they are not exposing themselves to any radioactivity and that is the more practical course of action.

However, if they don't and they absolutely need water, they can consume some of the contaminated water on the basis that they wouldn't consume a quantity sufficient enough to really constitute a significant danger to themselves.

A (Witness Watts) I would agree with that, and, furthermore, the other optional sources of water as a fluid could be mentioned in these EBS messages and and we have addressed that in the plan.

Q On page 35 of your testimony at the very top you make a reference to an arrangement for laboratory analsis of samples, and indeed throughout your testimony and in several other places you discuss laboratories.

Would you say that LILCO relies on these laboratories to implement the LILCO plan?

A (Witness Daverio) Yes, we do.

Q Are there any letters of agreement that would support such a reliance.

A We have contracts, purchase orders and agreements to provide that service with two laboratories.

Q You have contracts currently?

A Yes, we do.

Q And they are not contained in the plan, are they?

A I would have to check. I don't know if they are or not. I would have to check.

Q Now on page 37, Mr. Daverio, you refer to Figure 341 of the plan, and then you state that the director of local response would communicate protective action recommendations directly to the New York State Commissioner of Health.

Would this direct communication be made via the Rex Line as shown in Figure 341 of the plan?

A (Witness Cordaro) That of course would be the best way and we would hope that could be done that way. In the event that wasn't available, we would pursue alternate means of communication.

Q Well, Mr. Daverio, could it be done that way?

Sim 13-9

A (Witness Daverio) Well, if the State wanted to plug the phones back in, it could, because the lines haven't been removed.

Q What is the basis for your statement that the lines have been removed?

A Have not been removed. That was the conversation we had with the Telephone Company this week to find out how much those lines were costing us to leave in.

Q I am a little confused by your statement. To your knowledge, are the RECS Lines operational right now?

A My understanding from conversations that have been related to me from the phone company is the RECS Line have not been removed or disconnected. We are still paying approximately $2,000 per month for that.

What the State has done based on Dr. Axelrod's letter to me is not clear by his letter. It could be they just pulled the plug and moved the phone from where it was. I do not know what the State has done. All I know is what the phone company has told us. I am still paying for it.

Q Well, I am going to show you New York State Exhibit EP-11.

MR. IRWIN: Do you have an extra copy?

MR. ZAHNLEUTER: Mr. Irwin, this has been marked as an exhibit previously and another attorney has

13-10 1 had a copy, but I do have a copy for you.

2 MR. IRWIN: The normal procedure is to

3 introduce these before the questioning ---

4 MR. ZAHNLEUTER: Well, it has already been

5 used in this proceeding.

6 BY MR. ZAHNLEUTER:

7 Q Mr. Daverio, is that the letter to which

8 you referred?

9 A (Witness Daverio) That is the letter I

10 received on July 16th.

11 Q And doesn't it state that the RECS lines are

12 deactivated?

13 A As being a person who owns my own telephone,

14 that could be more than pulling the plug out of the wall.

15 It doesn't mean that if the State wanted to plug it

16 back in it wouldn't work.

17 Q Nevertheless, it means that they would not

18 be operational?

19 A That is correct, but I stated that.

20 MR. ZAHNLEUTER: I have no other questions

21 except at this time I would move that Exhibit 11 be

22 admitted into evidence.

23 MR. IRWIN: Objection on the same grounds

24 that were made before by LILCO.

25 MR. McMURRAY: Judge Laurenson, it seems to

Sim 13-11

me that we have the witness here. He has recognized the letter, a foundation has been laid and it is relevant to this contention. I am not exactly sure what gounds Mr. Irwin has stated, but if they are for lack of foundation, there certainly has been a foundation laid.

MR. IRWIN: I am not sure for what purpose the State wants to introduce the letter, for the proposition that Dr. Axelrod has disconnected his phone? If Dr. Axelrod wants to come here and testify what he has done to his phone, fine.

Mr. Daverio stated that the lines up to the point of commercial control in Dr. Axelrod's office are still active and he is paying rent on them.

MR. ZAHNLEUTER: The state introduced that exhibit for several purposes, but in this case it is to shed some light and add some clarification to the testimony on page 37 which I have just referenced.

MR. IRWIN: I don't know what kind of light or clarification was intended, but Mr. Zahnleuter hasn't tried to provide that.

MR. ZAHNLEUTER: Well, that is a matter for the record.

MR. PIRVO: The staff has no objection.

JUDGE LAURENSON: New York Exhibit 11 will be received in evidence.

Sim 13-12

MR. IRWIN: For what purpose, Judge Laurenson?

JUDGE LAURENSON: For what purpose are all these things admited in evidence?

(Laughter.)

MR. IRWIN: Well, I don't know. I don't think it is a very good declaration of the accuracy of anything except that Dr Axelrod may have pulled his phone out of the wall.

JUDGE LAURENSON: Then you can argue that, but it is in evidence. That is the point of our ruling up to now.

New York Exhibit 11 will be received in evidence and bound into the transcript following this page and the State will supply copies for that purpose.

(New York State Exhibit No. EP-11, previously marked for identification, was received into evidence.)

(New York State Exhibit EP-11 follows:)

NEW YORK STATE
DISASTER PREPAREDNESS COMMISSION

Corning Tower
Empire State Plaza
Albany, N.Y. 12237

David Axelrod, M.D.
Chairman

Raymond B. Harding
Vice-Chairman

MG Vito J. Castellano
Secretariat

NEW YORK STATE
DISASTER
PREPAREDNESS
COMMISSION

July 10, 1984

Dear Mr. Daverio:

Please be advised that as of May 25, 1984, all the Radiological Emergency Communications System (RECS) telephones which link the Shoreham Nuclear Power Station and New York State have been deactivated.

Sincerely yours,

David Axelrod, M.D.
Chairman
Disaster Preparedness
Commission

Mr. Charles Daverio
Supervisor
Emergency Preparedness and
Regulatory Services
Long Island Lighting Company
175 East Old Country Road
Hicksville, NY 11801

Sim 13-13

JUDGE LAURENSON: Any cross-examination of this panel by the staff?

MR. PIRVO: Yes, Judge Laurenson. I will be very brief. but I would assume that if Mr. Irwin is going to have any significant amount of redirect, then we might break for lunch, but I am happy to do it now.

MR. IRWIN: I have got one question.

MR. PIRVO: Well, I have only got five or six minutes at the most.

MR. McMURRAY: I think it might be advantageous if we just finish this up.

JUDGE LAURENSON: Let's proceed.

MR. PIRVO: Thank you.

CROSS-EXAMINATION

BY MR. PRIVO:

Q Mr. Watts, you said earlier in cross-examination today that elimination of contamination from water would depend on the particular soil content and its chemical composition and other factors as it percolated down to the watertable; isn't that correct?

A (Witness Watts) Yes, I did discuss that has one of the factors, including the half life of the nuclide as well.

Q Okay, but focusing on the soil and the

Sim 13-14

topography or whatever you want to call it, what other factors would be relevant in the elimination of contamination?

A I think I covered them in the statement that I made, but to review again, it is the type of substance that we are talking about, both chemically, the physical characteristics, the radiological properties of the substance and of course the material that it is traveling through, the chemical characteristics, the ion exchange properties of the soil, the makeup of the soil, the clay content and so forth.

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#14-1-SueT1

Q Would you agree with him, Mr. Porter? Or is it Dr. Porter?

A (Witness Porter) Mister.

Q Would you agree with him, Mr. Porter?

A Yes. I think that's a reasonable statement.

Q Do you have any reason to disagree with that, Dr. Cordaro and Mr. Daverio?

A (Witness Cordaro) No.

(Witness Daverio) No.

Q Do these factors vary within the fifty mile EPZ, Mr. Watts?

A (Witness Watts) Yes, I suspect they do.

Q From location to location, they would vary?

A From area to area, yes, I would guess they do.

Q Do they vary within Long Island alone?

A Yes. I suspect there is some variation. I'm not aware of the specifics of the variability, but I assume that that does occur.

Q So, is your answer, yes, they do vary?

A My answer is yes, they do vary.

Q Do you have a basis for --

A Just my general --

Q -- reaching that conclusion?

A My general knowledge of soil is that it's -- you don't have identical soil characteristics in every

#14-2-SueT

single square foot of a large area.

Q Would you agree with that, Mr. Porter?

A (Witness Porter) Yes, sir.

Q Do either of the other two witnesses have any reason to either agree or disagree?

A (Witness Daverio) No, I do not.

(Witness Cordaro) No. I agree with that.

Q Okay. Now, turning to Page 29 of your testimony, Mr. Watts, you refer to three -- I'm sorry, six wells near the Shoreham site that could be used for routine monitoring purposes, as you say in the testimony.

Are these six wells illustrative or a fair sampling of the soil content that would be found around Long Island or within the EPZ, the fifty mile EPZ?

A (Witness Cordaro) Yes, they would.

Q I'm sorry. I directed the question to Mr. Watts.

A (Witness Watts) I would be reluctant to address that.

Q Why?

A I'm not sure of the answer.

Q Fair enough. Any of the other witnesses?

A (Witness Cordaro) Yes, they are representative of the soil conditions throughout most of Long Island.

Q What I thought, from location to location and

#14-3-SueT1

from area to area, to use Mr. Watts' words, the soil composition and the radiological propensities, or whatever, of the soil differed?

A There are differences, but we are talking about the degree of difference. The soil on Long Island is mostly sandy. There are varying degrees of clay. There is some differences in permeability. If you break it down to a microscopic level, there are different transfer coefficients that are applied to models which have been developed that follow the ground water flow in most of Long Island.

But in a general sense, it could be said that they are quite similar unless you again break it down to those microscopic indicators of what the characteristics are. They behave in a similar fashion. Chemically, they are very, very similar. There is no significant difference that I could point to, especially in the area of these six wells.

Q Okay. So, then the -- if I'm hearing you correctly, you would disagree with Mr. Watts' earlier statement that the percolation -- the removal or elimination of contamination as it percolates down to the water table does not differ according to the soil content?

Are you saying these differences are so microscopic that they mean nothing? I don't understand what you

1 are saying.

2 A No. The --

3 Q If I may, let me finish my question.

4 A They differ to a degree, and it's a matter of

5 the degree in which they differ. The general characteristics,

6 especially among the six wells, and as they represent espe-

7 cially Suffolk County and the ten mile zone, are such that

8 they are representative of the general physical and chemical

9 characteristics of the soil on Long Island.

10 Q Well, if I may, Dr. Cordaro, earlier you said

11 you agreed with Mr. Watts' statement that the elimination

12 of contamination depends on soil content and this varies all

13 over Long Island. And now I hear you telling me that it

14 doesn't matter, that these six wells are representative of

15 Long Island, because the soil content does not vary over

16 Long Island.

17 Which is the answer? That's all I ask you to tell

18 me.

19 A It's just a question of degree. If you want --

20 if you ask me exactly the time it takes for a molecule of

21 water to migrate a certain distance at one location on Long

22 Island versus the other, and you want some degree of precision,

23 then you would have to say there are differences among

24 locations.

25 But if you ask me the general time frame in which

#14-5-SueT

this occurs and whether a certain unique chemical reaction which can take place at one of these wells versus another one of these wells, I would say no, that in general the patterns of behavior, physical and chemical, are the same.

It depends on the precision that you want in that answer.

Q Would you say then that the proximity to the plant is the most critical factor without weighing any soil composition factors?

A Most critical factor in what sense?

Q In the -- with regard to the elimination of contamination as it percolated down to the water level? The water table, given two plots of land, one on the border of the fifty mile EPZ, and one within two miles of the plant?

Is the proximity to the plant going to outweigh any possible soil composition factors?

A There is a big difference when you are close to the plant, because the ground water flow is to the Sound when you are very, very close to the plant. So, two miles close to the plant you would have most of the ground water movement out to Long Island Sound. Where, if you've got ten to fifteen miles away that water -- that movement would stay in the ground water level and wouldn't migrate rapidly to the Sound or the Atlantic Ocean on the Sound.

#14-6-SueT

Q So, this is another difference between the wells, the six wells at the site, and other wells on Long Island?

A Yes. There is hydrological difference. Yes.

Q And this is one of other differences that we have gone through?

A Yes. Yes. And that's one reason why we have this private well at 270 feet and then we have shallow wells at the site and we also have deep wells at the site.

Q And there is a difference between all of these wells?

A Yes, because of their location and the general ground water movement at these locations. But they are representative of a broad base of conditions.

(Witness Watts) I think we were also saying before that information gotten from the sampling of these wells could be useful because we would expect the bulk of deposition to occur in proximity of the plant in terms of magnitude relative to at farther distances.

So, there certainly could be -- you would expect a greater amount of deposition to be occurring close to the plant offering the potential for contamination.

MR. PIRFO: Thank you, Mr. Watts. I have no more questions.

JUDGE LAURENSON: Mr. Irwin.

#14-7-SueT

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REDIRECT EXAMINATION

BY MR. IRWIN:

Q Mr. Daverio, in your testimony this morning you referred to various maps of land use patterns, ground water sources, reservoirs and the like that are maintained by LERO but not included in the plan physically.

Do you recall that question and answer?

A (Witness Daverio) Yes, I do.

Q Where are those maps maintained?

A Usually they are in Hicksville where we continue to update them. But in a long term there would be a set at the EOC and one at Hicksville.

Q How large are those maps?

MR. MC MURRAY: Objection. I don't know that that is relevant.

MR. IRWIN: It is relevant to the practicability of their inclusion in the document.

JUDGE LAURENSON: Overruled.

WITNESS DAVERIO: They are sitting behind me. They are probably somewhere around 4 foot by 2 foot, each one.

MR. IRWIN: Thank you. No further questions.

JUDGE LAURENSON: Any further questions of this panel?

MR. MC MURRAY: No questions.

#14-8-SueT

MR. ZAHNLEUTER: No questions.

JUDGE LAURENSON: All right. At this time, this panel will be excused.

(The panel of witnesses stood aside.)

We will take our luncheon recess. Let me just inquire of the schedule for this afternoon. It appears to me that we have an agreement to begin with the LILCO panel on Contention 77, thyroid contamination equipment.

Is that correct?

MR. IRWIN: Yes, sir.

JUDGE LAURENSON: And is Mr. Miele still on that panel, or has there been a change in that?

MR. IRWIN: No. He is on that panel, and he is here right now.

JUDGE LAURENSON: All right.

MR. IRWIN: If I could, for the purposes of planning even further ahead, are there any time estimates as to the length of questioning on 77, because I will have the next panel ready this afternoon if it's necessary, and I will advise Mr. Miele to make hotel reservations if it's necessary.

MR. PIRFO: I won't take any more than five minutes.

JUDGE LAURENSON: To meet our schedule, I think we are definitely going to have to finish this panel today,

#14-9-SueT 1

MR. MC MURRAY: I don't think that will be a problem. We can revisit that later on this afternoon.

JUDGE LAURENSON: We will reconvene at 2:35.

(Whereupon, the hearing is recessed for the luncheon recess at 1:20 p.m., to reconvene at 2:36 p.m., this same day.)

(2:36 p.m.)

#14-10-SupT

A F T E R N O O N S E S S I O N

JUDGE LAURENSON: The hearing is resumed. Mr. Irwin.

MR. IRWIN: Thank you, Judge Laurenson. We now I think have come to the testimony on Contention 77. All the members of LILCO's panel have testified before and are already under oath.

JUDGE LAURENSON: I just want to remind the witnesses, you are still under oath.

MR. IRWIN: Let me note preliminarily that we distributed a document called "Corrections to LILCO's Testimony on Contention 77 (Thyroid Contamination Equipment at Relocation Centers)" to the Board and all parties over the lunch break.

Whereupon,

MATTHEW C. CORDARO,

CHARLES A. DAVERIO

-and-

MICHAEL L. MIELE

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

INDEXXXX

BY MR. IRWIN:

Q Gentlemen, do you have with you a copy of a

#14-11-SueT

document called "Testimony of Matthew C. Cordaro, Charles A. Daverio, and Michael L. Miele on Behalf of Long Island Lighting Company on Phase II Emergency Planning Contention 77 (Thyroid Contamination Equipment at Relocation Centers)?"

A (Witness Cordaro) Yes.

(Witness Miele) Yes.

(Witness Daverio) Yes.

Q Do you also have with you copies of the document entitled "Corrections to LILCO's Testimony on Contention 77 (Thyroid Contamination Equipment at Relocation Centers)?"

A (Witness Cordaro) Yes.

(Witness Miele) Yes.

(Witness Daverio) Yes.

Q Gentlemen, was this testimony and your corrections to it prepared by you or under your supervision and direction?

A (Witness Cordaro) Yes.

(Witness Miele) Yes.

(Witness Daverio) Yes.

Q Is this testimony, as modified by the corrections -- strike that.

Are there any further corrections beyond the corrections that have been handed out which you-all would like to make at this time?

A (Witness Cordaro) No.

#14-12-Sue1

(Witness Miele) No.

(Witness Daverio) No.

Q Is the testimony, as modified by the document entitled "Corrections to LILCO's Testimony on Contention 77" true and correct to the best of your knowledge and belief?

A (Witness Cordaro) Yes.

(Witness Miele) Yes.

(Witness Daverio) Yes.

MR. IRWIN: Judge Laurenson, at this time I would like to move the testimony of Matthew C. Cordaro, et al on Contention 77, as modified by the corrections, into evidence at this time.

MR. MC MURRAY: No objection.

MR. ZAHNLEUTER: No objection.

MR. PIRFO: I have no objection.

JUDGE LAURENSON: The testimony will be received in evidence and bound in the transcript following this page.

(The testimony follows.)

