NUCLEAR REGULATORY COMMISSION

ORIGINAL

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	:	
	:	
LONG ISLAND LIGHTING COMPANY	:	DOCKET NO. 50-322-OL
	:	
(Shoreham Nuclear Power Station)	:	

DATE: August 25, 1982 PAGES: 9499 - 9707

AT: Hauppauge, New York

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ALDERSON REPORTING

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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5 In the Matter of: :

6 LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-OL

7 (Shoreham Nuclear Power Station) :

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9 Room 3B46, Third Floor

10 B Building

11 Court of Claims

12 State of New York

13 Veterans' Memorial Highway

14 Hauppauge, New York 11787

15 Wednesday, August 25, 1982

16 The hearing in the above-entitled matter

17 convened, pursuant to notice, at 9:00 a.m.

18 BEFORE:

19 LAWRENCE BRENNER, Chairman
Administrative Judge

20 JAMES CARPENTER, Member

21 Administrative Judge

22 PETER A. MORRIS, Member
Administrative Judge

23

24

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1 APPEARANCES:

2

On Behalf of the Applicant:

3

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Richmond, Va. 23212

6

7 On Behalf of the Regulatory Staff:

8 RICHARD BLACK, Esq.
LEE SCOTT DEWEY, Esq.
9 Washington, D.C.

10

On Behalf of Suffolk County:

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KARLA LETSCHE, Esq.
12 Kirkpatrick, Lockhart, Hill,
Christopher, and Phillips
13 1900 M Street, N.W.
Washington, D.C. 20036

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1 C O N T E N T S

1 C O N T E N T S

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

2 JUDGE BRENNER: Good morning. We have some

3 preliminary matters.

4 We are prepared to accept the proposed

5 settlement on Suffolk County contention 9, ECCS pump

6 blockage. I don't know if the parties are prepared. I

7 guess all the parties have a copy for the reporter. We

8 have looked at the settlement agreement and it is

9 acceptable to us, and we will bind it into the record at

10 this point.

11 (The document referred to, the settlement

12 agreement on Suffolk County contention 9, ECCS pump

13 blockage, follows:)

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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)
(Shoreham Nuclear Power Station, Unit 1)	)	

RESOLUTION OF SUFFOLK COUNTY
CONTENTION 9 - ECCS PUMP BLOCKAGE

Suffolk County Contention 9 concerns the potential blockage of the ECCS pump suction strainers at the Shoreham Nuclear Power Station during a loss of coolant accident ("LOCA"). Suffolk County ("SC") has alleged that LILCO has not adequately demonstrated that drywell piping and equipment insulation loosened and/or damaged during a postulated LOCA will not unduly degrade the ECCS flow through the pump suction strainers located in the suppression pool. Such blockage during an accident would prevent adequate core cooling and thus would violate 10 C.F.R. 50, Appendix A, General Design Criterion 35. In the County's view, the potential for ECCS suction strainer blockage results from inadequate analysis of the sources, quantities, and characteristics of insulation debris available for blockage during a postulated LOCA. Absent such an analysis, in the view of SC, LILCO's 50 percent blockage design basis of the strainers has not been demonstrated to be appropriate.

On April 13, 1982, LILCO prefiled testimony on SC Contention 9, providing information relative to ECCS suction strainer blockage. On the same day, SC also prefiled testimony on SC Contention 9, detailing the steps which SC believes are necessary in order to demonstrate that the 50 percent blockage design basis for the ECCS suction strainers is appropriate.

LILCO, SC, and NRC Staff consultants have discussed the County's concerns. By this Resolution Agreement, LILCO and the Staff have documented that they have provided certain data to SC which demonstrate the basis for the 50 percent blockage assumption, and LILCO has further agreed to take the steps described below, which respond to the concerns expressed in the SC direct testimony. In the County's view these data and actions document that the 50 percent ECCS strainer blockage design basis is appropriate, and that adequate core cooling capability will exist in the event of a LOCA even with such blockage. Accordingly, SC finds that SC Contention 9 is resolved. As a result, the County, LILCO, and the Staff request the Licensing Board to accept this Resolution to terminate litigation of SC Contention 9. The details of this Resolution and LILCO's agreement to implement the actions specified herein are described below.

Subsequent to the filing of testimony on this contention, SC consultants have reviewed additional documentation regarding the SC concerns. These materials are:

1. From LILCO:

   a. Stone & Webster Specification No. SH1-157, Revision 1, September 25, 1980: "Specification for Furnishing and Installation of Thermal Insulation - Inside Primary Containment".

   b. Topical Report OCF-1: "Nuclear Containment Insulation System", Owens-Corning Fiberglass Corp., January 1979.

2. From NRC Staff:

   NUREG/CR-2403: "Survey of Insulation Used in Nuclear Power Plants and the Potential for Debris Generation", August 1981.

LILCO's prefiled testimony on SC 9 and this additional documentation document the following:

1. LILCO's prefiled testimony describes, in general, the type of insulation used at Shoreham, and the path that would be traversed if insulation in the drywell were to reach the suppression pool. The testimony also describes, albeit only generally, LILCO's justification for ECCS pump suction strainer size (i.e., 50% blockage margin) and location (i.e., 180° separation).

2. The S & W specification for the insulation provides more detailed information on the type of insulation provided by Transco, Incorporated for use at Shoreham. In general, the insulation used for piping and equipment

throughout primary containment is of the metal reflective type. Only on "special piping penetrations, reactor vessel nozzle piping, and piping in the vicinity of pipe rupture restraints" is the metal-encapsulated "temp-mat" insulation used. The "temp-mat" is a borated fiberglass mat manufactured by Pittsburgh-Corning Corp. The encapsulating material is Type 304 austenitic stainless steel, and is constructed so as to prevent exposure of the filler material.

3. The Owens-Corning Topical Report on its fiberglass insulation shows that non-encapsulated fiberglass mats pose little threat to blockage of the ECCS suction strainers. This finding is based on: (1) an analysis of how much insulation could be conservatively postulated to be loosened during a LOCA (e.g., 50 mats each of 2' length) while assuming no physical barriers between piping and strainers (i.e., no allowance for containment layout); and (2) the property characteristics of the fiberglass in water. The Report shows that the fiberglass mats will either float on water, or sink rapidly (2 1/2 - 4 inches per second) to the bottom of the pool if forced to absorb water. Thus, it was concluded in the Report that:

> As relatively few blankets out of the total containment inventory would be available for such interaction, the interference tests performed by Owens-Corning Fiberglass conservatively bound the probable containment sump blockage

and sump ingestion of blanket material that might occur. . .These tests provide an adequate qualitative indication of the negligible degree of interference with containment spray systems to be anticipated from detached intact or damaged blankets deposited in the containment sumps following pipe ruptures.

4. NUREG/CR-2403 documents a survey of eleven nuclear plants, conducted by Burns & Roe, to identify the types and amounts of insulation used, location within containment, components insulated, material characteristics, and methods of installation. For each plant type surveyed, a preliminary assessment was made of the potential effects of insulation debris generated as the result of a LOCA.

   Included in this survey were two GE plants, Cooper (BWR 4/Mark I) and WPPSS 2 (BWR 5/Mark II). These two plants are generally representative of Shoreham in that the thermal insulation used at Cooper is both metal reflective (70% of total) and metal-encapsulated fiber (30% of total), while the WPPSS 2 unit employs the same Mark II containment design as Shoreham. In both of these plants, the insulation used (metal reflective and metal-encapsulated fiber) was also supplied by Transco, Inc.

Thus, considerable analysis has been performed, independently of LILCO, regarding the potential for insulation blockage of ECCS pump suction strainers. A review of the above documentation shows that:

1. The quality characteristics of non-encapsulated fiberglass

insulation do not threaten strainer blockage; this is pertinent to Shoreham in the event that the metal-encapsulated fiberglass used at Shoreham becomes torn during a LOCA so as to expose the filler material; and,

2. The quantity of insulation estimated to become loosened during a LOCA and to reach the suppression pool in a Mark II containment is sufficiently small to be within the bounds of a 50% blockage design basis.

Given these analyses, SC consultants conclude that the County's concerns regarding ECCS pump blockage are resolved, subject to LILCO's agreement set forth below. The potential for some insulation migration and/or breaking in the vicinity of the suppression pool has been identified through ongoing industry efforts and Staff assessment of this unresolved safety issue (A-43). Thus, SC consultants have requested the following additonal commitments, to which LILCO has agreed:

- LILCO will actively monitor the analyses undertaken as part of the Staff effort to resolve NUREG-0606 Task Action Plan Item A-43, "Containment Emergency Sump Performance."

- LILCO will perform the quantitative analyses, developed as a result of the A-43 effort, if applicable to Shoreham. These analyses will be designed to determine whether potential insulation blockage may exceed the 50 percent margin as currently designed.

- If necessary, LILCO will make appropriate modifications to the use and installation of insulation in the drywell to ensure that potential blockage of the ECCS pump strainers will not exceed the 50 percent margin design basis.

LILCO will supply the County with the result of any analyses performed under the above agreement and shall document for the County any modifications instituted pursuant to the analyses.

Taylor Rumley 8/11/82
Counsel for (date)
LONG ISLAND LIGHTING COMPANY

Karla J. Letsche 8/11/82
Counsel for (date)
SUFFOLK COUNTY

Bernard M. Bordenick 8/12/82
Counsel for (date)
NUCLEAR REGULATORY COMMISSION
STAFF

1 JUDGE BRENNER: The next subject is emergency
2 planning. After reviewing further LILCO's comments on
3 the date for filing of phase one emergency planning
4 testimony, the Board adheres to its view yesterday that
5 we can set the date later than the presently scheduled
6 September 14th date, and we will set the date, as we
7 indicated yesterday, for October 12th as a received date
8 in hand, wherever we are. That's the rule that we have
9 always followed in this case. Not wherever we are. If
10 we're not here, file it in Bethesda, but if we are in
11 hearing that's where we want it.
12 Which gets me to the next point, where we are
13 awaiting the Staff response, which is now late in our
14 mind.
15 MR. BLACK: We had that mailed out of Bethesda
16 yesterday by Federal Express, and judging by their
17 advertisements it should be here overnight. So we are
18 just awaiting that this morning. But it should be
19 here.
20 JUDGE BRENNER: We have another advertisement
21 of a fellow in a large meeting who didn't get it there
22 as promised. I hope that's not you.
23 (Laughter.)
24 JUDGE BRENNER: It is already holding us up.
25 That's why I'm picking on that point. We worked on it

1 last night, we worked on it this morning. We want to
2 continue to work on it today.
3 As we indicated yesterday with respect to
4 that, I said October 14th. If I did, that's wrong.
5 It's October 12th, and that is a shift from September
6 14th. October 12 is a Tuesday. We may well keep that
7 as the date. There's no reason to assume we're going to
8 extend it further, and parties should operate on the
9 assumption that testimony will be due on that date.
10 However, we will consider the situation again after
11 looking at the Staff's interim report and other matters
12 that might bear on the schedule.
13 Particularly, parties should not assume that
14 we will extend it solely because we might not get to the
15 litigation of those issues until the last week in
16 October, since we believe there is a real value in
17 having as much time as possible between the filing of
18 testimony and the litigation, so that matters can be
19 further narrowed, either by negotiation or other means.
20 Just a reminder: We are waiting to hear from
21 the County some time today as to scheduling a response
22 to LILCO's motion to compel emergency planning
23 documents.
24 MS. LETSCHE: Judge Brenner, the motion was
25 received and I think the emergency planning people in

1 Washington are hoping to have an opportunity to discuss
2 it with the Hunton & Williams lawyers. And depending on
3 how those discussions turn out, the County would file a
4 written opposition on Tuesday, as you suggested.
5 JUDGE BRENNER: All right. Then that will be
6 acceptable. And we have directed the discussion, so it
7 is one that I hope will take place. I expect to have
8 very little left to decide on that motion, given the age
9 of the original motions and our prior rulings on
10 discovery, which we think provide ample guidance on
11 those matters already. So hopefully it will work out.
12 MS. LETSCHE: The hopefulness was in terms of
13 timing, because as you know there are depositions going
14 on all week and it's just going to be a matter of the
15 parties being able to get on the phone together to do
16 it. But I know that they will endeavor to do so.
17 JUDGE BRENNER: Okay, thank you.
18 Judge Carpenter has something he wants to say
19 with respect to emergency planning.
20 JUDGE CARPENTER: I'd like to acknowledge the
21 document filed by County on August the 20th in response
22 to my question. In some of the attachments, the
23 Applicant quite properly identifies the question as
24 being my question. In the County's response, it
25 identifies a Board inquiry. That was not the spirit in

1 which the question was offered at all. I identified it
2 as being simply an inquiry as to how the County expected
3 to develop an integrated plan in the absence of any
4 coordination at this time between the Applicant, the
5 State and FEMA. That was the question and it was a
6 personal question.
7 I find the County's response surprising. To
8 quote, "The harmonious integration can be attempted if
9 consideration of all emergency planning issues were
10 deferred until after the County's plan is developed." I
11 didn't ask under what conditions the County would do
12 this. I didn't ask for an opinion of the way we were
13 handling this case. I simply asked the question, how is
14 it going to be.
15 So I didn't find it very responsive, and I'm
16 very surprised at the subterfuge of finger-pointing to
17 the Board instead of answering the question.
18 Quoting further: "The atmosphere into which
19 it" -- meaning the County -- "has been thrust with
20 respect to emergency planning issues" -- with the
21 implication that this Board, and perhaps myself
22 personally in asking such a question, has thrust the
23 County someplace. And I submit I don't believe that was
24 my intent or the spirit in which I asked the question.
25 I would hope that the County would consider

1 again the question of how it is that an integrated plan
2 in the spirit described in NUREG-0654 is going to be
3 developed in the absence of any interplay.
4 The attachments to the County's filing suggest
5 that all the parties, or at least a number of them, are
6 communicating, and I would perhaps glibly summarize my
7 impression of those as: It might be possible to be
8 reasonable, but the other party must move first. And I
9 continue to ask the question, what can be done to get
10 this off dead center?
11 This posture seems to be very reasonable, but
12 there doesn't seem to be any mechanism for getting it
13 off dead center. And I simply wanted to put those
14 comments in the record to make it clear, first of all it
15 was my question, and secondly, I didn't find the
16 response really spoke to the question.
17 Turning to another matter, we have received,
18 dated August 19th, 1982, supplemental testimony of John
19 J. Boseman on behalf of Long Island Lighting Company
20 concerning polymerization of SRV lubricants. We have
21 had a chance to look at this testimony, and it leads me
22 to request that the Board be furnished with a copy of
23 the instruction manual for the two-stage Target Rock
24 valve and the SIL No. 10, which is referenced in this
25 testimony as background information for us to try to

1 understand the testimony.

2 So that is a specific request for the

3 instruction manual and the SIL No. 10 that is

4 referenced.

5 I think Judge Morris had some comments also

6 with respect to this testimony.

7 JUDGE MORRIS: Yes, I would just like to make

8 some comments addressed to LILCO: that on page 3 of the

9 supplementary testimony just referenced, towards the

10 middle of the page it states that: "Inspections

11 performed by Wilde Lab of the hatch surveys have not

12 disclosed the presence of any castor oil or other

13 foreign substances in the labyrinth seal area." I find

14 that to be a conclusion that doesn't give me a basis for

15 reaching the same conclusion.

16 And following that it states that:

17 "Evaluations performed to date suggest that it could not

18 readily migrate to that area because of both the length

19 and complexity of the migration path through the

20 valve." Again, I find this a conclusion, but I am

21 provided no basis upon which I can reach the same

22 conclusion. And I will just leave it at that.