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, CHARLES A. DAVERIO, AND MICHAEL L. MIELE ON BEHALF OF LONG ISLAND LIGHTING COMPANY ON PHASE II EMERGENCY PLANNING CONTENTION 77 (THYROID CONTAMINATION EQUIPMENT AT RELOCATION CENTERS)

Hunton & Williams
P.O. Box 1535
707 East Main Street
Richmond, Virginia 23212
(804) 788-8200

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,
CHARLES A. DAVERIO, AND MICHAEL L. MIELE
ON BEHALF OF LONG ISLAND LIGHTING COMPANY
ON PHASE II EMERGENCY PLANNING CONTENTION 77
(THYROID CONTAMINATION EQUIPMENT AT RELOCATION CENTERS)

PURPOSE

Contention 77 states that background radiation levels at relocation centers are likely to exceed 50 cpm and that the radiation monitoring equipment to be used at relocation centers is incapable of detecting a thyroid contamination level of 150 cpm in a background radiation field above 50 cpm. This testimony will establish that the radiation monitoring equipment to be used at relocation centers will adequately identify those persons with thyroid contamination levels requiring medical attention. The RM-14 meter with HP-270 probe can detect

radiation levels from thyroid contamination in the range of 150 cpm when the background level is as high as 350 cpm. In addition to the RM-14 with HP-270 probe, an RM-14 meter with a tungsten shielded HP-210 probe will be used at relocation centers as appropriate. ~~within 15 miles of the Shoreham Nuclear Power Station~~. The RM-14 meter with a tungsten shielded HP-210 probe can measure radiation levels from thyroid contamination in the range of 150 cpm in background radiation fields exceeding 350 cpm.

Attachments

Attachment 1	Manufacturer's Description of the Eberline RM-14 Radiation Monitor
Attachment 2	Manufacturer's Description of the Eberline HP-270 Probe
Attachment 3	OPIP 3.9.2, Sections 5.3 and 5.8
Attachment 4	Manufacturer's Description of the Eberline HP-210 Probe

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,
CHARLES A. DAVERIO, AND MICHAEL L. MIELE
ON BEHALF OF LONG ISLAND LIGHTING COMPANY
ON PHASE II EMERGENCY PLANNING CONTENTION 77
(THYROID CONTAMINATION EQUIPMENT AT RELOCATION CENTERS)

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.

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

[Miele] My name is Michael L. Miele and my business address is ~~Long Island Lighting Company, P.O. Box 628, Wading River, New York, 11792~~. Indian Point Power Station, Broadway and Bleakley Avenues, Buchanan, New York, 10511.

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 separately 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 employed by LILCO as Assistant Manager of the Local Emergency Response Implementing Organization (LERIO). My professional qualifications are being separately offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." In my capacity as Assistant Manager of LERIO, I am responsible for developing and implementing the local emergency response plan for Shoreham.

I am employed by Consolidated Edison Company of New York as General Manager - Environmental Health and Safe

[Miele] (Until June 8, 1984, I was ~~I am~~ employed by LILCO as the Radiation Protection Section Supervisor in the Nuclear Engineering Department. My professional qualifications are being separately offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." (At LILCO, I was ~~I am~~ responsible for the corporate overview of all technical aspects of onsite and offsite radiological protection for Shoreham. I am familiar with the procedures and radiation monitoring equipment at issue in Contention 77 because I have 11 years of experience in health physics, which has included use of similar procedures and radiation monitoring equipment.

3. Q. What is the "Further Preamble to Contentions 74-77?"

A. [Cordaro, Daverio, Miele] The "Further Preamble to Contentions 74-77" reads as follows:

> Further Preamble to Contentions 74-77. An offsite emergency plan must include means of relocating evacuees and must provide for relocation centers located at least five miles and preferably 10 miles beyond the EPZ. NUREG 0654, Sections II.J.10.g and h. Such relocation centers are essential to provide food and shelter to those evacuees who have no alternative places to stay and also to provide radiological monitoring and decontamination for evacuees and their vehicles. The relocation centers must have sufficient personnel and equipment to monitor evacuees within a 12-hour period. NUREG 0654, Section II.J.12.

The LILCO Plan calls for the establishment of relocation centers outside the EPZ at the following facilities (Plan, at 4.2-1; OPIP 4.2.1):

Suffolk County Community College (primary)

BOCES Islip Occupational Center (primary)

State University of New York at Stony Brook (primary)

State University of New York at Farmingdale (backup)

St. Joseph's College, Patchogue (backup).

The Intervenors contend that LILCO will be unable to provide adequate relocation centers and services for evacuees, and thus the Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(8), 50.47(b)(10), and NUREG 0654 Section J. The specific deficiencies which lead to this conclusion are set forth in Contentions 74-77.

4. Q. What is Contention 77?

A. [Cordaro, Daverio, Miele] Contention 77 reads as follows:

Contention 77. The equipment used by LILCO to measure thyroid contamination at relocation centers -- RM 14 with HP270 probe -- (see OPIP 3.9.2) will be incapable of differentiating the required signal from background readings. The instrument's most sensitive scale (0-500 cpm) is insufficiently sensitive for the accurate measurement of 150 cpm or 0.13 mR/hr (the threshold for requiring hospital care) in the presence of background readings which are likely to elevated [sic] above the 50 cpm maximum (10-15 cpm

nominal) assumed by LILCO. (OPIP 3.9.2 and Plan, at 3.9-4). In addition, the Plan provides no information or instruction on how to make a measurement if the background reading exceeds 50 cpm. Accordingly, the LILCO plan fails to comply with NUREG 0654 Section II.J.12.

5. Q. What are the legal standards that govern Contention 77?

A. [Cordaro, Daverio, Miele] The legal standard cited in Contention 77 is NUREG-0654, II.J.12, which reads in pertinent part:

NUREG-0654, II.J.12

Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas.

6. Q. Contention 77 states that an RM-14 survey meter with HP-270 probe will be used by monitoring personnel to measure thyroid contamination levels of evacuees at relocation centers. Is that true?

A. [Cordaro, Daverio, Miele] Yes. As is indicated in OPIP 3.9.2 of the Plan, an Eberline RM-14 survey meter with HP-270 probe will be used to measure thyroid contamination levels at relocation centers. The manufacturer's descriptions of the RM-14 meter and the HP-270 probe are appended to this testimony as Attachments 1 and 2 respectively.

7. Q. What is the range of the RM-14 meter with HP-270 probe?

A. [Cordaro, Daverio, Miele] As can be seen from Attachment 1 to this testimony, the RM-14 has three ranges: 0-500 counts per minute (cpm), 0-5000 cpm, and 0-50,000 cpm. The RM-14 will be set on the lowest of these ranges (0-500 cpm) to monitor thyroid contamination levels at relocation centers.

8. Q. What steps must be taken by monitoring personnel to obtain a thyroid contamination reading?

A. [Cordaro, Daverio, Miele] These steps are set out in Sections 5.3 and 5.8 of OPIP 3.9.2 of the Plan, which are appended to this testimony as Attachment 3. After monitoring personnel conduct a preoperational check of the RM-14 survey meter, they will use the RM-14 survey meter with HP-270 probe to record the background radiation level at the relocation center. Monitoring personnel then will monitor individuals and subtract the background reading from the RM-14 reading to determine actual thyroid contamination levels. For instance, if the thyroid scan measurement is 450 cpm in a background field of 250 cpm, monitoring personnel simply subtract the 250 background level from the 450 thyroid scan measurement to get the actual thyroid contamination level of 200 cpm. If an

individual's actual thyroid contamination level exceeds 150 cpm (0.13 mR/hr) the individual will be sent to a hospital, as provided in Section 5.8(c) of OPIP 3.9.2.

9. Q. Assuming a normal background reading of 10-15 cpm, is the RM-14 with HP-270 probe sufficiently sensitive to accurately measure thyroid contamination levels of 150 cpm (0.13 mR/hr) above background?

A. [Miele] Yes, the RM-14 with HP-270 probe is sufficiently sensitive to accurately measure thyroid contamination levels of 150 cpm (0.13 mR/hr) above background. An action level of 150 cpm above background is only about 30% of full scale of the RM-14 meter's lowest range of 0-500 cpm. A reading of 150 cpm, therefore, is well within the range of the RM-14 and can be read easily.

10. Q. Intervenors allege in Contention 77 that background readings are likely to exceed 50 cpm at relocation centers and that the RM-14 with HP-270 probe is not sufficiently sensitive to accurately measure thyroid contamination levels of 150 cpm (0.13 mR/hr) when the background reading exceeds 50 cpm. Is that true?

A. [Miele] No. Background radiation levels do not affect the ability to measure thyroid radiation levels with the RM-14 with HP-270 probe unless the background level is over 350 cpm. As was mentioned in the response to question 8 above, monitoring personnel simply subtract the background

reading from the RM-14 thyroid reading to determine the actual thyroid contamination level. The RM-14 will be set on its lowest range of 0-500 cpm during thyroid contamination monitoring. Thus, even if the background reading were 350 cpm, a thyroid contamination level of 150 cpm could still be read on the RM-14 scale. It is unlikely, however, that background radiation levels at relocation centers would be that high.

11. Q. What about the margin of error in the RM-14 reading? Will that affect the ability to accurately measure a thyroid contamination level of 150 cpm?

A. [Miele] Even if the thyroid contamination measurements were not exact because of electronic "noise" in the monitoring system, because of variations in gamma ray energies, or for any other reason, it would not detract from the effectiveness of the thyroid contamination monitoring system. The thyroid scan at relocation centers is intended to provide more of a qualitative measure of the thyroid contamination level than a quantitative measure. The monitoring personnel are more concerned about determining if the dose to the thyroid has been substantial enough to be of concern rather than if it is exactly 150 cpm or greater. Thus, as a

practical matter, monitoring personnel would be concerned that an individual had received a significant dose to the thyroid if the reading were anywhere in the range of 150 cpm.

12. Q. But Section 5.3.3 of OPIP 3.9.2 instructs monitoring personnel to "[e]nsure decontamination facility/relocation center background radiation levels remain less than 50 cpm. This is especially important in those areas where monitoring is performed to maintain RM-14 sensitivity." How do you explain this?

A. [Cordaro, Daverio, Miele] This instruction in Section 5.3.3 of OPIP 3.9.2 was part of an onsite non-emergency procedure in which quantitative accuracy was essential. It was included inadvertently in OPIP 3.9.2 and will be removed in future revisions of the Plan.

13. Q. Will any other equipment be used to measure thyroid contamination levels at relocation centers?

A. [Miele] Yes. In addition to the RM-14 meter with HP-270 probe, an RM-14 meter with a tungsten shielded HP-210 probe will be used at relocation centers as appropriate. ~~that are less than 15 miles from the Shoreham Nuclear Power Station.~~ The manufacturer's description of the HP-210 probe is appended to this testimony as Attachment 4. Use of the RM-14 with a tungsten shielded HP-210 probe at relocation centers ~~within 15 miles of Shoreham~~ will be reflected in future revisions of the LILCO Transition Plan.

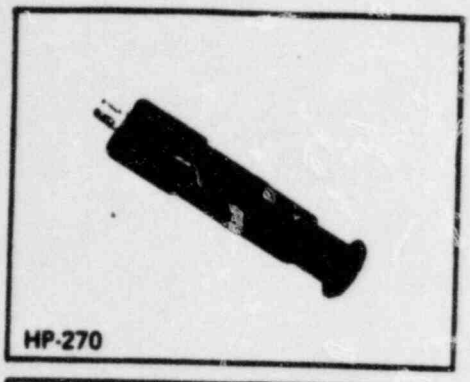
The advantage of the RM-14 meter with the tungsten shielded HP-210 probe is that thyroid contamination levels equivalent to 150 cpm on an HP-270 probe ~~of 150 cpm~~ can be detected in background radiation fields greater than 350 cpm. The tungsten shielded HP-210 probe ~~shield~~ makes it possible to monitor for thyroid contamination in a background radiation field at least four times greater than would be possible if an RM-14 meter with HP-270 probe were being used. This is because the only exposed surface of the tungsten shielded HP-210 probe will be placed on a person's neck over the thyroid area.

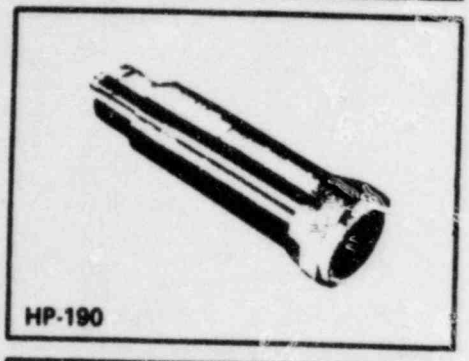
14. Q. Please summarize your testimony for Contention 77.

A. [Cordaro, Daverio, Miele] The thyroid monitoring equipment to be used at relocation centers will enable monitoring personnel to identify those individuals with thyroid dose levels requiring medical attention. Contrary to the assertion in Contention 77 that the RM-14 meter with HP-270 probe is incapable of detecting a thyroid contamination level of 150 cpm when the background reading exceeds 50 cpm, radiation levels from thyroid contamination in the range of 150 cpm can be detected in a background field of 350 cpm.

Moreover, an RM-14 meter with a tungsten shielded HP-210 probe will also be used at relocation centers within 15 miles of the Shoreham Station. The RM-14 meter with a tungsten shielded HP-210 probe can detect thyroid radiation levels in the range ~~of~~ equivalent to 150 cpm on an HP 270 probe ~~150 cpm~~ in a background field four times greater than would be possible if an RM-14 meter with HP-270 probe were being used.

ATTACHMENT 1


HP-270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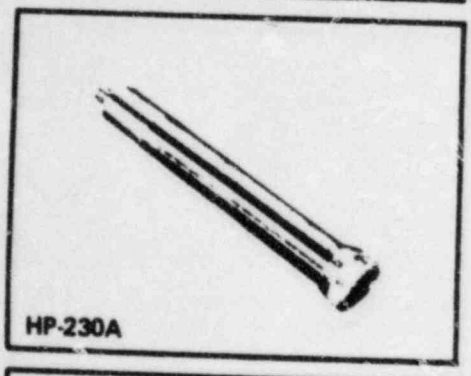
HP-210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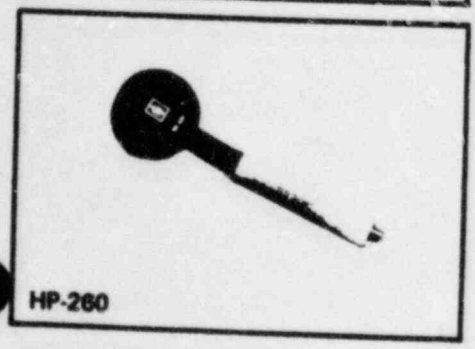
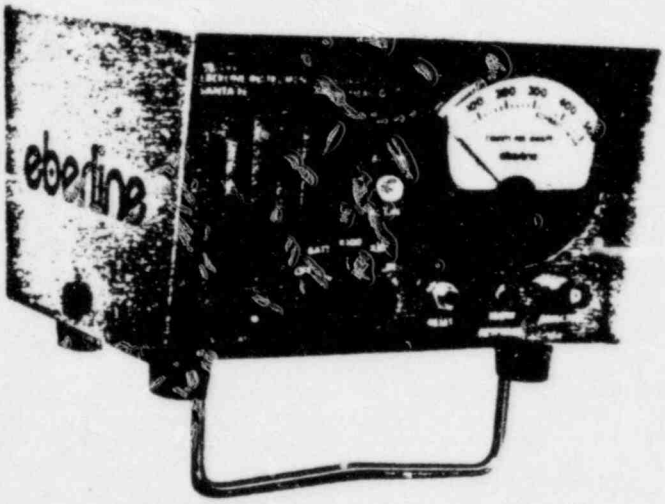
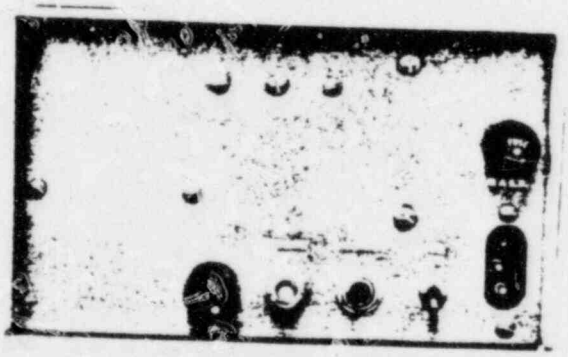

HP-260

Radiation Monitor
Model RM-14





VARIABLE HIGH LEVEL ALARM
SPEAKER WITH VOLUME CONTROL
TRICKLE CHARGED BATTERY
TIME CONSTANT SELECTION
RECORDER OUTPUT
SCALER OUTPUT
TILT STAND

eberline

Radiation Monitor, Model RM-14

GENERAL DESCRIPTION

The RM-14 Radiation Monitor is a small, versatile, alarming count rate meter operated by a rechargeable Ni-Cd battery which is trickle charged when the unit is plugged into the line. Three ranges are provided of 500, 5K and 50K counts per minute full scale. A speaker and volume control are provided for aural indication of the count rate.

The alarm point is adjustable over the scale of the meter by a rear panel control. When actuated, the alarm does not affect the meter reading and is indicated by a high frequency tone on the speaker.

Rear panel connectors are provided for an external scaler and a 50 microamp recorder.

Circuitry in the RM-14 is all transistor and integrated circuit, mounted on a plug-in board. The top cover of the cabinet is easily removable, allowing access to all internal components.

The RM-14 is intended for use with 900 volt geiger tube detectors, such as the Eberline HP-177C, HP-190, HP-210, HP-230A, HP-240 or HP-270. It can be easily modified for use with detectors requiring other operating voltages. When ordered with one of the geiger detectors, an optional probe holder may be installed on the instrument.

SPECIFICATIONS

METER: Scale length 2.37 inches (6 cm), marked 0 to 500 counts per minute with 25 increments. Battery OK segment.

RANGE: Switch controlled X1, X10 or X100 yielding 500, 5K or 50K counts per minute full scale.

RESPONSE TIME: Fast: approximately 2 seconds, Slow: approximately 20 seconds measured to 90% of final reading.

LINEARITY: Within ±5% of full scale, typically within ±2% of full scale.

BATTERY DEPENDENCE: Calibration shifts less than 10% with battery between limits on meter.

ALARM POINT: Adjustable from 10% to greater than full scale.

ALARM INDICATION: Red light on front panel and approx. 1K Hz tone on speaker independent of volume control.

SPEAKER: Internal 2 inch size. One click for each event counted.

VOLUME: Varies speaker clicks from max. loudness to zero.

SCALER OUT: Rear panel BNC connector. One 6 volt positive pulse for each event counted.

RECORDER OUT: Rear panel. ¼ inch, 3 wire phone plug. 0-50 microamp dc full scale.

POWER: 105-125 volts, 50-60 Hz at approximately 0.1 amps.

BATTERY: Lifetime without recharge approx. 50 hours. Charging time approx. 50 hours.

TEMPERATURE: The instrument is operational from -20°F to +140°F (-29°C to 60°C) with less than ±10% full scale change in calibration and less than ±20% full scale change in alarm point.

SIZE: 5-1/4 in. H x 7 in D x 7-1/2 in W (13.3 x 17.8 x 19.1 cm).

WEIGHT: 4-1/2 pounds (2 Kg).

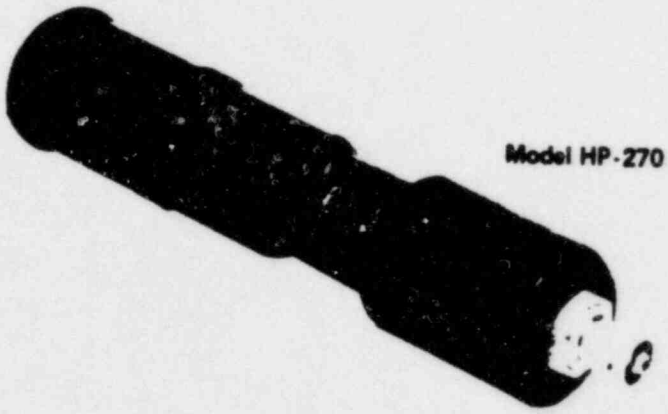
FINISH: Baked enamel paint, brown panels, tan cover.

eberline P.O. Box 2108, Santa Fe, New Mexico 87501 (505) 471-3232 TWX:910-985-0678

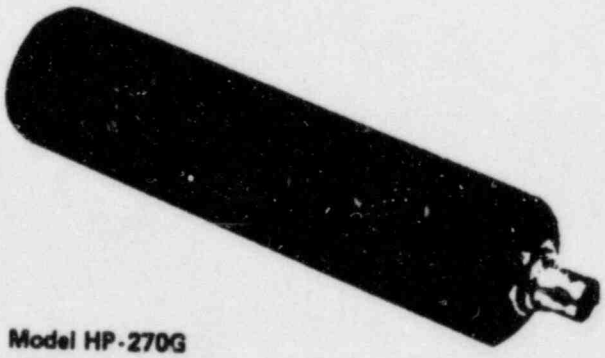
June 1, 1977

ATTACHMENT 2

Energy Compensated Hand Probes Models HP-270 and HP-270G



Model HP-270



Model HP-270G

FOR USE WITH ANY EBERLINE GEIGER COUNTER OR RASCAL LINE OF INSTRUMENTS

ENERGY COMPENSATED FOR GAMMA EXPOSURE RATE MEASUREMENTS

SLIDING BETA SHIELD (HP-270)

RUGGED

eberline

Energy Compensated Hand Probes Models HP-270 and HP-270G

GENERAL DESCRIPTION

The Models HP-270 and HP-270G Hand Probes utilize a thin wall G-M tube with a compensating shield of tin to limit the characteristic over-response of G-M tubes in the region of lower photon energies (30 keV – 300 keV). Both probes are housed in high impact ABS plastic to provide an extremely rugged package. The HP-270 has a beta (β) window which may be opened by sliding the compensating shield forward. The HP-270G has a smooth outside surface with no β window.

A BNC connector on the rear provides the cable connection to the counting instrument. Either probe will operate properly on any Eberline 900 V geiger counter and on many other instruments. A proper interconnecting cable is required to mate to the instrument. The following is a partial list of those available. Other styles or lengths are also available.

CA-1-36	BNC to BNC	36 inches long (E-120, RM-14, E-530)
CA-14-36	BNC to Eberline CP-1	36 inches long (E-400)
CA-16-36	BNC to MHV	36 inches long (RM-19, PRM-6)

SPECIFICATIONS

Housing: High impact black ABS plastic.

Connector: BNC series coaxial.

Environmental: The HP-270 and HP-270G are splashproof.

Size: HP-270 – 1-3/8 inch dia. x 6 inches long (3.5 x 15.2 cm); HP-270G – 1-3/8 inch dia. x 5-3/4 inches long (3.5 x 14.6 cm).

Weight: 5 ounces (0.14 kg).

Energy Response: ±20% from 40 keV to 1.25 MeV (see graph).

Temperature Range: −55°C to +75°C.

Gamma Sensitivity (^{137}Cs): Approximately 1200 counts per minute per mR/hr.

Operating Voltage: 900 ±50 V.

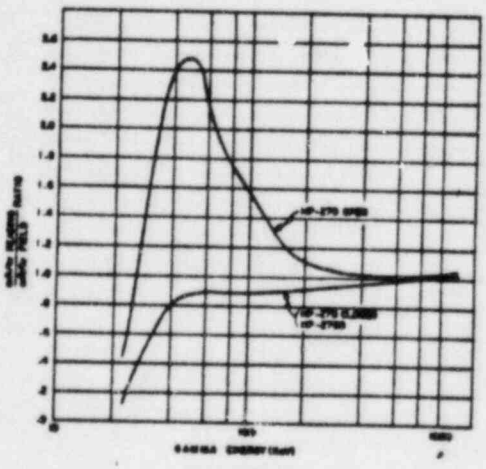
Plateau Length: 100 V minimum.

Plateau Slope: 0.1% per volt maximum.

Dead Time: Approximately 100 μseconds.

Life: Unaffected by operation.

Wall: 30 mg/cm^2 stainless steel.



Energy Response of Models HP-270 and HP-270G

eberline P.O. Box 2108, Santa Fe, New Mexico 87501 (505) 471-3232 TWX: 910-985-0678

December 1978

ATTACHMENT 3

5.2 Emergency Worker Decontamination Facility

5.2.1 All Emergency Workers, at the completion of their duties, will report to the Decontamination Facility located at the Local Emergency Operations Center at Brentwood, they will be monitored by Decontamination Personnel for whole body contamination.

5.3 Setting Up Monitoring Operation - Background Radiation Levels

5.3.1 Distribute equipment and supplies in facility and set up barriers, signs, and step-off pads as shown in Attachment 5.

A Generalized Floor Plan for a Decontamination Center (Attachment 5) depicts the method Decontamination Personnel utilize to rapidly register, isolate contaminated individuals and decontaminate individuals, and process them as "clean." This will be accomplished by using separation barriers, traffic cones, ropes, railings, etc.

5.3.2 Perform preoperational check of the RM-14 survey meter, per Attachment 4, RM-14 Operating Procedure.

5.3.3 Use the RM-14 survey meter with HP-270 probe to determine the general area background radiation level at the decontamination facility/relocation center location. This is done by selecting the "X1" position of the range selector switch and reading the meter indication. Ensure that the probe shield is open. A typical background radiation reading is 10 to 15 counts per minute (CPM) or .01 to .02 mR/hr.

Measure general area background radiation levels per Attachment 4.

Ensure decontamination facility/relocation center background radiation levels remain less than 50 CPM. This is especially important in those areas where monitoring is performed to maintain RM-14 sensitivity.

f. If wound still showns signs of contamination, pinpoint specific area of contamination in or around wound.

g. Medical and radiation specialist assistance should be obtained for further evaluation and treatment of suspected wound contamination.

h. Lightly dress wound for protection and prevention of spread of contamination prior to transport to hospital.

i. In all cases, save and monitor all wash solution and particles removed.

5.7.3 After washing, Decontamination Personnel will instruct individuals to proceed to the post-decontamination scan area to be remonitored.

a. Repeat Step 5.4 and if the individual is still contaminated, repeat Step 5.7.

b. If the individual is still contaminated, transport the individual to a hospital in accordance with OPIP 4.2.2.

c. If the individual is found free of contaminants, continue with Step 5.9 of this procedure.

5.8 <u>Thyroid Scan</u>

5.8.1 Monitoring Personnel will:

a. Perform thyroid scan after whole body personnel scanning and individuals are "clean."

b. Place the RM-14 w/HP 270 probe, shield closed (twist closed), horizontally on the neck between the Adam's apple and the top of the clavicle (collar bone) for about 5 seconds.

c. Observe the average meter reading (CPM) over the 5-second interval and record the results on either Attachment 1 or 2. If readings equal or exceed 150 cpm or 0.13 mR/hr. above background, send individuals to a hospital.

d. If thyroid contamination is detected, contact the Decontamination Coordinator for instructions.

e. If no thyroid contamination is detected, Monitoring Personnel will complete all exposure forms.

5.9 Post-Decontamination Operations

5.9.1 Evacuees will be provided with housing/shelter, feeding, counseling, and medical services by the American Red Cross, who is responsible for the operation of the Relocation Center.

5.9.2 Emergency Workers will either remain at the decontamination facility for possible reassignment, or released from duty.

6.0 REFERENCES

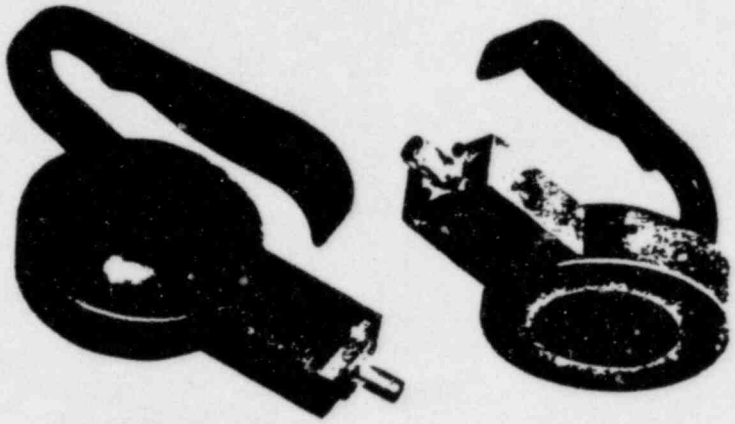
6.1 OPIP 4.2.2, Handling and Transport of Contaminated and/or Injured Individuals to Medical Facilities

7.0 ATTACHMENTS

1. Evacuee Exposure Record
2. Emergency Worker Exposure Record
3. Instruction Placard Skin Decontamination
4. RM-14 Operating Procedure
5. Generalized Plan for a Decontamination Center
6. Flow Diagram for Emergency Workers/Evacuees Decontamination
7. Vehicle/Equipment Decontamination

ATTACHMENT 4

Hand Probe
Model HP-210 (DT-304)



LARGE, THIN WINDOW PANCAKE TYPE DETECTOR
HIGH BETA SENSITIVITY FOR ^{14}C, ^{35}S, ^{99}Tc, ^{90}Sr-^{90}Y
BACKGROUND REDUCING SHIELD
PISTOL GRIP HANDLE
PROTECTIVE SCREEN OVER WINDOW
AVAILABLE WITHOUT SHIELD FOR REDUCED WEIGHT

Sample Holder
Model SH-4A

eberline

Hand Probe, Model HP-210

GENERAL DESCRIPTION

The Model HP-210 Hand Probe is a rugged, sensitive detector for monitoring beta (β) radiation. This hand probe offers a G-M tube with a thin mica window, a large open area protected by a sturdy wire screen which allows useful sensitivities for β energies down to about 40 keV. The probe is also alpha sensitive. It is ideal for contamination control when used as a personnel frisker, or to monitor tables, floors, equipment, etc. The high-density tungsten shield makes it possible to monitor for low levels of β radiation in a gamma field. When monitoring in a low level radiation field, an optional aluminum probe housing may be used in place of the tungsten shield for considerable weight reduction.

The Model HP-210 Hand Probe may be used on any Eberline +900 V portable instrument or laboratory monitor.

SPECIFICATIONS

OPERATING VOLTAGE: 900 ±50 V.

PLATEAU LENGTH: 100 V minimum.

PLATEAU SLOPE: 0.1%/V maximum.

DEAD TIME: 50 μseconds maximum.

TEMPERATURE RANGE: -55°C to +75°C.

LIFE: Unaffected by operation.

MICA WINDOW THICKNESS: 1.4 to 2.0 mg/cm^2.

MICA WINDOW SIZE: 1-3/4 inch (4.45 cm) dia., 2.4 inch^2 (15.5 cm^2) area.

SERIES RESISTOR (in probe): 3.3 MΩ.

GAMMA SENSITIVITY (^{60}Co into window): Approximately 5k counts per minute (cpm) per mR/hr.

SHIELDING RATIO (front to back ^{60}Co): Approximately 4:1.

*BETA EFFICIENCY (1 inch dia. source):

^{90}Sr-^{90}Y (E_{max} 0.54 - 2.2 MeV): Approximately 45% of 2π emission rate.
^{99}Tc (E_{max} 0.29 MeV): Approximately 30% of 2π emission rate.
^{14}C (E_{max} 0.15 MeV): Approximately 10% of 2π emission rate.

ALPHA SENSITIVITY: 3 MeV or higher at mica window.

CONNECTOR: BNC series coaxial.

SIZE: 6-1/2 inches long x 3-1/2 inches wide x 3-7/8 inches high (16.5 x 8.9 x 9.8 cm).

WEIGHT: 4-1/4 pounds (1.9 kg) with shield, 1-1/2 pounds (0.7 kg) without shield.

SHIELD: High density tungsten.

*All efficiencies with screen in place. Removal of screen will increase given efficiencies by approximately 40%.

Model SH-4A continued on the following page.

eberline P.O. Box 2108, Santa Fe, New Mexico 87501 (505) 471-3232 TWX:910-985-0678

LILCO, July 19, 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 Proceeding)
(Shoreham Nuclear Power Station, Unit 1)	)	
	)	

CORRECTIONS TO LILCO'S TESTIMONY
ON CONTENTION 77 (THYROID CONTAMINATION
EQUIPMENT AT RELOCATION CENTERS)

The following changes should be made to LILCO's testimony on Contention 77 (Thyroid Contamination Equipment at Relocation Centers), dated March 2, 1984.

Testimony Cite	Change to Testimony
Page 2 of Purpose Section, line 5.	Change "within 15 miles of the Shoreham Nuclear Power Station" to "as appropriate."
Page 1, lines 25-26.	Change "Long Island Lighting Company, P.O. Box 628, Wading River, New York, 11792" to "Indian Point Power Station, Broadway and Bleakley Avenues, Buchanan, New York, 10511."
Page 3, line 1.	Insert "I am employed by Consolidated Edison Company of New York as General Manager-Environmental Health and Safety."
Page 3, line 1.	Change "I am employed" to "Until June 8, 1984, I was employed."

Page 3, line 6.	Change "I am" to "At LILCO I was."
Page 9, lines 23-24.	Change "that are less than 15 miles from the Shoreham Nuclear Power Station" to "as appropriate."
Page 9, line 28.	Delete "within 15 miles of Shoreham."
Page 10, line 3.	Change "of 150 cpm" to "equivalent to 150 cpm on an HP-270 probe."
Page 10, line 5.	Change "shield" to "shielded HP-210 probe."
Page 11, lines 5-6.	Change "of 150 cpm" to "equivalent to 150 cpm on an HP-270 probe."

Respectfully submitted,

LONG ISLAND LIGHTING COMPANY

Donald P. Irwin
Renee F. Falcone

Hunton & Williams
Post Office Box 1535
Richmond, Virginia 23212

DATED: July 19, 1984

#14-13-SueT1

MR. IRWIN: I think the witnesses are ready for cross examination.

JUDGE LAURENSON: Mr. McMurray.

MR. MC MURRAY: Thank you.

INDEXXX

CROSS EXAMINATION

BY MR. MC MURRAY:

Q Mr. Miele, you left LILCO. Are you still in the health physics area?

A (Witness Miele) Yes, I am.

Q What is your new position?

A I'm the General Manager of Environmental Health and Safety for the Consolidated Edison Company of New York. And that's primarily responsible for the radiation protection health physics for their Indian Points Units Number 1 and 2 Nuclear Power Station.

Q When you were working for LILCO, were you responsible for the decision to use the RM-14 with the HP-270 probe?

A In regard to?

Q Thyroid monitoring?

A I was consulted on it in advised emergency planning that it was acceptable for this purpose.

Q Did you have any concerns about its use?

A I expressed the opinion that it was a good device for what they wanted to use it for, but my position was that

#14-14-SueT1

possibly utilizing it in conjunction with the HP-210 probe may give us a combination of a more effective monitoring system.

Q Is it your understanding that the two probes would be used in conjunction with one another, or that it would be an either/or proposition?

A It is my understanding that both of them will be used at all relocation centers.

Q Mr. Daverio, is that your understanding?

A (Witness Daverio) Yes. And the reason is we have also, though not reflected, have done some more thinking about child thyroid and at each relocation center we will be using the HP-210 to monitor children's thyroids because of its higher sensitivity.

Q Mr. Daverio, are you now changing your testimony about which probes are going to be used where?

A I think the corrections to the testimony that we put in talk about that as appropriate. There are no -- under the latest revision to the emergency plan, or our latest thinking on relocation centers, there were no relocation centers within fifteen miles.

Q Which change in your testimony shows that the HP-270 and the HP-210 are going to be used in conjunction at each relocation center?

A I guess the one on Page 2 of the changes, as

#14-15-SueT

appropriate. I guess that doesn't say in conjunction. But the in conjunction, in my opinion, is they both might be used at the relocation center. You may not use them both on the same person as far as I know anyway.

(Witness Miele) If you look at Page 9, Question 13, it addresses: Will any other equipment be used to measure thyroid contamination levels.

And it says in addition to the HP-270 that we are going to use the HP-210 probe. The "as appropriate" refers to how we are going to use it.

But the intent of that was to say in addition to the 270, the 210 is going to be used.

Q Just to get this clear now. You are going to use the 210 at every relocation center, correct?

A The 210 will be available to be used at each relocation center, yes.

Q Will it be used on every individual?

A It may not be necessary to be used on every individual.

Q Under what circumstances will it be necessary to use the 210 probe rather than the 270 probe?

A If we have a higher background that the shielded 210 probe will be able to provide more -- not more information, but a clearer indication of thyroid contamination.

Q Mr. Daverio mentioned a concern about children.

#14-16-SueT

How does that deal with the 210 probe?

A In regard to the child's thyroid, the 210 probe is a more sensitive instrument, and it can see lower levels of thyroid contamination. It is approximately three to four times more sensitive than the HP-270 probe.