23

24

25

1 MS. LETSCHE: Judge Brenner, if I might
2 respond to just one comment that you made, and that is
3 that the County's response to your question was
4 certainly not in any way intended to be fingerpointing
5 or anything at you personally, and the County regrets
6 that you took it that way. It certainly was not
7 intended that way.
8 The discussion concerning the atmosphere in
9 which the parties found themselves was merely intended
10 to be that, and that intended to be directed at anyone
11 personally. It is just the atmosphere in which the
12 parties find themselves, and the County's statement
13 indicated the response the County has attempted to make
14 to deal with that atmosphere and enclosed the attempts
15 made by other parties also.
16 JUDGE CARPENTER: Thank you, Ms. Letsche.
17 That was the purpose of the question, to try to clear
18 that atmosphere. That was its single purpose, not to
19 engage in finger-pointing.
20 The point is, the atmosphere exists and I was
21 aware of it, and I simply wanted it on the record that I
22 personally, as a member of this Board, was very
23 conscious of it and very distressed by it.
24 JUDGE BRENNER: I guess I might as well say
25 something about it, too. There's the implication, if

1 not the exp- -s'd statement, in the response to Judge
2 Carpenter's question that the parties cannot litigate
3 and work in the formal setting and work together in the
4 informal setting at the same time. And that's just
5 utter nonsense.
6 To any sophisticated party or counsel, it has
7 been done on other issues and there's no reason why it
8 shouldn't be done on this issue. Parties can protect
9 their legal rights to litigate things to the fullest
10 while at the same time be working together, particularly
11 in emergency planning.
12 It is surprising, I believe, to Judge
13 Carpenter and it's also surprising to me that there are
14 not representatives of LILCO and the Staff and possibly
15 FEMA involved more integrally in the offsite planning
16 efforts which the County is working on. And it's going
17 to lead to a situation where some important integration
18 may not have taken place because of the failure on the
19 part of the County to involve these other elements.
20 I think it's very analogous to the area of
21 security planning. The parties know that we've talked
22 about that a lot. And the same spirit that prevailed in
23 that area does not seem to have carried over to this
24 area, and I think it is most unfortunate.
25 MR. BLACK: Judge Brenner, if I may make one

1 comment, I also remembered Judge Carpenter's remarks
2 particularly pertaining to FEMA involvement in the
3 County plans, and I have entered into preliminary
4 discussions with FEMA to see if they can try to work
5 with the County in the development of their plans. They
6 reminded me that their characteristically -- or their
7 normal role is to review a plan once it is completed,
8 and they don't like to get in the front end of the
9 plan.
10 But hopefully we can get FEMA off the dime,
11 too, and get them integrated into the planning process
12 itself so that they don't have a lot of problems toward
13 the tail end. We are working toward that end as well.
14 JUDGE BRENNER: I appreciate that on your part
15 and the Staff's part. I think I might point out to FEMA
16 that their characteristic method of operation has caused
17 problems for them in other proceedings, and in fact is
18 inconsistent with their original rules, which involved
19 extensive -- their proposed rules, which involved quite
20 a lot of extensive interchanges with officials and the
21 citizens in local areas, which if followed faithfully
22 could resolve a lot of things.
23 It's not very productive for them to sit on
24 the sidelines and then come in and make comments at the
25 eleventh hour, which comments sometimes have had the

1 benefit of little analysis because they have waited
2 until the eleventh hour.
3 Incidentally, since we're on this subject and
4 you mentioned FEMA, I haven't pursued the FEMA schedule
5 at all for a long time, since the prehearing conference
6 we held, I believe in April, when a representative of
7 FEMA was here, and don't intend to pursue it again
8 today. I hope they are staying well plugged in. I
9 can't think of a proceeding where they have had more
10 advanced warning of when things are going to be coming
11 up that are going to affect them, and the warning has
12 been well in advance.
13 So I certainly don't expect to hear, when we
14 start approaching a phase of emergency planning, that is
15 phase two, when FEMA is going to be involved, that they
16 have schedule problems after all these months. And you
17 might pass that on also.
18 We have nothing further. We will wait for the
19 parties to come back to us on one of the other matters
20 we discussed yesterday, as to possible scheduling of
21 things. When you consider that, you might also consider
22 the fact that we have not yet scheduled the filing of
23 cross-examination plans for quality assurance and we are
24 prepared to have that filing time very close to and
25 possibly even the date that the testimony would start in

1 order to assist the discussions that all parties want to
2 pursue before beginning the litigation of the
3 testimony.
4 MR. REVELEY: We are actively considering the
5 matter, Judge. Would it be acceptable to the Board if
6 we engaged in it again on Friday?
7 JUDGE BRENNER: Yes, in fact whenever you
8 like, and I think Friday would be a good day. We will
9 wait for you to let us know that you are ready to
10 discuss it. If we do it Friday, let's do it first thing
11 Friday so that we have a chance to react and come back
12 to you that day, if possible.
13 All right. At this point we are ready to
14 continue with the County's cross-examination of the
15 Staff and LILCO witnesses on the remaining portions in
16 controversy of Suffolk County 27 and SOC contention 3,
17 post-accident monitoring.
18 Whereupon,
19 JERRY MAUCK,
20 JOSEPH BARON
21 JOHN SCHMITT,
22 JOHN KREPS,
23 JOHN RIGERT,
24 CHARLES ROSSI,
25 the witnesses on the stand at the time of recess,

1 resumed the stand and, having been previously duly
2 sworn, were further examined and testified as follows:
3 CROSS-EXAMINATION ON BEHALF OF
4 SUFFOLK COUNTY-- CONTINUED
5 BY MS. LETSCHE:
6 Q Mr. Mauck and Dr. Rossi, I'd like to direct
7 your attention to page 7 of your reply testimony. You
8 state there on the second line: "It is unlikely that
9 compliance" -- and this is with Reg Guide 1.97, Rev. 2
10 -- can be demonstrated prior to final licensing of
11 Shoreham."
12 What is the basis for your statement there
13 that that is unlikely?
14 A (WITNESS ROSSI) The basis for our statement
15 is the guidance that we have been given by the
16 Commission on how we are to approach the limitation of
17 Regulatory Guide 1.97, Rev. 2, and the particular stage
18 that we are at in the licensing process for Shoreham at
19 this time.
20 Q And are you referring to the one to two-year
21 period you mentioned yesterday?
22 A (WITNESS ROSSI) In part, I am making a
23 judgment here as to how long it might take to fully
24 address and evaluate responses to Regulatory Guide 1.97,
25 Rev. 2, keeping in mind the fact that that one to

1 two-year estimate is my estimate that I gave yesterday
2 based on my judgment of how long things of this sort
3 might take.
4 Q Have you made a judgment that that's the case
5 and that it is unlikely that compliance can be
6 demonstrated prior to final licensing, particularly with
7 respect to LILCO's compliance with this? Have you
8 verified that that's the case with respect to this
9 plant?
10 A (WITNESS ROSSI) I have based that statement
11 in part on my judgment, and I believe the judgment of my
12 branch, that we will want to look at several Applicant's
13 responses before we make judgments on possible
14 exceptions to the guidance in Regulatory Guide 1.97,
15 Rev. 2. So I cannot completely separate LILCO from
16 other responses that we will receive.
17 Let me add a bit of explanation to that, to
18 what I just stated. I think the four items that are the
19 basis of this contention really come down to LILCO's
20 statements that they feel that their alternates or
21 existing adequate equipment for meeting Regulatory Guide
22 1.97, Rev. 2 intent.
23 It appears to us at this time that the LILCO
24 statements are likely to be statements that are
25 applicable to other BWR plants. Whatever judgments we

1 make with respect to LILCO or with respect to any other
2 plant where we make a judgment is likely to be a
3 precedent for all the plants of a similar type. We feel
4 that we want to make those judgments on a very careful,
5 reasoned manner, because of the fact that it will indeed
6 be at least perceived as a precedent.
7 We feel that it is better to take the time to
8 make those judgments carefully, even though there may be
9 a one or two-year delay for plants as to when changes
10 might be made. But that delay is worth it in terms of
11 the fact that we feel that a better decision will be
12 made for the remaining years of operation of not only
13 LILCO but of other plants.
14 And I believe that the Staff recommendation in
15 this regard was basically supported by the Commission's
16 action in approving the recommendations in SECY 82-111.
17 Q Your statement concerning LILCO's position on
18 the four items discussed in this contention, is that
19 based just on your having read the LILCO testimony in
20 this proceeding?
21 A (WITNESS ROSSI) That's based only on my
22 reading the LILCO testimony in this proceeding.
23 Q Has the Staff reviewed information from any
24 other Applicant or from any generic source concerning
25 Reg Guide 1.97, Rev. 2 compliance?

1 A (WITNESS ROSSI) As I indicated yesterday, we
2 have reviewed the commitments made on several
3 construction permit Applicants. And let me go on
4 further to state that I haven't tried to do a detailed
5 comparison of any of the clarifications that were made
6 on those construction permit commitments and tried to
7 compare that with LILCO.
8 But I do know and I have looked at what was
9 done on those construction permits, and there were some
10 exceptions that Applicants originally wanted to take in
11 the area of radiation monitoring. And I have not done,
12 again, a site by site comparison of those. However, in
13 discussions with those Applicants the resolution of that
14 radiation monitoring issue was basically that the
15 Applicants would go back and do further studies of what
16 would be appropriate to do and they would come back to
17 the Staff with the results of their studies and their
18 recommendations on a time period well in advance of when
19 they would be in for an operating license.
20 Q You state further down on page 7 of your reply
21 testimony that: "The Staff has been instructed to be
22 flexible in the schedule and implementation of the
23 provisions of Reg Guide 1.97, Rev. 2, under the premise
24 that an orderly, well-planned effort will result in
25 greater safety than would a rapid, possibly fragmented

1 attempt to modify existing design."

2 Am I correct that this means that you

3 anticipate, you being the Staff, anticipate that there

4 will be modifications of existing designs required in

5 order to achieve compliance with Reg Guide 1.97, Rev.

6 2?

7 A (WITNESS ROSSI) I don't know that we are

8 anticipating that there will be. We certainly -- I

9 certainly think that it is likely there will be some

10 modifications in some areas, yes.

11 JUDGE BRENNER: Excuse me. Does that apply to

12 these four items? I'm afraid that if we're not careful

13 -- and I remind you of our dialogue yesterday -- we're

14 going to end up with a record that's not understandable

15 to us later when we look at these four items.

16 You've got to justify why we should accept the

17 Staff's recommendation of, in effect, making no findings

18 on these four items and why it's okay for us to not make

19 any findings on these four items. So I need to know, if

20 your last reasoning is pertinent to the four items, that

21 you think it's likely that there may be some

22 modifications?

23 WITNESS ROSSI: I gave my answer in the

24 context of all of Reg Guide 1.97, Rev 2. In the context

25 of the four items, I am simply not able to give what I

1 would consider to be any kind of reliable judgment on
2 the likelihood of what we will and will not accept on
3 these particular four items. We have had discussions
4 among the Staff on what we might do with these
5 particular four items, and I can only state that it's my
6 opinion, based on the discussions that I have had -- and
7 they are very limited discussions, I might add -- that
8 there is simply not a consensus at this time on what we
9 should do with those four items.
10 JUDGE CARPENTER: Is there active
11 disagreement? I believe I heard you say there is not
12 consensus. I simply inquired, is there active
13 disagreement?
14 WITNESS ROSSI: I'm not sure I understand what
15 you mean by active disagreement. But again, the
16 discussions have been rather limited. There has not
17 been a significant amount of going back and forth or
18 trying to discuss it at higher levels of management.
19 The discussions have been basically at the section
20 leader and reviewer level, and I wouldn't -- I just
21 don't know what you mean by active disagreement.
22 We could not quickly agree on what should be
23 done. I think that's about the only way I can
24 characterize what has occurred. I think there is also
25 disagreement, and probably moreso, on whether it is

1 appropriate for us to try to agree quickly on a short
2 time scale.
3 I personally feel that we should not make
4 rapid judgments in the area, that we should give
5 ourselves the opportunity to receive the responses from
6 several Applicants, we should have the opportunity to go
7 back and discuss the responses with not only LILCO but
8 perhaps other Applicants, and we should avail ourselves
9 perhaps of the opportunity to have some input from
10 consultants on some of these issues. And this is with
11 respect to these four.
12 And so I personally feel that it would be
13 inadvisable to try to make a rapid decision on one plant
14 on these four items.
15 JUDGE CARPENTER: Still in the spirit of
16 trying to help me understand, could you characterize
17 these four items as being -- obviously, you cannot
18 consider all the items that are in this very long list
19 in 1.97 at the same time. So you must have some sort of
20 sequence when you start doing this.
21 Can you give me any indication of whether you
22 have had any discussions about where you would put these
23 items? I don't like to use the word "priority" except
24 just in that sense of what comes first, not in terms of
25 anything beyond that. Do you have any feel for whether

1 these are high priority items, come-first items or low
2 priority items?
3 WITNESS ROSSI: To my knowledge, we have had
4 no discussion of the priorities. Again, we are going to
5 ask the licensees and applicants to submit information
6 which will tell us very precisely, on all of the items
7 now I am referring to in Reg Guide 1.97, Rev. 2, where
8 they can justify a very clear unequivocal statement that
9 they meet what's in Reg Guide 1.97, Rev. 2, or that they
10 will meet it by a certain date.
11 Those items then we will not look at further,
12 we will look at only sufficiently to assure ourselves
13 that there is an unequivocal statement made by the
14 applicant or licensee that they will meet the Regulatory
15 Guide 1.97, Rev. 2, requirements. Those we will put
16 aside and then we will look at the remaining items where
17 there are exceptions.
18 Now, I would anticipate that the ones that it
19 would be most useful to look at first are the ones
20 where, when we get several submissions, it appears -- it
21 looks like they are going to be generic, because I
22 believe that it is most useful to look at those first.
23 But we haven't really tried to prioritize it any more
24 than what I just stated.
25 JUDGE CARPENTER: I can certainly see the

1 logic of your plan, but from the perspective of this
2 Board this Applicant is here today faced with a
3 contention put forth by the County and apparently is
4 ready to offer his position, the Applicant's position,
5 to NRC at this time.
6 And I take what you're saying as, until you
7 get some input on these four items from some other
8 sources you really don't want to start forming an
9 opinion. And that seems to me to be -- to put the
10 Applicant in an awkward position, or it puts the Board
11 simply in the position of saying, well, we are confident
12 that these matters can wait.
13 WITNESS ROSSI: Well, certainly I believe that
14 the Staff's commission, and based on the fact that the
15 Commission has reviewed the Staff's commission and
16 basically approved it, is that decisions on these items
17 can wait.
18 JUDGE BRENNER: I was going to save some of
19 this for the end. I was going to point it out to your
20 counsel rather than you. I think it's fair to say a
21 good deal of the reply testimony could have been offered
22 by counsel also. I'm not criticizing you for including
23 it. You included it in the context of some things that
24 only you as a witness could offer.
25 But we expect to see findings from the Staff

1 that flesh out the position a little better than the
2 Staff has had the opportunity to do through the
3 testimony, in terms of the argument at least as I
4 understand the Staff's argument, that we may make a
5 finding, that we do not have to look at these four items
6 now prior to licensing, simply on the basis of the SECY
7 paper and what is contained in the SECY paper.
8 MR. BLACK: I think that you have hit the nail
9 on the head. That would certainly be our position and
10 we have certainly taken this contention to be an
11 implementation schedule contention rather than a
12 hardware contention. And SECY 82-111 has seemingly
13 preempted all of our positions with respect to the
14 schedule, and to the extent that the Commission policy
15 is binding I think that will be our position and our
16 findings.
17 JUDGE BRENNER: Well, when you make that
18 argument you'd better explain to us the relationship of
19 that to the Commission also stating that it was an 0737
20 item, although the scheduling is not fixed as it might
21 have been in the past in 0737, and relate that to
22 discussions and in fact decisions we have already made
23 in this case as to the meaning of an 0737 item and the
24 right of a party on a contested issue to argue the
25 necessity and sufficiency of the proposal and the 0737

1 item.

2 Now, if there's something in particular in the

3 SECY paper that overrides the general law as we have

4 previously interpreted it in a prior position in this

5 case on 0737 items -- and we took that interpretation,

6 we think quite directly, from a Commission decision --

7 but we are looking at that explanation, because if you

8 are wrong then we're going to have to have the technical

9 basis as to why it's okay to proceed with licensing now

10 without looking at those items. And it might have been

11 prudent to include that as an alternative point of view

12 in case we didn't accept your legal argument that the

13 mere SECY paper by itself is enough.

14 LILCO's testimony does purport to give us

15 LILCO's view of the technical bases. We have a mention

16 of a technical basis in Dr. Rossi's testimony. I should

17 acknowledge that, Dr. Rossi. But I think you will

18 agree, it's a broad mention in passing. That is, it is

19 referenced to the fact that the plant has undergone the

20 standard review plan review rather than a particular

21 analysis of the area of relevance to the four items.