Q Mr. Daverio, when was the decision made to have the 210 available at all relocation centers?

A (Witness Daverio) I can't give you a specific date as to when that decision was made. I think it may have been made in conjunction with the changing of the relocation centers. But I don't have a specific date.

Q So we are talking about the last few weeks, though, correct?

A That's correct.

Q Has any attempt been made to tell the County of this change other than the revisions to your testimony that appeared today?

A I'm not aware of any.

Q Mr. Miele, I believe what you have said is that for any particular individual, either a 210 or a 270 probe would be used. They wouldn't both be used on the same person, right?

A (Witness Miele) No, I didn't say that.

Q They might be used on the same person?

A You might, depending on the background you would

#14-17-SueT

probably initially start with the HP-270 but due to the background, if it was possibly too high on the 270 as indicated in this contention, we would switch to the shielded HP-210 probe.

Q And what background conditions would cause the switch to the 210?

A If you could not see a reading on the first scale of the RM-14, the 0 to 500 cpm scale, you would switch to the HP-210 probe.

Q And what background conditions would that be?

A Oh, probably something in the 350 range I believe. 350 to 400 range.

Q In the 350 to 400 range?

A Yeah. It depends, you know, if you were in the 400 range you could see 50, 60 counts and still be on the first scale. If you were looking to measure 150 counts, well then you would have to be no greater than 350.

end #14
Joe flws

1 So it is the combined amount.

2 Q Isn't the level of contamination -- or the

3 threshold level of contamination which is relevant here,

4 the level of 150 CPM to the thyroid?

5 A Yes, it is. That is 150, measured with an HP-270

6 probe.

7 Q And what would be the equivalent for the HP-210

8 probe?

9 A On the order of, as I said, it is three to four

10 times more sensitive, so you would be talking 450 to 600,

11 so let's say in the area of about 500 CPM.

12 Mr. Miele, was the possibility of high background

13 and the greater sensitivity of the 210 probe, the only

14 reason, in your mind, for now making that 210 probe available

15 at all relocation centers?

16 A My discussions with emergency planning when I

17 suggested adding that probe, and it was back a few months

18 ago, was for that purpose. Their final decision and why

19 they did it, I really can't address.

20 Q Mr. Daverio, can you shed any light on that?

21 A (Witness Daverio) As I mentioned before, that

22 was one of the reasons. Also, the concern about the child

23 thyroid and the more sensitive probe was also why we

24 included the 210.

25 Q Any other reason?

A Not that I am aware of.

Q Doctor Cordaro, do you have anything more to add on that?

A (Witness Cordaro) No.

Q Mr. Miele, you said before that the threshold level that was going to trigger the decision of whether or not to send someone to the hospital was whether or not they measured in the range of a 150 counts per minute using the HP-270 probe, correct?

A (Witness Miele) Yes.

Q Now, in earlier revisions of this Plan, the threshold level was set at 75 CPM for the 270 probe, isn't that correct?

A I don't recall that. I really don't remember that.

Q Mr. Daverio, you don't remember that?

A (Witness Daverio) I don't recall that either.

Q Doctor Cordaro, do you recall that?

A (Witness Cordaro) No.

Q So in your mind, the threshold level throughout all stages of the Plan, from Rev. 0 to now, has been150 CPM using the HP-270 probe?

A (Witness Miele) I really don't know what it was in the initial stages of the plan. I don't recall whether I reviewed that specific section of the Plan.

1 When I became involved with this issue, I recall using the
2 number 150 during my involvement.
3 Q The RM-14, Mr. Miele, has two response times,
4 correct?
5 A Yes; I believe it has both a fast and a slow
6 response.
7 Q Could you describe briefly the difference
8 between the response times, and how -- what that means
9 for measuring thyroids?
10 A The response times, I guess, -- it is a little
11 resistor in the circuit, which kind of averages the reading
12 over a period of time.
13 In other words, the fast response is a shorter
14 time frame. In other words, it quickly reads it, and you
15 will see more of a bouncing on the scale, while the slower
16 response is a longer time constant, and you will see less
17 of a variation in the number.
18 Q During the time that the RM-14 is being used
19 to help measure thyroids at the relocation -- thyroid
20 contamination levels at the relocation centers, at what
21 speed would the RM-14 be set. Or what response time would
22 it be set?
23 A Let me check in the procedure for a moment.
24 I believe it -- well, let me just check to make sure.
25 (Witness peruses document.)

1 I can't seem to find it right now. I know we
2 take about a minute and a half to do the surveying, and we
3 do it fairly slowly. I can't right now pick up the number
4 for you, whether it is set on slow or fast.
5 Q All right. It is not in the procedure. I think
6 I agree with you it is not in the procedure. It is also
7 your understanding that the survey of the thyroid takes
8 about a minute or a minute and a half?
9 A I believe a minute and a half was the personal
10 monitoring. It doesn't need to take that long. Let me
11 just see what the exact number is. It is more like on the
12 order of about five seconds, I believe.
13 I believe in the Plan here that we do take the
14 measurement for about five seconds.
15 Q But you don't know what response time the RM-14
16 is set on.
17 A It is probably set on fast response,and I don't
18 recall offhand, to be honest with you.
19 The way it would work on a fast response setting
20 in a five second scan, if you see any indication of a
21 positive reading, or even a bounce on the scale, you would
22 then take longer with that individual and switch it to the
23 slower response to have a more positive indication.
24 Q Where does it say that in the OPIP, and I am
25 talking about OPIP 3.9.2?

MR. IRWIN: I am going to object to the continuation of this line of questioning, unless it is directed toward differences in sensitivites of the meters, because the Contention does not get into anything regarding time to monitor, and -- nor does the testimony.

MR. McMURRAY: Judge Laurenson, the Contention deals with the sensitivity of the probe and the accuracy of the RM-14; the response time that is used is directly related to the accuracy of the reading.

MR. IRWIN: If that is the question, then I think that is maybe the one that can be asked. If we are getting into times per se, I fail to see the relevancy.

JUDGE LAURENSON: Objection is overruled.

WITNESS MIELE: Would you repeat the question, please?

BY MR. McMURRAY: (Continuing)

Q The procedure that you just stated, that one might switch response times on the RM-14 is not set out in OPIP 3.9.2, which is the relevant procedure here, isn't that correct?

A (Witness Miele) That is right. The procedure says if you see any reading at a 150 CPM above background, which you would in five seconds on a fast response, you then send them to the hospital for follow up evaluation. And that would be perfectly easy to do in five seconds on a

high response.

Q And you would agree, wouldn't you, if you had it set on the slow response that a five second reading would not give you an accurate determination of the number of counts per minute, correct?

A I am not sure. I didn't say that. I said what I would personally do, but if you see a high response on the fast range, you would pick it up. It may be overly conservative, and that the numbers may be not that significant or that high, but you wouldn't miss a thyroid contamination if you did that and followed the procedure and sent them to the hospital at that indicating point.

Q My question is: The RM-14 was on the slow response, isn't it true that in five seconds you would not be able to get an accurate reading of the counts per minute?

A I believe you could. I believe in a five second scan, or -- it is not really a scan, it is just a placement in one area -- that you could see that.

Q Well, isn't it true that for the slow response time, you only get ninety percent of the full reading of the contamination level in twenty seconds?

It takes twenty seconds to get a ninety percent level reading, isn't that correct?

A Yes, that is correct.

Q So, how do you say that in five seconds you can

1 get an accurate reading of the counts per minute?

2 A I was in error. You should have it on the fast

3 response time.

4 Q Now, when you have it on the fast response

5 time -- strike that. Let's talk about how background is

6 measured, Mr. Miele. Isn't it true that when you are

7 measuring background -- unless I say differently, let's

8 talk just about the 270 probe, and not bring in the 210

9 probe yet. You measure background with the shield on the

10 probe open?

11 A Yes, you do. Yes, yes.

12 Q And the significance of that is that you measure

13 both betas and gammas, correct?

14 A Yes.

15 Q When you measure for background, are you

16 attempting to measure the background from a certain

17 direction. Maybe my question wasn't clear. Did you not

18 understand my question?

19 A You can elaborate.

20 Q With the shield open, is the 270 probe directional

21 in its measurements?

22 A The shield is, I don't believe, totally around

23 on a 270. You would be measuring gamma from all directions,

24 and beta from, I believe, at least a 180 or 270 degrees. I

25 don't believe it goes totally around.

1 But for the majority of the direction, you would.

2 Q Do you think that the window covers between a

3 180 and 270 degree area?

4 A I believe so. I believe it is about 270. It is

5 just two little corners in either end of the complete

6 circle that may be slightly covered.

7 Q Okay. What is the level of uncertainty of a

8 reading that you get on a RM-14 set at the fast response

9 level?

10 A I don't exactly understand what you mean by,

11 'uncertainty.'

12 Q Well, you stated that when you take a reading

13 on the RM-14 at the fast response level, you get a lot

14 greater bouncing of the needle than you do when it is

15 set at the slow response time, isn't that correct?

16 A I say you might have more variance in the

17 needle than on the slow response.

18 Q When you have that variance -- how do you pick

19 a value for what the -- for what the background level is

20 if the needle is registering between a certain range of

21 values?

22 A To be on a conservative side, I probably take

23 the higher reading.

24 Q That is what you would probably do, or is that

25 what you would do?

A That is what I would do.

Q Is there any guidance to that effect in OPIP 3.9.2. that that is what the people in the relocation centers doing the measuring should do?

A The procedure just states to record the background with the probe shield open.

Q It doesn't say to pick the high end of the range, correct?

A I can't find that. No, I don't believe that it does. It also doesn't say to take the low number.

Q When one chooses a value to represent the reading on the RM-14, is that an absolutely accurate reading, or is there a level of uncertainty?

A Which number are we referring to; a background, a reading or --

Q Let's say background. Is there a level of uncertainty for a reading?

A There probably is an amount of uncertainty in that number.

Q Isn't the uncertainty the square root of the number of counts that have been recorded?

A A little more goes into than that, but that is part of the way the formula would work out.

Q That would roughly indicate to you what the level of uncertainty would be, isn't that correct?

A If you are talking just an instantaneous one count reading, not a background over a long period of time.

As ypu are measuring over a long period of time, the repeatability in that number greatly decreases the uncertainty, and it would be divided by the amount of time that you are counting. So, if you are talking just an instantaneous count, you are right. But if I did it over an hour, a minute, or -- the longer time you are repeating the same number, it greatly reduces that uncertainty.

Q So the level of uncertainty at five seconds would be greater than the level of uncertainty for a reading taken at a minute, correct?

A Would you repeat that, please?

Q The level of uncertainty for a reading taken over the course of five seconds would be much greater than the level of uncertainty for measuring the same item over the course of a minute, correct?

That is correct.

End 15.
Mary fols.

Sim 16-1

Q Now when you are measuring something that has a count, and let's take the 150 CPM count, in five seconds the number of counts that would be equivalent to 150 counts per minute would be 12.5 counts, correct? In other words, 12 point counts ---

A (Witness Miele) Plus or minus 12, are you saying on 150 counts is the uncertainty?

Q No, no, no. Let's say in a period of five seconds using the fast response time you measure 12.5 counts. That would equal 150 counts per minute, correct?

A No. It is the count rate that meter reads. It doesn't read counts. So what you actually see is a count rate. So it is the amount of disintegrations that the instrument is reading, and it is over minutes. So you see 12 counts per minute and not 12 counts equal 150 over a minute. You don't multiply by the difference between five seconds and 60 seconds in a minute.

So you are reading an actual rate, 150 counts per minute and not 150 counts.

JUDGE SHON: Mr. Miele, if you will excuse me, I think maybe I can clear this up a little bit. What Mr. McMurray is trying to get at is the actual number of counts during the period over which you average and indeed the inverse of the square root of that is the fair measure of the standard deviation.

Sim 16-2

When he is pointing is that if you had 150 counts a minute and you held the probe in place for only five seconds and based your average on the average reading there, in actuality the machine itself would have registered only 12 counts in that interval and the random statistics of the distribution would be those characteristics of a 12-second count.

Is that not what you meant, Mr. McMurray?

MR. McMURRAY: Thank you, Judge Shon.

WITNESS MIELE: I will agree with that.

BY MR. McMURRAY:

Q Since then the level of uncertainty I think you have agreed is approximated by the square root of the number of counts, then for that five-second reading the level of uncertainty would be somewhere between three and four counts for that five-second reading, correct?

A (Witness Miele) Yes, probably. I just want to make a comment that we are talking of levels of uncertainty and this 150 CPM trigger point should not be misconstrued on being a quantitative number, unless you get to 150 exactly you are going to do something. It is a qualitative measurement. You know, it is not an absolute number.

As I believe I said earlier, if I saw 100 counts above background on the thyroid, I would take

Sim 16-3

further follow up measure in a hospital. It is not that until I get to 150 I am not going to do anything. It is an indication. It is an assessment, hey is there something above background in the thyroid? If there is, let's look into it further. Well, there is nothing there. So that is the point I am making.

So to me if I am off 150 counts, plus or minus 25 counts really dosen't matter to me. If there is something there, fine. If there is not, well, that is good too. But you want to just get a qualitative feel

Q Well, I understand you may believe that, Mr. Miele, and that may be good practice, but isn't it true that the procedure doesn't in fact say that it is a qualitative assessment. In fact, it sets out a quantitative threshold on Item 5.8.1C which states "If readings equal or exceed 150 CPM, or .13 millirems per hour above background, send individuals to the hospital," isn't that correct?

A That is what that section says.

(Pause.)

Yes, that is what that says as the trigger point.

Q I am sorry, it is [illegible]ger point?

A Well, the actio[illegible] point, you are right, at 150.

Q There is nothing in that procedure that says anything about taking any action below 150 CPM, correct?

A Well, it talks about, you know, an average meter reading over that interval, and I guess you can interpret it one way through the training or I discuss the people giving the training, and I believe there are referring to it.

I spoke to the young lady who does the training for these people and we have worked together when I was employed by LILCO over the past couple of months in defining this item in particular, and it is represented more as a qualitative number. Hey, guys, when you get in that area of 150, you should be taking action and you should go to your supervisor. I guess it is called the decon somebody or rad health coordinator or whatever the person is, and that person is aware of these concerns.

So I don't think it is at all portrayed as an absolute hey, if it is at 149 don't do anything. No, that is totally a misinterpretation of it.

Q So what is said in the procedure then is different from what the monitoring personnel are trained to do?

A No, not at all. But I am just saying that

Sim 16-5

the way you are instructed to carry out exactly what the procedure says talks about on the average in the area of 150. It is not a hard and fast thou shalt not do anything at 149. I really can't believe the guy is going to ignore a 149 reading.

Q What guidelines are given to monitoring personnel for them to determine whether a reading is, and let me quote your testimony, "substantial enough to be of concern? Is it just a feeling?

A The 150 is the guidance for what a substantial number would be in the area of 150. You know, I have no problem putting the procedure in the area of 150, you know, if that would make people feel more comfortable, but I believe that is how the monitoring people are instructed to carry out that number.

The sophistication of equipment available does not allow you to make it an absolute number. You know, as you mentioned, there are uncertainties in count rates, sensitivities in geometry. So it can be plus or minus maybe, you know, five percent, ten percent or the numbers that you gave.

So anything in that area would be cause for concern and for further evaluation.

Q Well, I guess my problem is how are personnel supposed to determine what is in the area of 150? Is it

Sim 16-6

140 that is in the area or is it 100 that is in the area?

A I would say anything from 100 on up is in the area, 125.

Q And you believe that personnel have been instructed to send people to the hospital whenever there is a reading of 100 or more?

A My discussions with the trainer, we discussed in the area of 125; 100 or 125 are definitely a positive reading and you should look into it further. I don't think you can draw a line any place. I wouldn't draw the line at 100 because then you will ask me how about 99 if 100 is good.

So I am saying if I see a positive number, if I see a bunch of positive numbers in a row, I would have to evaluate that case. But to me somewhere in the order of 150 is the number, and that can be plus or minus 25, and I would have no problem is someone did it down to 100.

The 150 is derived at using regulatory guidance, conversion factors, et cetera and that comes out to 150, but trying to be more conservative, if I saw a number of 125, I would definitely send them to a hospital for further evaluation.

Q And that is what you mean by look into it

1 further?

2 A Yes.

3 Q Are there circumstances for particular

4 individuals where you would look into it further where

5 the radiation reading was below 100?

6 A Are you talking about me personally, or are

7 you talking about what the procedure says or what the

8 people are trained in? I don't quite understand one.

9 Q Well, if you ask, I will ask you for all three.

10 Let's keep in mind, Mr. Miele, that I am primarily concerned

11 with what LERO is going to do.

12 A I would say below 100 probably not. Below

13 100 I don't think would be interpreted as in the area of

14 150.

15 Q Let's go back to what you said about measuring

16 background. I believe we established that when you measure

17 the background with the shield open that you are measuring

18 both betas and gammas, correct?

19 A Yes.

20 Q When you close the shield you would be

21 measuring almost entirely gammas, correct?

22 A Yes.

23 Q Would you get the same reading if you were

24 measuring the same thing? Would you get the same reading

25 with the shield open as you got with the shield closed?

Sim 16-8

A Can you run that one by again? What do you mean by measuring the same thing?

Q You used the probe to measure things, right?

A No. I used it to measure radiation.

Q If you are measuring radiation in the same area or you are measuring the same item to determine what level of radiation it has, isn't it true that with the shild closed you are likely to get a lower reading than you would with the shield open?

A Not if you are measuring 364 KEV Iodine 131. You would get the same reading.

Q If you are measuring background in a relocation center, the background level, and that consists of both betas and gammas, isn't it true that the level that you would read with the shield open is higher than the level that you would get with the shield closed?

A That is correct if you had a significant beta component in the background.

Q When you measure the thyroid, isn't it true that the procedure says that you measure the thyroid with the shield closed on the HP-270?

A Rev. 2 of the procedure does say that, yes.

Q And isn't it true, therefore, that you would not be measuring betas in the area of the thyroid?

A Yes.

Sim 16-9

Q Isn't it true that to determine the level of the thyroid contamination that one takes the total reading on the RM-14 and subtracts the background reading?

A That is correct.