22 MR. BLACK: I think you must remember also,

23 too, that the LILCO testimony was filed before the SECY

24 paper was issued, and to the extent that maybe LILCO

25 would have or could have modified their testimony to

1 reflect the SECY paper I don't know whether they would
2 have. But I think that clearly our position is one now
3 of, the SECY paper does establish an implementation
4 schedule for the Staff.
5 JUDGE BRENNER: For the Staff?
6 MR. BLACK: For the Staff.
7 JUDGE BRENNER: That doesn't necessarily carry
8 over to the Board on a contested issue, and I say that
9 in looking at the general law applicable to 0737 items.
10 So if we start off with our prior view on the general
11 law applicable to 0737 items, you're going to have to
12 show us that the SECY paper carves out a particular
13 exception to the general 0737 law as to these items.
14 Maybe it does.
15 MR. BLACK: I will have to take a look at
16 that. I am not ready to offer an opinion on that now,
17 but I will take a look at that.
18 JUDGE BRENNER: To state it another way, the
19 mere fact that there is not an implementation schedule
20 that requires a particular schedule does not mean that
21 the Commission has directed that it is acceptable for
22 the boards just to state that we don't have to look at
23 it at all when a party is arguing it. It should be
24 looked at on a contested issue.
25 It bears particular looking at when you

1 consider the fact that, rather than an implementation
2 schedule, there are some 0737 items that have
3 implementation schedules, although they may well be
4 after licensing, so-called long term items. And even as
5 to those, the general 0737 law is that a party can argue
6 that it should be required earlier than the 0737
7 schedule.
8 Over here you don't even have that schedule.
9 You have, read literally, a most broad delegation to the
10 discretion of the project manager on an ad hoc basis to
11 negotiate a schedule. Therefore, if we do have to make
12 a reasonable assurance finding we won't be able to
13 factor in schedule considerations because that's not
14 set, as apparent from the SECY paper and as further
15 emphasized here in testimony by Dr. Rossi.
16 So if we don't accept the legal argument --
17 and I'm not saying we won't; I just don't know at this
18 point -- and we don't accept the legal argument that the
19 Commission has said, do not look at these items, when we
20 have designed a technical basis as to why in some
21 unspecified but longer than immediate period after
22 licensing, there is reasonable assurance that the public
23 health and safety will be protected without any further
24 implementation of these items for that uncertain but not
25 short period.

1 So I wanted to say that at some point so you
2 can consider it either in terms of where you might want
3 to focus some of your questions of either your own
4 witnesses or other witnesses, and also in thinking about
5 your findings on this item. You're going to have to do
6 more than just repeat what's in Dr. Rossi's testimony as
7 to the meaning of the SECY paper.
8 JUDGE CARPENTER: Ms. Letsche, thank you for
9 letting the Board break in. I think you see why a
10 couple of weeks ago I asked whether perhaps it would be
11 good to have everybody available, because you see at
12 this point I want to ask the County whether the basic
13 position that's put forth now on the record by the Staff
14 is acceptable to the County or in what specific points
15 within this essentially legal argument now, what
16 specific points of difficulty the County has with the
17 Staff position.
18 You had come to the end of page 7 of Dr.
19 Rossi's testimony, so maybe I prematurely guessed that
20 you had finished that line. If I was wrong, finish
21 that, and perhaps if you can respond to the question I
22 just raised.
23 MS. LETSCHE: Well, I hadn't quite finished,
24 but I will certainly respond to your question, Judge
25 Carpenter. The County's position is set out in the

1 prefiled testimony, and that is that in light of the Reg
2 Guide 1.97, Rev. 2 requirements and the basis for those
3 requirements these items need to be incorporated into
4 the Shoreham plant prior to licensing, and certainly the
5 position that has bee stated by the Staff with respect
6 to their requirement of compliance with Reg Guide 1.97,
7 Rev. 2, is not in agreement with that position of the
8 County.
9 And I guess to respond to maybe the other
10 question you were asking me, or the implication, I only
11 have a few more questions of the Staff on this matter,
12 and if at that point the Board would like Mr. Minor to
13 be available for questioning by the Board --
14 JUDGE BRENNER: Let me ask you one other
15 thing, Ms. Letsche. You said it was the County's
16 position in prefiled testimony that these items were
17 required prior to licensing, and it's been a couple of
18 days since I last read the County's testimony and I read
19 it a number of times prior to that.
20 I thought the argument was that there was not
21 reasonable assurance that a certain implementation
22 schedule would be met, which implementation schedule in
23 some cases at least I think was July '83. And I
24 inferred from that that if there had been a set schedule
25 and set requirements as to what would be done on these

1 items by that schedule, that that would either meet the
2 County's position or not be too far off from the
3 County's position.
4 MS. LETSCHE: Judge Brenner, the requirement
5 in Reg Guide 1.97, Rev. 2, was compliance by June 1983.
6 The County's position was that LILCO should be required
7 to demonstrate that it would achieve that compliance by
8 that date prior to licensing. So you are correct, my
9 statement was not fully accurate. But I think the
10 thrust of the testimony is that, and the reason it came
11 out that way, is that the County considers these
12 important safety considerations that need to be dealt
13 with and there needs to be assurance that they will be
14 taken care of prior to the licensing decision.
15 JUDGE BRENNER: Okay. Your last comment is
16 the way I understood the County testimony.
17 BY MS. LETSCHE: (Resuming)
18 Q Dr. Rossi, is compliance with Reg Guide 1.97,
19 Rev. 2, an SER open item?
20 A (WITNESS ROSSI) I'm not sure whether it's
21 listed as a specific open item or not. It certainly is
22 mentioned in Section 7.5. It says that the Applicant
23 will be expected to upgrade post-accident monitoring
24 instrumentation in accordance with the Rev. 2 to Reg
25 Guide 1.97.

1 The schedules and specific implementation
2 requirements for this upgrading are discussed in
3 NUREG-0737 and Commission memorandum and order and
4 evaluation of the Applicant's new instrumentation to
5 meet these requirements will be issued upon submittal of
6 an acceptable design, but not necessarily as a
7 supplement to this report. I don't know whether that
8 would be officially listed as what we call an open item
9 at this point in time or not.
10 I also don't know the extent to which SECY
11 82-111 might change that categorization, anyway. So I'm
12 afraid I just can't answer your question.
13 Q In view of the Reg Guide 1.97, Rev. 2
14 requirements and the Staff's review of LILCO's
15 compliance to date, can the Staff be sure that the
16 Shoreham plant meets GDC-13 and GDC-64?
17 MR. BLACK: Pardon me. Is this question
18 limited to the four items in dispute or is this all the
19 items in Reg Guide 1.97?
20 MS. LETSCHE: Right now limited to the four in
21 dispute.
22 WITNESS ROSSI: I believe, based on the review
23 that is carried out with respect to the standard review
24 plan, that the plant does meet those GDC's at this
25 time. The Regulatory Guide 1.97, Rev. 2, provides

1 further interpretation of the improvements that can be
2 made, but I believe that a review to the standard review
3 plan does indeed ensure that they meet the basic
4 requirements of the GDC.
5 BY MS. LETSCHE: (Resuming)
6 Q Which provision of the standard review plan
7 was used as the basis for the review of the radiation
8 monitors in the Shoreham plant?
9 A (WITNESS ROSSI) I'm not able to answer that
10 question.
11 Q Do you know which revision was used to review
12 instrumentation in the ECCS?
13 A (WITNESS ROSSI) I do not know the answer to
14 that question, either.
15 Q Do you know if that review, based on the
16 standard review plan, is documented anywhere in the
17 Staff's review of those two items?
18 A (WITNESS ROSSI) Of which two items, the four
19 items or the radiation monitoring?
20 Q Radiation monitoring and --
21 A (WITNESS ROSSI) I do not know whether there
22 is a specific documentation of the reviews related to
23 those four items.
24 Q Well then, how can you conclude that based on
25 that review these two GDC's are met with respect to

1 those two items?

2 A (WITNESS ROSSI) I'm basing my conclusion that

3 the GDC's are met on my knowledge of the fact that the

4 standard -- my belief that the Shoreham plant was

5 reviewed in accordance with the standard review plan and

6 the fact that the standard review plan was written to

7 assure that if you did a review in accordance with the

8 standard review plan you will indeed meet the general

9 design criteria.

10 I'm not basing my conclusion on a specific

11 detailed review that I have personally done.

12 Q You discussed with Judge Carpenter yesterday

13 the basis for the Staff's conclusion that there is

14 reasonable assurance that this plant can be operated

15 without undue risk to the health and safety of the

16 public despite the noncompliance with Reg Guide 1.97,

17 Rev. 2. Do you remember that conversation?

18 A (WITNESS ROSSI) I remember the conversation.

19 Q And I don't want to characterize your

20 testimony, but basically you said that it was because

21 the incremental risk relating to these four items in

22 this contention was small enough that you didn't think

23 you needed to worry.

24 A (WITNESS ROSSI) Well, it was, yes, it was

25 basically that, and it was also even broader than that.

1 It is in respect to a complete Regulatory Guide 1.97,
2 Revision 2 review. The additional risk during the time
3 that we take to carefully implement it is considered to
4 be sufficiently small to warrant licensing of the
5 plant.
6 Now, that statement is not based on any
7 analytical study, but it is based on the fact that
8 Regulatory Guide 1.97, Rev. 2, was written over some
9 period of time. The date originally specified in it was
10 June of this year. Plants were considered to be allowed
11 to continue to operate -- these are operating plants --
12 until the Regulatory Guide could be implemented.
13 There was another review of how the Regulatory
14 Guide should be implemented that has taken place in the
15 last few months prior to the issue of SECY 82-111. That
16 review was done at a very high level within the Nuclear
17 Regulatory Commission. It was done up through the
18 Committee for -- it's the CRGR Committee, Committee for
19 -- I think the specific name of it is here, Committee to
20 Review Generic Requirements.
21 In the development of SECY 82-111, I know
22 there were considerable discussions of the proper way to
23 do it. SECY 82-111 was then reviewed by the Commission
24 and approved by the Commission, and with that kind of a
25 review I think there is a very great assurance that

1 plants can be safely operated until the Regulatory Guide
2 can be implemented as stated in SECY 82-111. That would
3 be an underlying consideration throughout all of the
4 reviews, would be that question.
5 Q Staff doesn't know how many items in Reg Guide
6 1.97 LILCO is going to comply with or presently complies
7 with, right?
8 A (WITNESS ROSSI) You are now speaking of the
9 entire Regulatory Guide?
10 Q Yes. You haven't reviewed that. You don't
11 know that, right?
12 MR. EARLEY: Judge Brenner, I would object to
13 that question. I think we ought to focus on the items
14 that are part of the contention as it now stands.
15 JUDGE BRENNER: Wait. I didn't hear the
16 question. So it is going to be --
17 MS. LETSCHE: This is basically a foundation
18 question and the next question will take care of Mr.
19 Earley's concern.
20 BY MS. LETSCHE: (Resuming)
21 Q My question was, am I right, Dr. Rossi, that
22 at this time the Staff does not know how many items in
23 Reg Guide 1.97, Rev. 2, LILCO is in compliance with
24 because you haven't reviewed it, is that right?
25 A (WITNESS ROSSI) That is correct.

1 Q Now, in light of that, in the possible
2 inter-relationship between several of those items on the
3 safe operation of the plant, how can you say that the
4 lack of compliance with respect to the four items
5 referenced in this contention will not result in undue
6 risk to the public, when you don't know what other
7 things might be out there?
8 MR. EARLEY: Could I have that question
9 restated? I'm sorry.
10 JUDGE BRENNER: You mean read back, I take
11 it?
12 MR. EARLEY: Read back or restated, either
13 one.
14 MS. LETSCHE: Would you read it back.
15 (The reporter read the record as requested.)
16 WITNESS ROSSI: The Shoreham plant has been
17 reviewed with respect to a set of design basis events
18 that are analyzed in chapter 15. It has been reviewed
19 in accordance with the standard review plan. Those
20 reviews have been considered on all plants that are now
21 in operation and all plants that have been currently
22 operating -- that are currently under operating review,
23 as sufficient to demonstrate that there is undue risk to
24 the health and safety of the public if the plant is
25 licensed.

1 I am basing my statement on that, rather than
2 any kind of knowledge about what has been done with
3 respect to Reg Guide 1.97, Rev. 2. I think the point of
4 interaction between these four items and other items
5 that may or may not fully comply with Reg Guide 1.97,
6 Rev. 2, however, is pertinent when we start looking at
7 the degree to which an exception might be permissible on
8 one of these four items in terms of, on one of these
9 four items, not fully complying with the requirements of
10 Reg Guide 1.97, Rev. 2.
11 I would want to look at those exceptions in
12 the light of all of the other things that are going to
13 be there when they do comply with Reg Guide 1.97, Rev.
14 2, in order to determine the adequacy of these
15 exceptions.
16 BY MS. LETSCHE: (Resuming)
17 Q Is the Staff's opinion that this plant can be
18 operated safely without compliance with Reg Guide 1.97,
19 Rev. 2, without prior compliance documented anywhere
20 other than in your testimony?
21 (Pause.)
22 A (WITNESS ROSSI) I would consider that
23 documentation to be in SECY 82-111 and the Commission's
24 approval of it as to be the documentation that all
25 plants are safe to operate until the positions in SECY

1 82-111 can be carried out for all plants. So I would
2 consider that to be the documentation of the adequacy of
3 the operation of the Shoreham plant until Reg Guide
4 1.97, Rev. 2, is fully implemented.
5 Q But SECY 82-111 does still require that Reg
6 Guide 1.97, Rev. 2 requirements be complied with,
7 doesn't it?
8 A (WITNESS ROSSI) SECY 82-111 requires that on
9 a schedule that will be worked out with the Applicant,
10 that all of the items in Reg Guide 1.97, Rev. 2, be
11 addressed by each operating licensee and applicant. I
12 would like, however, to point out, if I can find the
13 statement here, in the discussion on the first page of
14 SECY 82-111 in about the sixth line down -- I will quote
15 -- that there is statement there that says:
16 "In addition, existing NRC documents published
17 as guidance to licensees were sometimes being used as
18 firm requirements."
19 I take that statement and other statements in
20 SECY 82-111 to caution both licensees and the NRC Staff
21 that guidance documents are not to be considered as firm
22 requirements, but as what they were intended to be only,
23 which is guidance. So in answer to your question again,
24 SECY 82-111 will require each item in Reg Guide 1.97,
25 Rev. 2, to be analyzed.

1 If you turn to page 14 of the attachment, the
2 very last sentence there allows for deviations from the
3 guidance in Reg Guide 1.97, Rev. 2, if they are
4 explicitly shown and supporting justification or
5 alternatives should be presented. So in answer to your
6 question, SECY 82-111 does not require absolute literal
7 compliance with every item in Reg Guide 1.97, Rev. 2.
8 As a matter of fact, I think it even is
9 intended to be instruction to the Staff that they are
10 not supposed to do that.
11 Q Dr. Rossi, has the Staff reviewed LILCO's
12 response to interrogatories filed in April of this year
13 concerning LILCO's compliance with Reg Guide 1.97, Rev.
14 2?
15 MR. EARLEY: Is that with respect to the four
16 items in this contention?
17 MS. LETSCHE: Yes. That response includes
18 reference to those four items.
19 MR. EARLEY: Is the question going to all of
20 Reg Guide 1.97, though? I would object if we're not
21 focusing on --
22 JUDGE BRENNER: The objection is overruled.
23 Let's get an answer to the general question.
24 WITNESS ROSSI: Let me give my answer first.
25 I believe that -- I have not read those recently. I

1 can't even state that I carefully read them at any
2 time. I can state that I have not reviewed them with
3 the intent of trying to evaluate the degree to which
4 they comply with Reg Guide 1.97, Rev. 2.
5 Mr. Mauck will have to answer for himself.
6 WITNESS MAUCK: You were talking about the May
7 25th document?
8 BY MS. LETSCHE: (Resuming)
9 Q No, it's dated April 6, 1982.
10 A (WITNESS MAUCK) No, I would have to say the
11 same thing that Dr. Rossi has stated.
12 JUDGE BRENNER: Ms. Letsche, I was going to
13 add something after overruling Mr. Earley's objection,
14 and that is that it would nevertheless be more
15 productive, if you had a particular interrogatory
16 response in mind or a particular information in it, to
17 just refer to it by paraphrase or quote if it is short,
18 and then ask questions about it if that's what you want
19 to do.
20 MS. LETSCHE: I only wanted to find out if the
21 Staff had reviewed it.
22 (Pause.)
23 BY MS. LETSCHE: (Resuming)
24 Q Mr. Rigert -- and I don't mean to necessarily
25 address these to you. I'd like to address some

1 questions to the LILCO panel. Do you have a copy of the
2 SECY 82-111 up there? I'd like to direct your attention
3 to page 14 of that document, of the enclosure to the
4 document.
5 There is a listing there of different types of
6 information lettered A through H. Do you see that
7 listing?
8 A (WITNESS RIGERT) Yes.
9 Q Does LILCO have knowledge of that information
10 with respect to instrumentation at the Shoreham plan
11 that's required in Reg Guide 1.97, Rev. 2?
12 A (WITNESS RIGERT) If you look at Table 2 to
13 our motion for summary disposition, you will see
14 essentially that information, although it is out of
15 date, because of the time frame in which it was
16 prepared. Since that time we have done additional
17 review. That table is now -- I would consider it
18 obsolete, although it apparently was pretty much on the
19 mark with what the SECY document turned out to be asking
20 for.
21 Q Was that table ever submitted to the NRC
22 Staff?
23 A (WITNESS RIGERT) It was submitted as this
24 motion for summary disposition to all parties, I
25 assume.