Q Isn't it true, Mr. Miele, that what this does is give you an inaccurate reading because you are subtracting a level of radiation which has been measured by looking at both betas and gammas and from a reading that is based only on gammas?

A No, that is not correct.

Q Well, let's say you had no gammas coming from the thyroid, isn't it true that by subtracting out the background you actually get a negative reading?

A If there was beta activity in the background, yes, I guess you can come up with a negative number. But I believe the background you are measuring -- well ---

JUDGE SHON: Mr. Miele, again, if you don't mind interrupting, if you compare a couple of sections in your OPIP, in OPIP 3.9.2, Section 5.3.3 and Section 5.8.1B you will find that you measure your background with the window open and you make your measurement with the window closed.

I think what Mr. McMurray is suggesting is that the human body, particularly at thicknesses like the neck is a pretty good beta shield. If there were

Sim 16-10

any beta in your background due to beta emitting gases or particulates in the atmosphere, the body would shield that out and give a falsely low background and in effect you wouldn't see as much thyroid activity as was there.

Is this not correct that when you put the thing with the closed shield on against the thyroid that the background would be lower than it would be with the shield open?

WITNESS MIELE: If you are looking to measure thyroid contamination, what you are looking to measure is the gamma energy given off by, as I said before, the 364 peak from the gamma. You are not looking to measure beta on the thyroid. You don't what your reading to be interfered with.

JUDGE SHON: That is exactly the point. So that the background that you must subtract at that point in Section 5.8.1B must be a closed shield background and not an open shield background, and yet the procedure apparently tells you to use an open shield background. Isn't that the point, Mr. McMurray?

MR. McMURRAY: Thank you, Judge Shon.

(Pause while counsel are conferring.)

WITNESS MIELE: I believe what you said is correct, yes.

MR. McMURRAY: Thank you.

end Sim
Sue fols

#17-1-SueT1

Q Thank you. In Table 3.9.1 of the plan, Mr. Miele, it says for the thyroid of a child any reading above the background as determined by the RM-14 with the HP-270 probe shield closed would cause that child to be sent to the hospital, a hospital with nuclear medicine capability.

Were you aware of that section of the plan?

A (Witness Miele) I have it in front of me. Yes.

Q Do you still agree with your previous testimony, that if you had a reading of less than 100 over background that you wouldn't take any further action?

MR. IRWIN: I'm going to object to this question, because it is just clearly not -- Mr. Miele jumped in and answered the previous one, but there is nothing about relative thresholds of action levels in the contention. We got into discussions of what the environs of a 150 cpm was.

We are talking now about a separate, different action level, as I understand it, for children from an OPIP which I don't believe is even attached to the plan, according to the testimony.

MR. MC MURRAY: Judge Laurenson, it has to do with the very issue that LILCO has raised in its testimony regarding the margin of error in the readings. Mr. Miele has stated that under a certain level below what he believes to be the margin of error, he would not take any protective

#17-2-SueT 1 action for anybody. And that's contrary to what the, I
2 guess, one portion of the plan says. And I think we ought
3 to get this cleared up.
4 MR. IRWIN: The question was in the context of
5 a 150 cpm threshold. He has changed the threshold, and
6 that's not part of the contention or the testimony.
7 MR. MC MURRAY: The part of the contention to
8 which this is relevant, Judge Laurenson, is in the first
9 sentence which says that the RM-14 for the HP-270 probe
10 will be incapable of differentiating the required signal
11 from background readings.
12 And we are getting into the issue now, if you
13 have just a small amount, a small reading, above background
14 are you going to be able to detect that reliably and base
15 protective actions on it.
16 MR. IRWIN: Well, the contention goes on to
17 refer to the 150 cpm threshold. It doesn't talk anything
18 about different thresholds.
19 MR. MC MURRAY: Well, if you can't measure 150
20 reliably, how can you measure 3 reliably or 4? That's the
21 problem.
22 MR. IRWIN: I'm not going to get into a rhetorical
23 debate. But the point is, the contention doesn't discuss
24 anything except the 150 cpm threshold. And, in any event,
25 the previous context of the questioning was against the

#17-3-SueT

background of a 150 cpm.

JUDGE LAURENSON: I believe that we have wandered beyond the scope of Contention 77 here. And I do not see this as relevant to the issues that are raised in that contention.

The objection is sustained.

MR. MC MURRAY: Judge Laurenson, let me also refer the Board to the next to the last sentence of the contention which says: In addition, the plan provides no information or instruction on how to make a measurement if the background reading exceeds 50 cpm.

Again, this question goes to that very issue.

MR. IRWIN: A background is different from an action level.

JUDGE LAURENSON: It's a different question entirely.

BY MR. MC MURRAY: (Continuing)

Q Mr. Miele, do you know what signal to noise ratio is or what that means?

A (Witness Miele) Not exactly.

Q As a health physicist, that does not mean anything to you with respect to the measuring levels of contamination?

A That's putting it in a different context. The noise on an instrument would probably give you indications of cpm or some indication on the scale of the RM-14 which

#17-4-SueT 1 isn't coming from radioactive material.

2 Q Isn't it true that noise is another word for

3 the background level of radiation?

4 A No, not at all.

5 Q What does the signal mean, then?

6 A The signal is the background level. It's what

7 the scale of the RM-14 is indicating, truly indicating

8 from radioactive material.

9 Q So, in your opinion, signal to noise ratio would

10 be the ratio of -- the background radiation level to the

11 level of some other non-radiological type of value, non-

12 radiation type of value?

13 A (The witnesses are conferring.)

14 The noise is the, you know, electronics variation.

15 As far as the ratio to the signal, not being an electrical

16 engineer, I don't know exactly what that means. But it's

17 on this type of instrument and, you know, years of experience

18 with it, what it means in the practical realm is that you

19 may see maybe one or two counts on the -- counts per minute --

20 monitor that are not really coming from radiation. And it

21 would look like it's included in the background if that's

22 what you were referring to.

23 Q Well, let's try and approach it this way. Let's

24 just consider the ratio or the portion of the thyroid radia-

25 tion reading to the background radiation reading. And let's

just call that the signal to noise ratio, okay.

MR. IRWIN: Objection. It has not been established that that is a viable technical concept. Mr. Miele said he doesn't agree with it.

JUDGE LAURENSON: Sustained.

BY MR. MC MURRAY: (Continuing)

Q All right. Let's just consider the thyroid radiation reading over the background radiation reading and consider that ratio. Now, wouldn't you agree, Mr. Miele, that there is a level at which that ratio makes the thyroid radiation reading unreliable?

A The smaller that ratio, until it becomes infinitesimally small becomes reliable. If you are looking to see one count above background in a 100 or 50 background area, you are not going to see it. The --

Q I think you meant unreliable, right?

A The smaller that ratio becomes, and as it approaches zero, the more unreliable that reading becomes.

Q Now, let's say you had a background of 150 or so cpm, you wouldn't really be able to reliably determine whether or not someone had a reading of 25 or 30 cpm above background, would you?

It would get lost in the background, isn't that correct?

A It would be difficult to see 25 counts in a

#17-6-SueT1

100. You said 150 count background? Yeah, I will agree to that.

Q That's especially given a five second reading, right?

A Well, even on a long reading time; I don't think the five seconds really has that much to do with it. But 25 would be difficult to see in a 150.

The biggest difficulty is not so much its ratio to the background but the actual what you can see on the scale itself, the intervals on the scale, and the number you gave me of 20 or 25 is a very small indication. I guess it's basically one integer on that 0 to 500 scale of an RM-14.

Q So, it would be really difficult to determine then whether a child had received any level of contamination above background, wouldn't it?

MR. IRWIN: Objection.

WITNESS MIELE: No.

MR. IRWIN: Relevance. Children, old ladies, adult males, adult females. I thought we were talking about numbers above background.

MR. MC MURRAY: Again, Judge Laurenson, we are talking about differentiating the required signal from background readings, which is what the whole point of 77 is.

MR. IRWIN: If it's difficulty in seeing 25 or 30

#17-7-SueT1

counts above a background of 150, I believe that Mr. Miele has just answered that question. He said it would be difficult to see.

JUDGE LAURENSON: The objection is overruled.

WITNESS MIELE: I believe Mr. Daverio stated that one of the reasons for the switch in the child thyroid monitoring from the HP-270 to the HP-210 was to look at the child's thyroid.

As I stated earlier, the HP-210 probe is on the order of three or four times more sensitive than the HP-270. So that 20 counts that we were talking about before on an HP-210 becomes 80, 90 counts, which is very easy to pick up.

BY MR. MC MURRAY: (Continuing)

Q Well, the ratio of the thyroid level to the background level remains the same, doesn't it, even though you use an HP-210 probe?

A The ratio becomes four times higher.

Q Aren't you measuring both background and the individual with the 210 probe?

A The ratio would be the same. But as it goes up to a higher level you are no longer looking at an absolute ratio. As I stated before, you are looking at the physical or the absolute increase above background.

In other words, 200 over 100 is a two to one ratio.

#17-8-SueT

And it's like two to one, so you could see it. But if I went 400 over 200, still two to one ratio, but now I see a 200 counts per minute difference which is a lot easier to see than a 100 count per minute difference.

So, the ratio isn't a way to measure whether you can see it or not. It's your absolute value above background whether you can physically see it. So, the ratio really doesn't matter in whether you can detect something.

Q Mr. Daverio, according to the procedure, the background level is measured before anybody comes into the monitoring area, correct?

A (Witness Daverio) I would --

(The witness is going through documents.)

MR. MILLER: Judge Laurenson, while Mr. Daverio is looking for that, I would say I am not going to be more than another half an hour.

MR. IRWIN: We will be ready with 24.R then after the break I would guess this afternoon.

JUDGE LAURENSON: I'm sorry.

MR. IRWIN: If Mr. McMurray is proposing to finish by 4:30 and we presume we take a break at that point or soon thereafter, we will --

JUDGE LAURENSON: That clock isn't working.

(Laughter.)

MR. IRWIN: I'm sorry. A little bit after 4,

#17-9-SueT

we will be ready with the witness panel for Contention 24.R after the afternoon break.

WITNESS DAVERIO: In reviewing the procedure, you are correct. You would do that first.

BY MR. MC MURRAY: (Continuing)

Q Okay. How frequently is background then measured again?

A (Witness Miele) You are basically always indicating background at any time that you are not monitoring. If the instrument is on and the background is staring at you all the time, so you are constantly looking at what the background measurement is.

Q When the -- the procedure only tells you to measure the background initially and does not tell you to measure the background before you monitor each individual person; isn't that true, Mr. Miele?

A The sheet, which is the exposure record sheet, is filled out per individual. And in Section 3 of the sheet, it talks about the background count. You fill out this sheet per individual. You go down the line listing his name, and when you get to Section 3 you would read the background at that time, fill it in and then go through your measurements of the person.

So, I interpret this as being done at the time for the individual. Maybe Mr. Daverio has something to add

#17-10-SueT1

to that.

(Witness Daverio) That's how I would interpret it. Though, again if you have not seen any contamination the background reading may be the same all the time. But you would have to write it down each time you filled out that sheet.

Q Let's talk about the 210 probe for a minute, Mr. Miele. How do you -- what's the basis for your statement that the 210 probe can measure contamination in the background radiation field four times greater than would be possible with the HP-270?

A (Witness Miele) It's a combination of two items. The primary one is that it is on the order, as I stated before, four times more sensitive to picking up activity and that will give you the bigger delta counts per minute over the background.

Plus the fact that you do get some shielding factor due to the tungsten shielding around the Pancake GM probe.

Q Let me get a little better understanding of how the 210 probe is going to be integrated into the procedure.

What will be the threshold reading for -- well, is it true that the threshold reading for measuring -- for determining whether somebody should go to the hospital

#17-11-SueT1

or not, using the 210 probe, is going to be 450 to 600 counts per minute? Is that what you said earlier?

A Yes.

end #17

Joe flws

1 Q That is not in the procedure at this time, right?
2 A That is correct.
3 Q Is the 210 probe even mentioned in OPIP 3.9.2?
4 A I don't believe so. No, I don't think so.
5 Q Is the child thyroid trigger measurement level
6 mentioned in the procedure?
7 A No, it is not.
8 MR. McMURRAY: Judge Laurenson, I have no further
9 questions.
10 JUDGE LAURENSON: Mr. Zahnleuter?
11 MR. ZAHNLEUTER: No questions.
12 JUDGE LAURENSON: Mr. Pirfo?
13 MR. PIRFO: The Staff has no questions.
14 JUDGE LAURENSON: Any redirect?
15 MR. IRWIN: I would like about five to ten
16 minutes to consult with the witnesses and see if we have
17 any redirect. I may have probably about five minutes of
18 questions.
19 For the Board's information, I have -- as soon
20 as I noticed he wss nearing the end of his questioning,
21 called to Hicksville and the witnesses for Contention 24.R
22 are at this point on their way over. They should be here
23 within half an hour, so if we take a five or ten minute
24 recess and let me consult with them, my guess is that --
25 JUDGE LAURENSON: Well, let's take a ten minute

1 recess at this point, and we will reconvene.

2 (Short recess taken)

3 JUDGE LAURENSON: We are back on the record.

4 Any redirect, Mr. Irwin?

5 MR. IRWIN: Yes. I have brief redirect, Judge

6 Laurenson. Let me just reconfirm that the witnesses for

7 Contention 24.R are in fact on their way from Hicksville

8 right now. We didn't expect things would finish up quite

9 this soon, so I expect my redirect won't take as long as

10 it will take them to get here, but they will be here quite

11 soon.

12 JUDGE LAURENSON: We just want to remind you

13 that you don't have to fill up all the time.

14 MR. IRWIN: I am disclaiming any attempt to.

XXX 15 REDIRECT EXAMINATION

16 BY MR. IRWIN:

17 Q Let me ask this of the panel generally -- or,

18 actually, Mr. Daverio. Mr. Daverio, do you remember Mr.

19 Miele testifying with respect to the position of the

20 RM-14 probe shield, that it should be -- excuse me --

21 that the probe shield was currently required by OPIP 3.9.2.

22 to be open when conducting background sampling of the

23 thyroid?

24 A (Witness Daverio) Yes, I remember Mr. Miele

25 saying that.

Q And Mr. Miele saying that that was -- strike that. Is that provision of the OPIP, which is contained in paragraph 5.3.3. of the OPIP correct, or is it in error?

A After discussions with Mr. Miele, we should be taking background for thyroid with the monitor closed, so it is in error.

Q And the actual scanning of the thyroid should also be conducted with the slide closed as well, is that correct?

A That is correct.

Q Do you intend to revise the OPIP to reflect -- to correct that?

A Yes, we do.

Q Just to make it absolutely clear, that you not only intend to, but you will, in fact, change the --

A The next revision will include that change.

Q In the direct testimony on page 9, there is a discussion of use of the HP-210 monitor, and a statement that it would be incorporated into some future revision of the Plan. Do you see that statement?

A Yes, I do.

Q Do you intend to incorporate references to the HP-210, and appropriate implementation of it in the OPIP, into the next revision to the Plan?

A We will.

Q At that point, do you intend to include -- or will you include discussion of child thyroid measurements using HP-210?

A Yes, we will.

Q Again, Mr. Daverio, do you recall Mr. Miele stating that use of the RM-14 monitor for thyroid measurements should be conducted with the monitor in the fast position?

A Yes, I do.

Q And that that is not currently specifically indicated in OPIP 3.9.2?

A It is not specifically in there right now.

Q Will a specification that the RM-14 monitor is to be used in the fast position for thyroid measurements being included in the next revision to OPIP 3.9.2?

A It will.

MR. IRWIN: I have no further questions.

JUDGE LAURENSON: Any further questions of this panel?

MR. McMURRAY: No, Judge Laurenson.

JUDGE LAURENSON: All right. At this point the panel is excused, and thank you for your testimony.

(Panel stands aside.)

(Off the record discussion ensues)

JUDGE LAURENSON: We are back on the record now. The Board welcomes back Mr. Lanpher to our humble

1 proceeding, and the order that we have agreed upon at this
2 point is that we will discuss the items that the Board
3 listed on its agenda when we started this week's hearing
4 on Tuesday, in a slightly different order.
5 The order in which we will take these up is
6 that we will begin discussing the questions concerning
7 the proposed findings of fact and conclusions of law.
8 The second item will be the schedule for August.
9 The third matter will be the status of the legal contentions,
10 and the fourth and final area will be discussion concerning
11 the Board's inquiry about the strike and its effect on this
12 proceeding.
13 So, we first begin with proposed findings of
14 fact and conclusions, and I guess the place to start,
15 probably is the regulation, which is 10 CFR 2.754 that
16 sets forth time limitations concerning proposed findings
17 of fact from the time the record is closed.
18 And for the purpose of this discussion, just
19 to have something concrete, I think we should assume that
20 the record on this case, as far as the hearing is concerned,
21 will close on August 31st.
22 If we assume that, the section of the regulations
23 provides that the Applicant's findings are due thirty
24 days thereafter; the Interveners would be due forty days
25 after the record is closed; the Staff's are due in fifty

1 days, and then there is a period of five additional days
2 for the Applicant to file Reply Findings.
3 So, that is the time sequence that is provided
4 for in the regulation. Of course, the Board has the authority
5 to vary this, and that is the reason I am bringing it up at
6 this point, because I think everybody has to be thinking
7 about writing these and when they are going to be ready.
8 The other questions that I put on the table
9 concerning the proposed findings is a page limitation.
10 Whether that is advisable. For the record, we will indicate
11 that in the Board's view, we got buried by the parties on
12 the proposed findings on the three contentions back in
13 December. And we have a bookshelf full of proposed findings
14 on those three contentions, and projecting that to what
15 might come in at the end of the case, we feel that we should
16 at least discuss the possibility of some sort of a limitation,
17 and, of course, I think another thing to put in context here
18 is just the size of the contentions.
19 I think that the contentions themselves should
20 be probably written in some sort of appendix would be
21 attached to the proposed findings, and shouldn't take up
22 space in the findings or be counted against any page numbers
23 that we are talking about,
24 The third and last item that we listed was an
25 agreed up uniform Table of Contents, so that it would be

18-7-Wal

of assistance to us to find all of the arguments on a certain point in everybody's brief or proposed findings at the same place.