1 Q Dr. Rossi and Mr. Mauck, I think I asked you
2 about Table 1 in that earlier, in that motion for
3 summary disposition. Has the Staff reviewed Table 2 to
4 that motion which Mr. Rigert just referenced?
5 A (WITNESS ROSSI) My answer is the same as
6 before. I believe I have probably read it. I have not
7 reviewed it with the intent of trying to evaluate the
8 information.
9 A (WITNESS MAUCK) My answer would be the same
10 as the one that was stated before, that I have glanced
11 at it but not reviewed it.
12 Q Mr. Rigert, does LILCO also have available at
13 this time information concerning any deviations from the
14 Reg Guide 1.97, Rev. 2 guidance that are presently
15 deviations that would be in effect at the Shoreham
16 plant?
17 A (WITNESS RIGERT) Well, in these four
18 parameters our deviation is very clear. We don't have
19 the instrument. We feel we don't need it because we
20 have alternate instruments to meet the intent of the
21 guide.
22 Q But other than what's in your testimony that
23 hasn't been submitted to the Staff, right?
24 A (WITNESS RIGERT) You can read through the
25 April 6th table and see our positions. We do describe

1 parameters that are awaiting generic resolution, and by
2 that we mean the owners group actions, which
3 incidentally on these four items the position that we
4 have is virtually identical to the generic position of
5 the owners group.
6 Q Which is that --
7 A (WITNESS RIGERT) I think Dr. Rossi mentioned
8 before that when he reviews a single plant that might be
9 a precedent. These four would be very true of that.
10 Probably all BWR's will have the same positions, other
11 than the Mark III containments. Because of the
12 different containment design their position will be
13 different, and that might mean -- the construction
14 permit applicants, for instance, would typically all be
15 Mark III's. So that that radiation monitoring aspect
16 might -- we expect there would be a different position
17 for a construction permit applicant because they would
18 be Mark III.
19 MS. LETSCHE: Judge Brenner, that completes
20 the County's cross-examination of this witness panel.
21 JUDGE BRENNER: I have a vague recollection of
22 the procedural status of that LILCO summary disposition
23 motion, but can you refresh my memory? We never ruled
24 on it or I would remember it better, and there was a
25 reason as to why we did not. I don't remember if it was

1 withdrawn unilaterally or as part of the stipulations
2 among the parties.
3 MR. EARLEY: Judge, I think I can address
4 that. We submitted that motion in July of 1981. It
5 remained pending through December of 1981. In the
6 course of discussions with SOC -- and at that time it
7 was only a SOC contention. In the course of discussions
8 with the experts, it was narrowed to the 11 issues that
9 now appear in the contention.
10 So the motion was dropped, withdrawn by LILCO
11 in exchange for the narrowing of the contention to 11
12 discrete items. And then when Suffolk County submitted
13 their contentions they adopted the SOC wording of the
14 contention.
15 JUDGE BRENNER: I remember now, and that was
16 reflected in I forget which numbered stipulation, but in
17 one filed.
18 MR. EARLEY: It was a December 2nd or 8th,
19 1981, stipulation between SOC and LILCO.
20 JUDGE BRENNER: Yes, I remember it now,
21 because as it turns out parts of that were before at
22 least two of the three present members of this Board
23 when we ruled early this year on some actions put to us
24 by that stipulation.
25 All right. Questions by LILCO at this time.

1 EXAMINATION ON BEHALF OF APPLICANT

2 BY MR. EARLEY:

3 Q Dr. Rossi, let me just clarify something. Reg

4 Guide 1.97, Revision 2, was intended as guidance and not

5 a requirement for applicants and licensees; is that

6 correct?

7 A (WITNESS ROSSI) Regulatory Guides are always

8 intended as guidance and not -- they are not the same as

9 rules.

10 Q And that Regulatory Guide would not have been

11 approved by the Commission itself, would it?

12 A (WITNESS ROSSI) I do not believe the

13 Commission itself approved the Regulatory Guide.

14 Q But the Commission has approved the position

15 in SECY 82-111 that we have discussed here today; is

16 that correct?

17 A (WITNESS ROSSI) That is correct and -- well,

18 the specific action taken by the Commission is in the

19 July 20th, 1982, letter from Samuel Chilk to William

20 Dircks.

21 JUDGE BRENNER: I wonder if I might

22 interject. Dr. Rossi, did a combination of the SECY

23 paper proposed by the Staff and the Commission approval

24 also indicate that they should now be treated as a

25 NUREG-0737 item? Do you recall that?

1 WITNESS ROSSI: There are statements in here
2 related to how it should be treated in respect to
3 NUREG-0737. But I think that that exact relationship
4 may be more of a legal question than a technical
5 question, and I'm not sure that I can tell you the
6 precise relationship.
7 JUDGE BRENNER: All right.
8 WITNESS ROSSI: In other words, I'm not sure I
9 can interpret the words that are in here. I think that
10 that interpretation is more of a legal one than a
11 technical one.
12 JUDGE BRENNER: All right. The portion, that
13 reference to -- and I found it now; I would have given
14 it to you a moment ago if I had it then -- is in the
15 memorandum for Mr. Dircks from Mr. Chilk of July 20,
16 1982, which was the mechanism for the approval to the
17 extent indicated of the Staff's proposal in SECY
18 82-111.
19 Page 2 of that memo, item 7 indicates that the
20 enclosure to SECY 82-111 should be published as a
21 NUREG-0737 supplement. And the reason I asked that at
22 this point is that you did, in answer to Mr. Earley's
23 questions, make reference to the fact that in general
24 Reg Guides are guidance. Then you made reference to
25 your view that the SECY paper has told the Staff not to

1 inflexibly implement the guidance specifically with
2 respect to that Reg Guide.
3 And I wonder how we are to put that together
4 with the 0737 reference, as to whether that raises the
5 Reg Guide's status from that of a normal Reg Guide to
6 some other status as an 0737 item.
7 JUDGE MORRIS: Dr. Rossi, perhaps I can help
8 you in this. If we look at enclosure A to that document
9 on the first page, it is labeled "Insert to SECY
10 82-111." Towards the end of the first paragraph there
11 is a sentence. Perhaps you'd like to read that
12 sentence.
13 WITNESS ROSSI: This is the first sentence at
14 the bottom of the page?
15 JUDGE MORRIS: The sentence at the end of the
16 first paragraph, that starts, "In this connection."
17 WITNESS ROSSI: Yes, I will read. "In this
18 connection, the provisions for scheduling set forth
19 herein supersede any schedules with respect to such
20 items contained in NUREG-0737. Accordingly, the
21 recommended requirement should be used by the Staff and
22 by adjudicatory boards as appropriate clarifications and
23 interpretation of the related NUREG-0737 items."
24 JUDGE MORRIS: Is it your understanding that
25 that is the current guidance to the Staff?

1 WITNESS ROSSI: I believe it to be the current
2 guidance to the Staff. I'm not sure that I am competent
3 to fully interpret what it means, however.
4 JUDGE MORRIS: Neither am I. Thank you.
5 JUDGE BRENNER: Well, that's part of what I
6 had in mind when I mentioned to Staff counsel that we
7 will be interested in how we should interpret that in
8 the context of a contested issue where a party is
9 arguing that it should be done.
10 Incidentally, Mr. Black, I didn't give you the
11 full reference before when I had reference to one of our
12 prior orders that referred to Commission guidance. To
13 make it easier to find, it was our March 15th order in
14 this case, which talks about 0737 a little bit, and in
15 turn we relied on an analysis of the original Commission
16 policy statement, plus the revised policy statement,
17 plus what the Commission decision in Diablo Canyon, CLI
18 81-513, NRC 361, said about it.
19 Now, the context there was different. It was
20 an item that was not in 0737, and the argument which we
21 rejected was that if it is not in 0737 you cannot
22 litigate it. But even though that circumstance was
23 different, here we have an 0737 item and our discussion
24 of 0737 items is there by way of background in that
25 context and may be directly applicable here.