So, those are the things that we are concerned about on proposed findings, and at this point we will open the floor to hear your views on this.

End 18.
Mary fols.

Sim.19-1

1 We will begin with LILCO.

2 MR. IRWIN: Judge Laurenson, let me address
3 all three of these issues in order with the recognition
4 that there may be some interplay among them.

5 In terms of the time for filing findings,
6 the regulations prescribe what in this case would be a
7 tight but I think in all respects except one realizable
8 schedule given the lead time between now and the closing
9 of the record.

10 The respect in which I would suggest that the
11 regulations need to be construed is LILCO's reply finding
12 time. I would understand that that reply time would be
13 a consolidated reply time rather than replying separately
14 to each set of findings as they come in from intervenors
15 and the staff.

16 With the exception of that, LILCO believes
17 that it could comply with the presumption in the regulations,
18 namely, LILCO file its findings 30 days after the closure
19 of the record, intervenors file theirs 40 and staff 50
20 and LILCO file its reply findings 55 days after the
21 closure of the record.

22 If that time schedule is expanded for other
23 parties, LILCO would want a corresponding expansion of its
24 own direct and reply findings schedule.

25 Secondly, as to page limitations, it has

Sim 19-2

always been our view that part of the skill of advocacy is rationing the length as well as the substance and the quality of one's arguments. For that reason I have a kind of abstract sense that there is no absolute need for page limitations, and we frankly prefer that there be none.

If there are page limitations, I agree with the suggestion of the Board that recitation of contentions not count against them.

I think also that the way they are structured might depend on how findings are to be structured. There is one school of thought which is followed, for instance, in the safety phase of this case that divided findings into two parts with an opinion section and a finding section supporting each part of the opinion.

It might be useful to consider separate page limitations on each of those two sections, or perhaps to limit the opinion length of the proposed opinion with no specific length on the supporting findings.

There are other schools of thought among different Licensing Boards as to how they like to see findings. I think we personally or collectively would find it useful if this Board does have a preference as to format if it would give us some guidance on that.

I know the Indian Point decision in emergency planning,

Sim 19-3

for instance, did not follow this strictly in an opinions and findings format.

What I am saying is that how the submissions from the parties are to be structured I think will play against any limitation which the Board might want to set on findings.

If the Board were to include a limitation, I think it ought to be a quite generous one. I know that we don't intend to reproduce the Encyclopedia Britainnia in length, but there is a lot of material in this case, and although I think we would intend to condense it substantially, there is between 12 and 13 thousand pages of transcript and a couple of thousand pages of prefiled testimony. And if you boil it down to even a ratio of 20 to 1, you are still talking several hundred pages of findings. I know that is a nightmare for the Board as well, but I think there is a lot of material here.

The third area that the Board mentioned, namely, an agreed upon table of contents, we believe is a good idea. As for proposals on how to do it, I have only one and this is based on a history of discussions with the County as to organizing testimony and structuring the course of the proceedings, and that is that I suspect LILCO and Suffolk County will always have slighltly

Sim 19-4

1 different ideas about how to organize their case to the
2 best advantage of each of them.
3 We are going to have to have some kind of
4 basically uniform arbitrary structure, and I think simply
5 proceeding contention by contention separately numbered
6 with cross-references as necessary is probably the way
7 to do it if one is going to have an agreed upon table of
8 contents.
9 I think we could sit around and we could talk
10 about ideal structures probably for a week or two and
11 not be able to optimize the combination any better than
12 that. I would be willing to try, but my offhand guess
13 is that this will be starting with one and going through
14 99 or 103 or whatever the top number is is the way to
15 do it.
16 Those are our thoughts. As I say, there
17 may be some interplay among them, depending on the Board's
18 outcome.
19 JUDGE LAURENSON: Is there anything further
20 from LILCO on this matter?
21 MR. IRWIN: No, sir. I think that is
22 basically what we wanted to say on that.
23 JUDGE LAURENSON: Mr. Lanpher.
24 MR. LANPHER: If I could take it in reverse
25 order.

Sim 19-5

In terms of a standard format or table of contents, as long as there is flexibility built into whatever format there might be so that if there are additional points that no one can foresee when we set up the format in the first place, we don't have an objection to doing that and it may make some sense.

I think I tend to agree with Mr. Irwin speaking in the abstract, that it probably makes most sense to go contention by contention, but probably this is an area where we could discuss it a little more.

There may be some overview sections that people think are necessary given some unique phases of this case and there may be a need, since this is a first case under the so-called utility plan provision for some legal analysis section also in the proposed findings more extensive than in the proposed findings, but generally we don't object to that idea that you have broached.

With respect to the length of findings, one comment. I think if you think back to November or whenever we filed the initial proposed findings, or the start of December, I think everyone who filed those findings, and I know Suffolk County was concerned with admonition that I believe came from the Licensing Board that if it is not in your proposed findings, don't ask questions about it.

We didn't have a provision for cross-plans

Sim 19-6

at that time, and I know we made sure that everything that we might want to broach was in those proposed findings. I don't think those are indicative of the length of findings that anyone is going to put in in the end since we have subsequently switched to the cross-plan approach.

I was trying to think of a comparison in the health and safety phase of about probably 18,000 pages of testimony, or maybe about 20,000 pages of testimony. I think the proposed findings were on the order of, including opinions, on the order for each side of about 1200 pages, something like that, and that was a better record perhaps than here, though here we have more prefiled testimony probably. It is on the order of 10,000 or 7,000 pages according to our count.

If you going to pose a length limitation, it is going to have to be liberal if people are going to try to be thorough and complete. But I don't think the Board should be concerned if what was put in in November is indicative of what we are intending to do the next time around.

With respect to the question of whether the presumptions in the rules should followed, the 30, 40, 50, 55 ---

JUDGE LAURENSON: Before you go on with that, let me go back to the last matter. I am not sure I

Sim 19-7

1 understand what the County's position is. Is it that
2 there shuld be no page limitation?
3 MR. LANPHER: We don't believe that there is
4 a need for a page limitation. I don't know how many
5 different times we have briefed things before the Licensing
6 Boards in this Shoreham proceeding, LILCO, the staff
7 and the County. I don't think the Boards have ever said
8 that we have been too short or that we have been too long.
9 I mean that hasn't become an issue.
10 JUDGE LAURENSON: I reserve the right to
11 disagree on the last one.
12 MR. LANPHER: Well, we haven't been told
13 by the Board, the Brenner Board or whatever maybe he
14 has told you. I don't know.
15 JUDGE LAURENSON: I am only talking about
16 our Board. I am not talking about the other Boards.
17 MR. LANPHER: All right. I don't think
18 there should be a page limitation on proposed findings
19 of fact. There is a place for page limitations. Those
20 are in the appellate briefs when they want the whole
21 record set out.
22 We have got an extremely complex and tough
23 record here to deal with and I don't know how quite
24 frankly you could go about deciding what is a reasonable
25 page limitation given the number of contentions and all.

Sim ±9-8

Our bottom line is we would suggest that you not impose a page limitation and maybe just caution everyone that you don't an encyclopedia if it can be avoided, but you would want us to focus in on what seems to be important.

JUDGE LAURENSON: Mr. Irwin was rather unspecific in his response, but I did hear the words several hundred pages at one point.

MR. LANPHER: I can't believe that Don really means that, to tell you the truth, knowing the findings that were put in on the other phases of this case. I think that is a gross understatement when you start thinking about it at all.

I know that our findings are going to be much more than several hundred pages.

JUDGE LAURENSON: Could you give us a more specific clew?

MR. LANPHER: No. Just based on past experience and given the size of the record, I would think that the findings of fact will be certainly probably a thousand pages and may be more, the findings of fact, just to go through staff and deal withit as carefully as we can. We don't want it to be any longer than necessary, but I don't think it is on the order of several hundred pages. I shouldn't speak for Don in terms of a gross understatement.

Sim 19-9

JUDGE LAURENSON: What about the time?

MR. LANPHER: Okay. With respect to the time, I can't agree that the 30, 40, 50 and 55 days are tight but realizable. I think that given the size of the record that quality would suffer enormously if we tried to stay with that time limit.

You certainly have discretion to move the time limits in any direction, as you have recognized. It came to mind when I was thinking about this today, for instance, that when the partial initial decision came out last September that the Appeal Board sua sponte recognized that, you know, that the size of that necessitated a change in the appellate filing rules, and we went from 10 days for exceptions to 20 days, and from 30 days for the appeal brief to about 65 or 70 days for the appeal brief, given the size and complexity of the record.

I think here we have -- well, it is obvious. We have got a large record and it is complex. We think that a substantial enlargement of that needs to be encompassed in the schedule.

Part of that also is the realization that there are other things that are going to be going on, not in emergency planning maybe necessarily, but there is a low-power trial that is starting on July 30, there is a diesel trial that is starting on September 5 and some of those

will be in briefing and some of us are doing more than one aspect of this case.

It is going to be difficult to do a quality job on all the phases of this. So we would suggest a substantial enlargement of that.

For ourselves we would like 120 days to get a complete set off findings. I don't know what --- well, I am not going to speak for anyone else, what they need, but we think that can lead to a complete record briefed thoroughly and hopefully concisely, and that is what we would propose.

JUDGE LAURENSON: So you are proposing that if we close the record, or close the hearing rather on August 31st, the date I mentioned, that you wouldn't file then until December 31st?

MR. LANPHER: That is correct, sir.

JUDGE LAURENSON: Okay.

Mr. Zahnleuter.

MR. ZAHNLEUTER: The State agrees that a uniform table of contents would be a good idea.

The State also agrees with LILCO and the County that page limitations would not be a good idea.

With respect to the lengths of times set forth in the regulations, the State would ask for no less time than the County.

In addition, I would add that this proceeding

1 has been continually expedited since the State began
2 its participation in January. And due to that factor
3 it has been very difficult to prepare findings of fact
4 ahead of time and it has been a task just to keep up
5 with the expedited case.
6 So the State would ask for no less time than
7 what the County is given.
8 JUDGE LAURENSON: Mr. Pirfo.
9 MR. PIRFO: Well, with regard to the uniform
10 table of contents, I guess it is no earth shattering
11 statement to say that I guess it is a good idea and
12 everybody agrees on that. What the form or content of
13 that table of contents is going to be is yet to be hammered
14 out. So enough said with regard to the uniform table
15 of contents, and the staff would be agreeable to that.
16 With regard to page limitations, I am sort
17 of the odd man out here. I happen to think it is the
18 position of our office that it is a good idea, and I
19 realize that the chief skill of advocacy is distilling
20 the facts down to a single drop, if you will, and being
21 able to hone your argument and to make it as briefly
22 as possible and undoubtedly that is a fine skill if it
23 is practiced in the page limitations on briefs all around
24 the city and in Washington and in every other count
25 that imposes and recognizes that this doesn't happen in

Sim 19-12

practice and I think that it is, if I can use the expression, a bit Polyanna to think that by not imposing page limits you are going to get as brief a set of findings as possible.

So we would urge that a page limitation be set, and given what the other counsel have stated, obviously we would urge that that be set somewhat arbitrarly by the Board since no one else seems to be willing to make a concession in this area.

JUDGE LAURENSON: Well, since you are the only one agreeing with you, do you want to throw out or put a figure on the table as to what the staff believes is a reasonable page limitation even though it is arbitrarily imposed?

MR. PIRFO: Well, I would be reluctant to do that myself without talking with other people in my office simply because of my relatively recent coming to this case. I can guess at one. We think no more than a thousand would be reasonable, and I think 20 to 1 is probasbly a very generous distilling of transcript pages and testimony pages when you are talking about findings of fact.

At any rate, that is no more than a guess and maybe just a talking point, if I can use that expression.

Sim 19-13

With regard to the schedule, that is pretty much, or the staff position pretty much relies on the position of the private parties. It is their ball game as it were and the staff has no strong feelings. We could live with a much briefer schedule than any of the private parties or the -- I am sorry, since we have only one private party, any of the other parties.

So on that I will defer to what they can work out. I am concerned though that if given free rein, and I just base this on my experience in other agencies, we are liable to get a 2,000 page pile of findings that are black and 2,000 and 1 page pile of findings that are white, and the Board hasn't really been assisted in its job of reaching a determination, and that is maybe there might be some way to avoid that occurring, maybe a submission, and I know this wouldn't be popular, but a submission of part of the findings initially where the applicant submits their findings, the county reacts and the staff reacts, whatever happens to be the scheduling of that. I think that might be a more efficient way to go.

I think there is enough work here involved that there is not going to be much time for responding or addressing the findings of the other parties beyond simply saying, no, they are wrong and here are ours.

end Sim

#20-1-SueT1

I mean, maybe I'm not giving the men and women in this room enough credit, but I'm just going on my instincts and what I've seen in the past.

MR. ZAHNLEUTER: May I also add --

JUDGE LAURENSON: Let me just follow up on that. I don't understand your position.

The times I read out before from 2.754 essentially provided the Staff will file twenty days after the Applicant and ten days after the Intervenors.

Do you agree with that or do you think that should be expanded, or what is your position?

MR. PIRFO: No. I think that time period should be expanded, but I think the way in which it is expanded is contingent upon the way in which the findings are filed.

What I'm suggesting is that maybe there might be a possibility of findings in part, let me put it that, as opposed to -- I'm not sure -- I mean, the regulations also provide that the Board not only can change the time limits but it can also change the manner in which findings are filed. That's what I'm suggesting.

And I'm just saying maybe that might be explored a little bit. It says except as otherwise provided. That does not simply apply to the time limits, as you well know.

I'm not really making a recommendation -- well, I'm recommending that you consider that. But I'm not giving

#20-2-SueT[1]

you a --

MR. IRWIN: May I resond to Mr. Pirfo's remark and to one of Mr. Lanpher's remarks, Judge Laurenson?

JUDGE LAURENSON: Mr. Zahnleuter was first.

MR. IRWIN: I'm sorry.

MR. ZAHNLEUTER: At this time, I didn't wish to make a response. But I did wish to make a supplementation, and I would like to say that the Intervenors intend at this time to file consolidated findings. And so that will require a significant amount of extra time to mesh the findings of all of the Intervenors together into one document.

JUDGE LAURENSON: Are you considering the State of New York in that category of Intervenors?

MR. ZAHNLEUTER: Yes. I did consider the State of New York as an Intervenor.

JUDGE LAURENSON: I'm never totally clear, you understand.

(Laughter.)

MR. ZAHNLEUTER: Well, it's clear that we oppose LILCO. Okay.

JUDGE LAURENSON: I didn't doubt that.

MR. LANPHER: Judge Laurenson, what we are planning to do, and I guess I should have mentioned it at the first. In terms of that time frame, we have talked previously

#20-3-SueT

about the proposed findings, and I think it makes the most sense, rather than have two sets of Intervenors' findings coming in, to have one set. And if there are some that we don't agree to, I mean they can be a supplement, a small supplement.

But, by and large we are intending on filing just a single set on behalf of Suffolk County and the State of New York.

JUDGE LAURENSON: Mr. Irwin.

MR. IRWIN: Responding first to Mr. Pirfo's comment, I think that his comment is well taken, but I have always understood that that is part of the contemplated structure of staggered findings. Namely, that Intervenors had more time than the Applicant not because they are less industrious but because they are to be given an opportunity to comment on the Applicant's findings as well.

Similarly, the Staff has that opportunity with respect to Intervenors and the Applicant. And the Applicant, because it has the burden of proof, has the last and fairly relatively speaking brief shot.

With respect to the consolidation of findings by New York State and Suffolk County, I salute that. I think that is a useful device. It was done in the safety case phase as well. But I don't think that it is an occasion for lengthening time schedules. All it does in a lot of respects

#20-4-SueT

is cut down the amount of work that any one party has to do, because they are all intelligent fellows, they can divide their work up among each other and read each other's drafts after they have done it.

Finally, with respect to time schedules in general, time is a factor here. We shouldn't pretend that it isn't. And the reasons are not only financial, but others, public policy as well. And the length of time that Mr. Lanpher suggested is, I think, unreasonable in light of the experience of this case.

The safety case phase had a record at least as large as this. And depending on how you slice it, probably thirty to fifty percent larger. They are both big records. But the -- although I can't recall the exact time frames allowed, my recollection is that LILCO was working with something like a forty-five day period for its initial findings and the County was working with something on the order of sixty days for its initial findings, for its findings. The Staff followed thereafter, and LILCO had a relatively abbreviated reply.

I could dig up the exact figures, but I think four months is plenty longer than anybody needs, at least by a factor of two.

And Mr. Zahnleuter's comment about the proceeding being expedited is all a matter -- it's a relative matter.

#20-5-SueT

The safety phase hearings were in session week in and week out for several months in a row.

MR. LANPHER: Just one brief comment. In the safety case, there were two -- I think Mr. Irwin's recollection about forty-five days and fifty-five or sixty days for the initial set of findings is correct, but that was only half of the record. And then there was a subsequent briefing for the other half. So, that initial set was for about ten or twelve thousand pages of record.

The other thing I omitted to say earlier in terms of our proposal and how long we needed for our briefing, in addition the idea of ten days in which to review and to respond to the Applicant's findings, which I think based on past experience they are going to be detailed and all, ten days to prepare detailed reply findings to really come to grips with it is not sufficient. That ten days that's set forth normally in the rules. And so that is something that I would like to see adjusted also.

I would want a minimum of twenty days in order to respond or reply to the findings that come in by LILCO.

JUDGE LAURENSON: Since there isn't any disagreement among the parties about the advisability of the uniform table of contents, the Board will direct that the parties take the opportunity of next week's recess, or some other convenient time, to begin discussing and negotiating

#20-6-SueT1

that. And we will expect to have a report from the parties when the hearing reconvenes in August so that we can begin to make some final decisions and Orders affecting the findings of fact.

As to the other matters with regard to the timing and the page limitation, the Board will consider the arguments advanced by the parties here, and we will either bring it up again for additional discussion, if we feel that is needed, or else just fashion an Order that we feel is appropriate.

Let's turn to the second item on the schedule which is the August schedule for the hearing. Before we get to that, I would just like to take this opportunity to go through my calender between today's date and August the 14th to list what I have on the schedule just to be certain that we are all working with the same calender and everyone knows what is due.

The first thing that I have scheduled is next Monday, the 23rd, the Suffolk County motion for reconsideration and its offer of proof concerning our limitation on the questioning of FEMA witnesses.

On July 25th, we have the NRC Staff filing testimony on Contention 11.

On July 30th, we have testimony due on Contention 16.E, the public information brochure.

#20-7-SueT

On July 31st, I show a cutoff date for LILCO's supplemental testimony on relocation centers, Contention 75.

On August 1st, the Suffolk County revised testimony concerning Contentions 85 and 88.

On August 2nd, I have the response to Suffolk County's motion for reconsideration and its offer of proof on FEMA.

On August the 6th, I have the filing of the FEMA supplemental testimony by the close of business.

And the next thing that I have is the rescheduled start of this hearing on Tuesday, August the 14th.

Are any of these dates in error, or have I omitted anything? I realize there are depositions scheduled in there, but these are not matters that the Board is involved with at this time.

Excuse me, Mr. Miller. I didn't mean to interrupt you.

MR. MILLER: I was just going to point out the depositions.

JUDGE LAURENSON: We left off that we were going to reconvene the hearing on Tuesday, August 14th. The FEMA testimony is scheduled, and as I recall the final statement on this matter by Mr. Glass last week was that the FEMA panel would be available for the entire week if they

#20-8-SueT

were needed. What I guess I'm saying is that from there on out, or from the end of the FEMA testimony, whether it's in the middle of that week or at the end of it, the Board is suggesting that the parties again take the opportunity of this recess to arrange among themselves the order in which we take up the remaining testimony.

My record of what has to be heard indicates the following: The LILCO and Suffolk County testimony on relocation centers, Contentions 24.O, 74 and 75; the LILCO and Suffolk County testikmony on Contention 16.E, the public information brochure; and, the NRC Staff testimony on Contention 11, conflict of interest.

We also have the newly rescheduled Contentions 85 and 88 for that list as well. And that's both LILCO and Suffolk County testimony.

Unless there is some need for the parties to put any of this discussion on the record, our belief is that this should be a matter that the parties should discuss among themselves, work out your own schedule as you have in the past, and as soon as you have arrived at an agreement notify everyone and send us a copy.

Is that an acceptable way to proceed on this?

MR. MILLER: Yes, Judge Laurenson.

MR. IRWIN: Yes, sir.

JUDGE LAURENSON: Again, have I omitted anything

#20-9-SueT 1 at this point that is unresolved?

2 There was one piece of testimony that we had.
3 I believe it was on Contention 51 and there was some
4 doubt once on the record as to whether that contention had
5 been withdrawn. I understand from what has happened that
6 that is the fact, or that's no longer --

7 MR. CHRISTMAN: I think you wanted something
8 a little more formal on the record, so I circulated a
9 stipulation to that effect. And it's still circulating.
10 That's being charitable about it.

11 JUDGE LAURENSON: All right. Okay. This then
12 brings us to the question of the status of the legal
13 contentions, Numbers 1 through 10. And the matters I would
14 like to have discussed at this proceeding this afternoon
15 are: First,the status of the various court actions on the
16 legal contentions; secondly, the time table, if any, from
17 the courts with regard to a decision on this; third, the
18 parties proposed method for resolution of these ten legal
19 contentions; and, fourth, and finally, the question of
20 whether there is any need for oral evidence on any of
21 these ten contentions.

22 So, with that we will go in the same order we
23 did before. We will begin with Mr. Irwin.

24 MR. IRWIN: Judge Laurenson, and members of the
25 Board, I have had brief discussions with Messrs. Farnham and

#20-10-SueT

Sisk, who are working on the litigation in New York State court, the law suits by Suffolk County and New York State having been remanded a couple of weeks ago by Judge Altimari from U. S. District Court back to State court.

I, unfortunately, didn't write down specific dates, but I can -- my impression, subject to correction by Mr. Lanpher, is that even the trial level litigation, whether it's decided on preliminary motions or after testimony, will not be decided for another several months. I can also state with some confidence that, depending on its outcome, either LILCO and/or Suffolk County and/or New York State is not going to rest content with the judgment of the New York State Supreme Court or with the New York State Appellate Division, or with the New York State Court of Appeals, and that there will be a disposition ultimately of the legal issues of state law only after the U. S. Supreme Court decides them or refuses cert.

So, I think we are looking at a process of a couple of years in duration at least before the kind of definitive resolution which would totally eliminate any question has been obtained.

What do we do in the meantime? As LILCO views it, there is no definitive decision from any competent authority which says that the LILCO plan is unlawful as a matter of New York State law. We believe that it is

#20-11-SueT1

appropriate for this Board to proceed to render its decision on the contentions as they have been filed, recognizing that there is litigation which may ultimately affect it, and that if and when that litigation comes to an end it will simply be resolved. It will have whatever effect it has.

But there is no reason for this Board simply to stay its hand arbitrarily until courts resolve those issues. Nor do I see any need for this Board to engage in parallel proceedings on them. There will be an occasion for determination of these issues.

The only circumstance under which an occasion other than simply issuing a license or denying a license on the basis of the record presently before the Board can arise will be the case if it is determined that the plan is unlawful as a matter of New York State law in ways that absolutely prevent its operation, such as the County's alleged command and control. In a number of cases, for instance, the traffic areas, there are fallbacks which LILCO can implement.

But if the declaration or definitive declaration by a court that the plan is unlawful as a matter of New York State law would in itself not end the matter. The question that would be presented then would be a supremacy clause question.

#20-12-SueT1

And absent negative determinations on both of those questions, by that I mean adverse to LILCO, there is in LILCO's judgment nothing that says that this Board simply shouldn't go ahead and make its decision on the basis of the record before it.

JUDGE LAURENSON: Let me ask a very specific question that I would like to have all four parties answer or address, and that is does this Board have the jursidiction to decide State law questions?

This may be a matter that people will want to brief at some other time. I'm sure we may hear more about it. But at this point, I'm just raising it as a preliminary question to find out what the views of the parties are.

MR. IRWIN: Our view, as it was preliminarily last December at the time the Board first raised this question, is that the answer is yes, both in their own terms and in terms of their consistency with Federal law.

JUDGE LAURENSON: Mr. Lanpher. I'm sorry, Mr. Irwin, you did not answer the last question I had, and that was whether there was any need for oral evidence.

I recall you making a statement to that effect back in November or December I think.

MR. IRWIN: I'm sorry. I thought I said a couple of minutes ago that we did not see any need for live proceedings.

#20-13-SueT

JUDGE LAURENSON: I'm sorry.

MR. IRWIN: If I didn't say it, I thought it and I should have said it. And that's the way we feel about it.

JUDGE LAURENSON: Mr. Lanpher.

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1 MR. LANPHER: Judge Laurenson, if you will
2 indulge me, I think there is a bit of background you need
3 on this, the status of the State Court proceedings, because
4 quite frankly LILCO persists, for reasons I don't quite
5 understand, to desperately want this Board to decide it
6 and not the Courts.
7 We filed on March 8th, 1984, as soon as we could
8 get the complaint ready after -- I think the discussions
9 were in late January after one of our status discussions.
10 LILCO within the time limits for answering, sought and
11 received from the State Court, over our objection, a thirty
12 day extension of time to answer.
13 We very much wanted to get on with that case
14 right then. When we filed the case, we also advised LILCO,
15 because we thought they might try to remove it to Federal
16 Court, we brought to their attention a recent Supreme Court
17 case that we thought was dispositive. LILCO, exercising
18 its judgment, attempted to remove to Federal Court. That
19 was, I believe in March -- late March or early April they
20 removed.
21 We had no choice but to move to remand, because
22 we believe that the Federal Court had no subject matter
23 jurisdiction, so any ruling out of that court would be of
24 no value, obviously. That took until June to get that
25 decided.

1 I don't have the exact date in June. Judge
2 Altimari issued a decision that remanded it to the State
3 Court in Riverhead.
4 I spoke with Mr. Farnham this morning to find
5 out what LILCO's intentions were. We are apparently under
6 New York procedure. I am told by all the New York State
7 law specialists -- we are researching this -- we are
8 effectively precluded by bringing a dispostive Motion
9 until LILCO either answers, or files a responsive
10 pleading.
11 Mr. Farnham indicated to me that he is going
12 to move to dismiss our complaint on preemption grounds,
13 and call for an argument on August 23rd. Wewere ready
14 to go on this a long time before, quite frankly.
15 I think this history is a little bit relevant,
16 because we have often been told that we are the people
17 delaying things, the County, with increasing frequency.
18 I see that in LILCO's pleadings. I will tell you, this
19 is one case that we haven't delayed a bit. We haven't been
20 able to get to the merits, and we are looking and searching
21 for ways to bring the merits to the State Court's attention
22 just as soon as possible. We are hoping that will be on
23 August 23rd. We are expecting there will be some sort of
24 oral argument.
25 Mr. Farnham informed me that they were intending

1 to raise the preemption defense at that time, in that
2 argument, and if possible we want to see the State law
3 issues briefed at that time also. I am meeting with Mr.
4 Farnham tomorrow morning to discuss that. We have an
5 oral argument in some of the other cases that are pending
6 in Uniondale before Judge Altimari, and after that, we are
7 going to sit down and talk about a briefing schedule for
8 the things that are pending in Riverhead.
9 By the way, the State and County actions -- the
10 State had to file in Albany for venue reasons, or chose
11 to file in Albany for venue reasons. Those cases have
12 been consolidated in Riverhead, and there is a third case
13 which is similar brought by the Town of Southampton.
14 I am not sure that you were familar with that,
15 members of the Board, and that case in all likelihood,
16 everyone agrees, will be heard with the other two cases,
17 and it raises the same basic issues of LILCO's legal
18 authority to implement the Plan.
19 I don't believe there is a basis that it is
20 going to take several months to have this decided. I
21 expect that we are going to have an argument relatively
22 soon on the case in the State Court. The spectre that
23 it will be a couple of years before we get a decision; well,
24 if you get a decision out of the State Trial Court, the
25 State Supreme Court in Riverhead, one way or the other,

1 Judge, on the State law issues, certainly people are going
2 to take an appeal.
3 But pending that appeal, that is the best
4 indication of State law, an interpretation of State law,
5 that will be available, and I think that this Board
6 should, for obvious reasons, consider that binding unless
7 it is reversed on appeal.
8 The State Court certainly is competent to hear
9 preemption issues, and in fact, the Opinion of Federal
10 District Judge Altimari, it is kind of interesting on that,
11 he had sat for 19 years on the State Supreme Court, and
12 in response to arguments or insinuations that maybe the
13 State Courts weren't proper to hear preemption issues --
14 he made it very clear in his Opinion that the State Court
15 was certainly able to decide those issues.
16 So, I expect that there will be a comprehensive
17 resolution of the issues, including supremacy clause
18 issues, and based on my conversations with Mr. Farnham
19 this morning, the supremacy clause issue is one of the
20 things that will be briefed and argued, hopefully, by
21 August 23rd, unless we can find a way to do it sooner.
22 I guess by way of all that background that
23 gives you the status as best I know, and I think there
24 is going to be movement on it relatively soon. It
25 probably makes sense shortly -- well, in the time frame

1 of the record being closed before the hearing breaks up,
2 and we have been assuming for discussion purposes, is toward
3 the end of August. If it is August 31, we ought to be in
4 a position to tell you what has happened in State Court,
5 what further proceedings are being ordered. If not, we can
6 certainly report back in writing.
7 As of now, I think that your inclination, I
8 guess I will call it, that these were issues that were
9 properly to be determined by the State Board, and why
10 hadn't someone gone to Court to get them decided, is still
11 the right one, and I hope we will get those decided soon,
12 and thus, I don't believe that there are any proceedings
13 that you should contemplate at this time to have them
14 decided by this Board, which brings me to the question of
15 the Board's jurisdiction to decide State law issues.
16 I would like an opportunity to brief that.
17 I certainly don't think this Board has any -- I question
18 the Board's jurisdiction to come up with any kind of
19 binding decision on State law, and if you were to reach
20 a decision of finding one way or the other that you thought
21 the State law was, 'X', and a court of competent juris-
22 diction in the State of New York on the same issue reached
23 a decision, I think you would be compelled to honor that
24 decision by an authority in the State of New York.
25 JUDGE LAURENSON: But if we assume that the Supreme

1 Court hasn't ruled at all, and it comes time for this
2 Board to decide the case, then what is the County's proposed
3 --
4 MR. LANPHER: The State Supreme Court.
5 JUDGE LAURENSON: The State Supreme Court I am
6 talking about, yes... hasn't decided, hasn't issued any
7 definitive decision on the question. What is the
8 County's position as to what this Board should do with
9 these legal contentions at that time?
10 MR. LANPHER: I think you should hold them in
11 abeyance until the State Supreme Court does rule, and
12 admonished the parties to get on, and get a decision out
13 of the State Supreme Court. If the parties are working
14 toward a decision, that can be accomplished.
15 I think the spectre of a State Supreme Court
16 not ruling, and not reaching this issue, is one that is
17 within the control of the parties, and all I know is that
18 Suffolk County, and I know the State of New York feels the
19 same, are pushing to get these resolved as soon as possible.
20 I just think that is a hypothetical that is not
21 going to come up. We would urge you to hold it in abeyance.
22 I don't think you have to decide that issue now. There
23 are going to be briefs filed in the State Court, which
24 presumably would be similar to anything that would be filed
25 here, quire frankly, in terms of the State Police powers,

1 and the preemption issues, based on what I understand from
2 Mr. Farnham is going to be filed.
3 The final thing you asked, I believe I covered
4 everything, is the question of any need for oral evidence,
5 and we think these are legal issues, and you will not need
6 to take oral evidence, and we similarly believe that in
7 the State Supreme Court, that they won't need to take
8 evidence.
9 JUDGE LAURENSON: Mr. Zahnleuter?
10 MR. ZAHNLEUTER: I think that you are aware
11 that the State of New York has filed suit for declaratory
12 judgment, and the suit is slightly different than the
13 County's.
14 At this time, the two suits are together in the
15 same Court, Suffolk County Supreme Court. The procedural
16 way in which they arrive there is fuzzy to me, because
17 I have not had an adequate opportunity to check that out.
18 But regardless of how the two suits came
19 together, they are together, and Mr. Lanpher is correct
20 in what he stated concerning the status of the suits.
21 With respect to the legal contentions, the
22 State's position is exactly the same as it was in January
23 when Mr. Palamino addressed this Board. He made that
24 address, and it was recorded at transcript page 3,653 for
25 your reference.

1 Concerning the issue of the burden of proof,
2 the State's position is that LILCO has the burden of proof
3 in this case, and that they have not met that burden, and
4 they have not proved that they have the legal authority
5 to implement this Plan.
6 The regulations require that there be such
7 legal authority, Sections 50.47-A.1, 50.47.B-3, and NUREG
8 0654, Section 2.A.2.
9 JUDGE LAURENSON: It is not the purpose to
10 hear argument on it at this point. I really just want
11 to know what New York's answers to those questions are.
12 What your position is.
13 MR. ZAHNLEUTER: As it was back in January,
14 the Board does not have jurisdiction to decide matters of
15 State law. So we would suggest that the Board not rule
16 on those contentions.
17 Also, there would be no need to hear oral
18 argument, or any oral testimony on those contentions.
19 JUDGE LAURENSON: What is your position as to
20 the procedure we should follow in the event that we get
21 to the decision-writing stage, and there is no State
22 Court decision on these legal issues?
23 MR. ZAHNLEUTER: I think that relates to my
24 discussion of the burden of proof. The Board should
25 either rule that LILCO has failed to meet its burden of

1 proof, or the Court should await the decision of the
2 Supreme Court of the State of New York.
3 JUDGE LAURENSON: Mr. Pirfo?
4 MR. PIRFO: Thank you, Judge Laurenson.
5 JUDGE LAURENSON: By way of background, I think
6 I should in fairness tell you my recollection of the Staff's
7 two different positions --
8 MR. PIRFO: I am afraid there is going to be
9 a third. I didn't mean to interrupt you.
10 JUDGE LAURENSON: Maybe I ought to ask whether
11 you are in a position to speak for the Staff today on this?
12 MR.PIRFO: I was going to say that initially.
13 My reaction was that when you first broached the subject,
14 when the hearing opened this week, with regard to the
15 status of the Court actions in Legal Contentions No. 1
16 through 10, I was under the impression you just wanted a
17 status report, and we are not going to hold my feet to the
18 fire in terms of whether you have the power to determine
19 questions of State law.
20 I have since talked with people in my office,
21 and I am not really in a position to take a stand on this
22 issue. I would like to reserve the right for the Staff
23 to brief it. Having said that, there is probably nothing
24 more for me to say, but irrespective of whether you have
25 the authority or do not have the authority to decide the

1 State law issues, it is the Staff's position that it would
2 not be appropriate to take oral testimony on this. It
3 would be legal questions, just as any other legal questions,
4 and they would be briefed.
5 As far as I know, the only legal questions that
6 are proved as facts are matters of foreign law, law of
7 foreign countries, and that is obviously not a case here.
8 JUDGE LAURENSON: Let me just inquire. I
9 don't want to set this matter down for a briefing at
10 this point, but my recollection is that at the prehearing
11 conference that we held in Bethesda in December, I think
12 Mr. Reese indicated that he questioned the Board's juris-
13 diction to rule on State law questions, but then subsequently
14 when we were in Riverhead, Mr. Bordenick indicated that
15 the Staff conceded that the Board had jurisdiction.
16 That is just my recollection. I haven't been
17 through the transcript. But, are you able, from your
18 conversations with people in Bethesda, are you able to
19 state what the Staff -- if the Staff's position has changed
20 from the last representation of Mr. Bordenick on this
21 matter?
22 MR. PIRFO: I will be quite candid, Judge
23 Laurenson, for your purposes and the members of the Board.
24 I spoke with Mr. Reese about this, and I am not trying to
25 be evasive on this. I spoke with Mr. Reese about this

1 specifically, and I said, should I keep my mouth shut,
2 and he said, yes, and that is a quote. But I do not
3 want to -- I was under the impression at that time when
4 I spoke to him that there was simply going to be a status
5 report, and I confess I did not realize we would be address-
6 ing these larger issues, and I apologize for that. Maybe
7 that was my misconception.
8 But I was simply under the impression that it
9 was going to be a status report, and obviously given that
10 working assumption, Mr. Reese as well as myself were
11 justified in the assumption that there would be nothing
12 for me to say.
13 MR. LANPHER: Judge Laurenson, I think your
14 recollection of the two different positions are right.
15 I thought Mr. Bordenick, or whoever it was in January,
16 said that he agreed with your suggestion as of then,
17 that why doesn't someone go to Court and get this decided
18 in State Court. The Transcript of January 27th, or
19 whatever it was, will tell the story.
20 MR. PIRFO: I have my own personal visceral
21 reactions and ideas as to what the law is on this, but I am
22 not about to sit here by the seat of my pants and wing it,
23 and I would like to check with my office and make sure
24 I don't come in with a third position, as has been pointed
25 out.

JUDGE LAURENSON: This matter also may change by the time we arrive at the close of the hearing. I think it is just fair to observe at this point that the opinions that we have heard that this is a matter that is going to have to be included in legal briefings.

I don't think it is critical at this point that the Staff comes up with a definitive answer.

MR. PIRFO: I appreciate that, sir.

JUDGE LAURENSON: Is there anything else that the parties want to raise concerning the legal contentions at this time?

MR. IRWIN: Just a couple of clarifications. One is, that I want to make sure that we are all -- when we refer to the New York State Supreme Court, we are all clear that we are talking about a trial-level Court, there being two other layers of courts above it in the State hierarchy.

The second, that the only Motion pending before the Supreme Court is LILCO's Motion to Dismiss, and if that Motion is denied, I don't understand why there is a Motion for Summary Judgment by the County, and there will have to be, as I understand it, some evidence taken as to the existence and nature of the Plan -- in short, with all due deference to Mr. Lanpher, I am not as sanguine as he about the prospects of even a base line decision within the next several weeks.

MR. LANPHER: I didn't say within the next several weeks there would be a base line decision.

MR. ZAHNLEUTER: Would it be helpful to the Board if I offered into evidence a copy of the State's Declaratory Judgment suit?

JUDGE LAURENSON: I don't think there is any reason to put it in evidence. As I recall, we received -- I think we received a copy of it in the mail, didn't we?

MR. ZAHNLEUTER: I remember Mr. Palomino personally giving you a courtesy copy.

JUDGE LAURENSON: I know we have received it, but I don't believe any of these State Court actions have been placed in the record, and I don't see any reason for that.

Obviously, when a Judgment is issued by the State Court, I am sure that someone in this room will tell us about it, and we can go forward on that basis and decide what we do with the judgement.

MR. PIRFO : Just for the record, as a member of the New York State Bar, I was aware that the Supreme Court with the trial level.

I don't mean to imply that that was done for my purposes, but --

MR. IRWIN: It wasn't.

MR. PIRFO: Okay. Thank you.

JUDGE LAURENSON: Let's turn to the question, the next question, last question on our list today, and that is the Board inquiry on -- that we raised on Tuesday, concerning the effect of the strike at LILCO, and the specific question that we asked all four parties here to address is whether the strike presents an issue concerning the availability of LILCO Union Employees for their designated LERO jobs, whether that issue should be pursued in this proceeding.

Our recollection of evidence on this subject is that the majority of LERO workers were members of one or more of the Unions that are now involved in the strike, and it is for that reason that we are raising this at this point as a preliminary inquiry to hear the views of the parties before we do anything further.

So, again, we will start with LILCO.

MR. IRWIN: Judge Laurenson, your recollection of the composition of LERO is correct. The majority of the members of LERO are not at their jobs at this point.

Whether the strike will affect LILCO's ability to implement the emergency plan is something that nobody can tell at this point, because we don't know how long the strike is going to last.

If, at the time hypothetically the plant were

1 to approach five percent power, and the strike not be
2 resolved, then there would obviously be a question as to
3 whether or not the plant should proceed above that power
4 level until LERO was in place. But I think we are getting
5 ahead of ourselves.
6 The -- I think that given the fact that I am
7 not in a position, neither as a matter of policy, or as a
8 matter of absolute knowledge, to know how long the strike
9 is going to last. The appropriate course is to presume,
10 unless evidence emerges to the contrary, that LERO, as
11 it is constituted, in the plan and in the evidence taken,
12 will, in fact, be so constituted again by the time it is
13 needed.
14 And a partial, initial decision issue -- obviously,
15 we can't have a FEMA-graded exercise, which is necessary
16 to a final decision, until we have LERO in place again.
17 What I am saying is, the time and built-in
18 safeguards of a logistic nature are such that no inquiry
19 would be necessary now even if one could do anything other
20 than just engage in rank speculation on the facts.
21 JUDGE LAURENSON: Let me just focus some of the
22 discussion on this, then. I am not -- the Board is not just
23 talking about this strike. We are talking about the question
24 of strikes in general, now that it has happened. Whether
25 this would prevent the necessary finding of reasonable

1 assurance that the workers of LERO could be relied upon
2 to perform their jobs if they have a contract which permits
3 them to cease their membership in this organization.
4 But the specific questions, I guess, that we
5 are looking for here; first of all, is there any admitted
6 contention in this case that deals with this matter.
7 Secondly, does this present a serious safety
8 matter, and then finally, third, should it be included
9 as an issue in this case.
10 If you want, I can go through those more slowly.
11 But I would like to have all the parties address these
12 questions.
13 MR. IRWIN: What was your first question?
14 JUDGE LAURENSON: The first one was: Does
15 any admitted contention deal with this. In other words,
16 is it in issue under the contentions that we have already
17 admitted, and I would say our preliminary understanding is
18 that there isn't any such contention, but that is why we
19 are raising it to see if we are correct.
20 Secondly, is this a serious safety matter -- or
21 potentially serious safety matter, and then third, should
22 it be included as an issue in this proceeding.
23 If you want, take a few moments to confer before
24 you submit your answer.
25

End 21
Mary fols.

Sim 22-1

MR. IRWIN: Subject to further consideration, which if I have it I will notify the Board and all the parties of, let me take a stab at the three questions.

The first is that LILCO believes that the Board is correct in believing that there are no contentions currently before it with relate to this matter.

Secondly, as to strikes in general, I have two observations.

One is that they are not an everyday occurrence around LILCO This is the first strike in 74 years of the company's history and there is no reason to believe, as far as I know, that they will become an annual affair hereafter.

But in any event, contracts can be made and broken and they can also be made and renewed. LILCO has had contracts with the County, and that was back in the days with the County was cooperating. I don't think LILCO is any different position with respect to contracting with private organizations or contracting with public organizations than any other utility in the country. So that is one aspect of your second question.

Secondly, it is very easy to moot questions of serious safety matters, and that is simply by making a commitment that if the emergency organization that is necessary to implement an emergency plan is not in place,

Sim 22-2

1 the plant which is the subject of the emergency plan
2 will be shut down during the duration of the organization's
3 inactivity.
4 JUDGE LAURENSON: Is there any such condition
5 present at this time?
6 MR. IRWIN: No, not that I am aware of. My
7 understanding from preliminary discussions with LILCO
8 management is that they are contemplating being willing
9 to make a condition of that nature, which if made would
10 I think entirely moot any safety consideration.
11 The third question the Board raised of whether
12 a contention of this nature should be admitted either
13 as to the current strike or as to future strikes is for
14 the reasons I have outlined I think no, at least not
15 at this time, and for the reasons relating to the company's
16 history and more general relationships with parties
17 public and private, I don't think it is a significantly
18 different kind of consideration at this plant than at
19 any other, particularly if an operational commitment is
20 made to shut the plant down if the emergency response
21 organization is not in place.
22 JUDGE LAURENSON: Mr. Lampher.
23 MR. LANPHER: I think Mr. Irwin is correct,
24 there is no contention that specifically addresses this.
25 The fact of the matter, however, is that

Sim 22-3

1 there is pertinent information in the record that can't
2 be ignored that 1200 out of the approximately 1800 LERO
3 personnel have resigned from LERO. And unless the evidence
4 contradicts that at some later time, that is something
5 that you are going to have to take into account just with
6 respect to the instant strike without going to the larger
7 question that you raised, Judge Laurenson, about what does
8 this say for other situations.
9 Is it a serious safety issue? I think the
10 issue of whether there is a reliable emergency organization
11 to implement an off-site radiological emergency plan
12 is a central issue to this whole proceeding, and it is
13 perhaps the most serious safety issue there is. It
14 emcompasses literally all the contentions that have been
15 put in, and we don't have a specific contention on it.
16 But is it serious? You get you it is. I
17 don't think you can rely on the testimony of lawyers here
18 as to how serious it is or not serious, the first strike
19 in 73 years. I have no reason to doubt that. But I
20 have been reading all the press clippings and there
21 are some pretty bitter words being said these days about
22 this strike and what does that bode for the future.
23 I think that goes to some of the issues you
24 were raising of whether even if you had people rejoin
25 LERO after the strike is over, assuming it does end,

Sim 22-4

what is the quality of that participation given the bitterness and the situation that has arisen?

So I think this is an issue that is going to need to be probed, and if it is not probed, I think the record right now is going to preclude a reasonable assurance finding, because you don't have LERO at this time and you have got 1200 people out of it, and if LILCO were to try to prove that you have LERO back in, that is something that we would have a right to examine on.

So somehow you need to find the mechanism to deal with this issue. If you chose not to, we believe that you are compelled to make a no reasonable assurance finding.

Now should there be a contention? I don' t think anyone has the heart to start drafting more contentions for this proceeding in a sense. I think it is an issue that has to be dealt with. If you want to formalize a contention, that could be done, Judge Laurenson, but I think we understand the scope of the issue generally anyway. For this we have a specific strike, but what does it say for the large quality of the organization even if this strike were over?

So we think you are going to have to deal with it.

JUDGE LAURENSON: Mr. Zahnleuter.

MR. ZAHNLEUTER: There is little that I can

Sim 22-5

add to Mr. Lampher's statements.

However, I would like to add that a reasonble assurance finding would be prevented in this case, not because alone of the current strike situation, but because of the prospect of a strike situation at any time in the future.

Had this plant relied upon governmental employees, there would have been a law, and I believe it is called the Taylor Law which would prevent strikes among governmental employees. But no such law is applicable to the LILCO employees when they participate in LERO.

Also, I think that if LILCO wishes to talk seriously about not operating a plant during the time of a strike, that talk should be reduced to writing and should be submitted formally to this Board for consideration and for the parties' consideration also.

JUDGE LAURENSON: Mr. Pirfo.

MR. PIRFO: Thank you, Judge Laurenson.

With regared to your three specific qeestions, does any contention deal with this, no. I think the Board and the parties have correctly answered that there are none that deal with this specifically.

Secondly, is this a serious safety matter? Well, of course, it is a serious safety matter if Shoreham were operating and LERO walked out. Obvously at that point

Sim 22-6

it becomes a serious safety matter because nobody is there to guide traffic, assuming they have the right to guide traffic and all they other functions they are supposed to perform in a radiological emergency.

But the quick answer to that, I think, as Mr. Irwin said earlier, at that point you do not have the required organization in place and in essence you pull the plug, if I can use a vernacular, on Shoreham.

To get into a what-if inquiry now is -- and this reaches the answer to the third question of whether it should be included in this proceeding is, if I may say, sort of an Alice In Wonderland type of thing, of what is going to happen in the future if there is a strike? Well, this is the reason, as Mr. Zahnleuter pointed out, the reason that there are legal contentions with regard to whether LILCO employees can perform the same functions that the State employees perform on an every day basis.

I mean they are unionized employees and they have a right to strike under their contract and persumably that is their right that is not going to ever be given up, if in fact they could give that up.

This is something that was inherent or embedded in these other legal contentions. What I am saying is that there is no need just because of the fact that a

22-7

1 strike has arisen now, there is no need to inquire into
2 the future. I see no end to that inquiry. I mean it
3 would be different if you could sit down and take
4 evidence and say well, we have had a strike now and is
5 this ever going to happen in the future? No. Well,
6 is it ever going to happen in the future? Yes, it is
7 going to happen every fourth year.
8 There is no answer to that inquiry. There
9 is no testimony that can be taken of that, and I would
10 be surprised if any party in this room has privy or
11 access to a witness that can tell us or foresee the future
12 for us.
13 So I think, as I said, I go back to my
14 analogy of an Alice In Wonderland type thing. You are
15 not going to reach any answers for that.
16 The question of whether there is reasonable
17 assurances, well, that answer is if they go on strike
18 in the future, then there has to be -- Shoreham cannot
19 operate. But I don't think it is an inquiry that is
20 proper at this stage. That is really it. I guess in
21 essence our position is not that different than LILCO's
22 JUDGE LAURENSON: Well, doesn't it raise a
23 question though of whether the staff should insist upon
24 some sort of condition or proviso in the license as to what
25 should be done in the event that something did happen

22-8

like this in the future?

MR. PIRFO: Well, yes, sir, but I think we are on virgin territory here in the sense that there is not another plant, to my knowledge, that relies on private or unionized employees to the extent Shoreham does.

So to the extent the strike occurred it has been epiphany for us as well, but I don't think the action to take upon this revelation is to right away brush it into this proceeding. That would be something that should be perhaps included in the license or whatever, but I don't think it is type of thing that should be injected into the proceeding here.

It seems to me tautological to state that if you cannot give reasonable assurance that an emergency organization is in place, you do not operate the plant. I mean that is a given and everybody in this room grants that.

If that be the case in the future, they do not operate the plant.

JUDGE SHON: Just out of curiosity, I wonder if either the staff or the applicant is aware of the restrictions on the number of operators, licensed operators that are required or would be required in Shoreham if it got a license and the way in which that might interact with union considerations, because I think that some

22-9

licensed operators, and perhaps the majority are union people.

MR. PIRFO: I can't address that, sir.

JUDGE SHON: I suggest that the plant might have a natural mechanism that will shut it down if the union goes on strike.

MR. PIRFO: Well, I think if you assume the case of a wildcat strike where, you know, at 2 o'clock everybody walks out the door, I think that is a serious safety matter, but again it is not something that can be inquired into. I mean presumably it could happen, but I can't speculate and I don't think it is something that the Board should get into because I think the speculation would be of the same magnitude.

I will defer to Mr. Irwin.

MR. IRWIN: I am told, and again this is subject to check, that there are enough non-union reactor operators to comply with required manning levels for the reactor without using union personnel. There may be some other kinds of personnel at the plant other than reactor operators for whom that may not be meant. I just don't know.

I would make one additional observation though, Judge Shon. As a matter of policy, the company probably wouldn't want to try to operate a reactor without

22-10

1 what it considered to be a full complement of personnel.

2 Finally, strikes just don't simply happen.

3 Arrangements for them begin to be made, however dolorously

4 several days in advance in order to make it as orderly

5 as possible.

6 Let me just add one more thing about the

7 Tayler Law. The Tayler Law has a long and illustrous

8 history which includes both strikes and job actions which

9 are not technically strikes, but they are so ingeneous

10 that they have the same effect, and I am sure Mr. Zahnleuter

11 knows about more of them than I do. So I don't think that

12 is a guarantee against the same kind of thing happening

13 with a utility that operates in league with a public

14 agency as it does with its own employees.

15 MR. PIRFO: If I may, just so the staff's

16 position is not misunderstood, we are not saying that

17 Shoreham should be operated in the absence of an emergency

18 response organization becuase one happens to be in existence

19 when they started up.

20 What I am saying is that -- and I am subject

21 to contrary proof on this -- that the plant in the event

22 of a lengthy strike or in the event of a strike at all,

23 there would be enough non-union personnel to undertake

24 shutdown operations of the plant, and I do not understand

25 LILCO's position to be that they would have any option

22-11

1 but to do just that.

2 MR. IRWIN: I think Mr. Pirfo has stated

3 exactly what I would have stated if I had been addressing

4 that point of the union.

5 As I understand LILCO's position, (a) it

6 would not intend to operate the plant if there were a

7 strike. Again, that is something which is being discussed

8 because frankly we are dealing with a speculative

9 abstraction right now, but that is my understanding of

10 LILCO's tentative thought on that subject.

11 Secondly, that there are enough non-union

12 personnel to shut the plant down safety even if union

13 personnel did walk off the job without any notice.

14 And, third, it is our observation that that

15 kind of thing just doesn't tend to happen.

16 MR. LANPHER: Judge Laurenson, if I could

17 just respond to one thing that Mr. Pirfo said, the idea

18 that we can't get into some issue along these lines because

19 it is a what-if. Well, the entire emergency planning

20 inquiry is an attempt at predictive findings, and I think

21 that has been emphasized over and over. So I just don't

22 understand his statement there that we couldn't get into

23 it. I frankly think again, not based on my personal

24 investitgation, and maybe we should get Rick Brand up

25 here on the stand, but from reading in the newspaper,

Sim 22-12

there have been some strong statements from union leaders.

I think an investigation about how this strike may affect the quality of future performance and willingness of LERO or LILCO employees to become LERO members or dependable LERO members is something that is an important issue and it is something that could be inquired into or there is no inherent reason that you couldn't, and it is something that the Board is going to have to consider carefully.

end Sim

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1 JUDGE LAURENSON: The Board will consider the
2 views of all the parties. We will decide our own action
3 some time next week. We will notify all parties of this,
4 and you can then take whatever action you think is ap-
5 propriate based on that.
6 That completes the agenda of non-testimony
7 that we just spent some time on. Let me go off the record
8 for a moment.
9 (An off-the-record discussion ensues.)
10 After a discussion of the revised estimates by
11 Suffolk County which he has every reason to believe that
12 it will adhere to, we will adjourn the hearing at this
13 time to reconvene at 9 a.m. tomorrow morning.
14 (Whereupon, at 5:49 p.m., the hearing was
15 adjourned, to reconvene at 9:00 a.m., Friday,
16 July 20, 1984.)
17 * * * * * * * * * *
END 18
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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: Thursday, July 19, 1984

Place of Proceeding: Hauppuage, 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

Official Reporter - Signature

MYRTLE H. TRAYLOR
Official Reporter - Typed

Official Reporter - Signature

MARY SIMONS
Official Reporter - Typed

Official Reporter - Signature