1 MR. BLACK: And so your question is basically,
2 has the SECY paper superseded all the requirements,
3 scheduling requirements in 0737, and that is something
4 that I have to look into because I'm not sure of the
5 interplay between 0737 and SECY 82-111, if SECY 82-111
6 covers all the 0737 items.
7 JUDGE BRENNER: It's not that simple,
8 unfortunately. I think it's fairly easy to see that as
9 an 0737 requirement the Commission has intended this new
10 open schedule to supersede any prior schedule. You can
11 tell that from the sentence that Judge Morris just
12 pointed to.
13 I don't think there's a great deal of
14 difficulty in finding that it would be okay for the
15 Staff to do that, that is have that open-ended
16 implementation schedule in the absence of a contested
17 issue in a proceeding. The question is, when there is a
18 contested issue in a proceeding where a party is arguing
19 that it is necessary, where parties are arguing that it
20 is not sufficient to have either a longer schedule or,
21 in this case, longer plus open-ended schedule, if it is
22 sufficient to just say, well, it's not required any
23 sooner when there is also arguably a Commission decision
24 and policy statements in the past that state that where
25 there is a NUREG-0737 item parties might be allowed to

1 argue what the implementation schedule should be, in
2 fact, more than that, what the requirements should be.
3 But here the parties are not arguing for
4 different requirements, just a better implementation
5 schedule. So arguably the County is on better ground
6 here to start with an 0737 item and not arguing for more
7 requirements. They are just arguing for a better
8 schedule.
9 MR. BLACK: Well, not wanting to belabor the
10 point, hasn't the Commission spoken on that particular
11 schedule, though, with respect to -- now the question
12 becomes, is a Commission policy statement binding on the
13 Board in light of a contested issue on that. On that, I
14 am not willing to state my gut reaction on that without
15 some research.
16 JUDGE BRENNER: Okay. Your last statement I
17 think is close to the question, in light of other
18 Commission policy statements and law which I do not see
19 being discussed or differentiated in this SECY paper
20 approval.
21 Mr. Earley?
22 BY MR. EARLEY: (Resuming)
23 Q Dr. Rossi, you mentioned that it is the
24 Staff's preference to look at Reg Guide 1.97 items as a
25 whole in a comprehensive submittal; is that correct?

1 A (WITNESS ROSSI) That is correct.

2 Q And at the same time would you also be looking

3 at a number of the other emergency facilities that are

4 referenced in SECY 82-111?

5 A (WITNESS ROSSI) We may do that. However, I

6 think the Reg Guide 1.97, Rev. 2, stuff could be looked

7 at more independently from those and perhaps the

8 interplay of the other emergency facilities.

9 Q With respect to the four items that remain in

10 contention here, isn't it true that if instrumentation

11 had to be added with respect to those four items there

12 may have to be changes in the control room

13 configuration?

14 A (WITNESS ROSSI) I believe that is true, in

15 particular with some of them.

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1 Q So wouldn't that have an impact on the control
2 room review that is listed in SECY 82-111 as one of the
3 items to be considered?
4 A (WITNESS ROSSI) If changes are, indeed --
5 significant changes are made required in the control
6 room, that could have an impact, yes. I would say it
7 depends on how big the changes are.
8 Q And isn't it also true that the changes may
9 also affect the design or the instruments that are
10 included in the technical support center?
11 A (WITNESS ROSSI) There could be an interaction
12 there, also.
13 (Pause.)
14 Q Dr. Rossi, in discussing the Commission
15 staff's review of the Shoreham plant, would the
16 instrumentation that is included as part of the RHR
17 system have been reviewed in that RHR system review?
18 A (WITNESS ROSSI) I do not know whether that
19 instrumentation was specifically reviewed or not. I did
20 not personally review it. I just do not know the answer
21 to the question.
22 I would like to point out that any review that
23 is done on the plant is an audit review, and it may or
24 may not have been included in the audit.
25 Q Mr. Rigert, isn't LILCO's position that with

1 respect to the four items that remain from this
2 contention, that LILCO will not comply with Reg Guide
3 1.97, Revision 2?
4 A (WITNESS RIGERT) No. Our position basically
5 is that we do comply with the intent of the guide, as
6 our argument illustrates. The precise instrument listed
7 in the table in Reg Guide 1.97, in our opinion, is not
8 the appropriate hardware to achieve that purpose. But,
9 in effect, we do meet the intent of the guide.
10 Q So it is LILCO's position that the purpose
11 listed for those instruments that are the subject of
12 this contention is, in fact, fulfilled by other
13 instrumentation as referenced in your testimony?
14 A (WITNESS RIGERT) Yes, that is right.
15 MR. EARLEY: That is all the questions I have.
16 JUDGE BRENNER: We could take a midmorning
17 break at this time, or complete the staff -- let's take
18 the break. How long will you be, Mr. Black?
19 MR. BLACK: Very brief. Zero. Zero minutes.
20 Zero questions. But I would certainly like to take a
21 break to find that out.
22 JUDGE BRENNER: All right, let's come back at
23 10:45.
24 (A short recess was taken.)
25

1 JUDGE BRENNER: Does the staff have any
2 questions?
3 MR. BLACK: Yes.
4 CROSS EXAMINATION
5 BY MR. BLACK:
6 Q Mr. Rigert, you were just asked previously by
7 your counsel as to whether LILCO met the intent of Reg
8 Guide 1.97, Revision 2. I would like to ask you what is
9 the basis for LILCO's conclusion with respect to that,
10 to the four items in question?
11 A (WITNESS RIGERT) I think in order to answer
12 that question I would split the answers up and
13 personally answer the two parameters concerning flow
14 measurement, maybe with some assistance from Mr. Kreps,
15 if it relates to the operating aspect of it. And let
16 the two radiation monitoring parameters be addressed by
17 the other two witnesses.
18 In the case of the standby liquid control
19 system flow indication parameter, it is our position
20 that the operation of the standby liquid control system
21 is already adequately monitored in the control room.
22 The primary indicator would be the pump discharge
23 pressure indicator and the pump running status lights.
24 Additional information would be the explosive
25 or squibb valve continuity lights, which indicate that

1 the valves have fired. And finally, of course, the tank
2 level which indicates that the pump is removing liquid
3 from the storage tank, and ultimately, the reactivity
4 level in the reactor would respond to the boron being
5 injected.
6 The flow indicators for suppression chamber
7 and drywell spray -- I think those are G. The standby
8 liquid I believe is H -- to keep track of the lettering
9 system. That was H contention, and the spray flow
10 indications are item G.
11 The spray flows both receive their water from
12 the RHR system, which is fully instrumented. There is
13 an RHR system flow meter; all valves in the RHR system,
14 all automatic or manual or motor-operated valves, have
15 position indication to align them, and the final effect
16 is the primary variable we want to monitor -- the
17 temperature and pressure. Primarily, the pressure in
18 the primary containment. The response of the sprays
19 will be indicated by those pressure instruments and
20 temperature instruments.
21 Q Before we move on, with respect to this
22 present instrumentation what is the time lag with which
23 you would get a positive indication of flow on the
24 systems?
25 A (WITNESS RIGERT) The pressure indication on

1 standby liquid would respond essentially immediately,
2 within a couple of seconds if not less. And it would
3 also have intelligence to it. The indicator can be
4 interpreted to tell you whether or not you are
5 communicating or pumping to the reactor.
6 The indicator should be slightly above reactor
7 pressure; perhaps in the range of 100 pounds above
8 reactor pressure. If the pressure is below reactor
9 pressure, then, you know, obviously, the liquid is not
10 flowing to the reactor. And if the pressure is very
11 high, about setpoint of the release valves, around 1400
12 pounds, you can very clearly assume that there is a flow
13 blockage or the valves didn't open -- explosive valves,
14 and your relief valves are lifting.
15 In the case of the RHR system, the flow
16 indicator is a continuous indicator. Its response time
17 is very short, also. And the valve position indicating
18 lights are essentially on a realtime basis, indicating
19 what valves are open and closed.
20 The pressure and temperature, which are the
21 primary variables you are concerned about, they have a
22 lag in themselves, that as the spray comes on it takes a
23 while for the pressure to come down. But the instrument
24 itself, especially the pressure instrument, would have a
25 very short response time -- temperature instrument. I

1 don't know -- I am just guessing. You might have a 10
2 or 20, 30 second delay, perhaps a minute, in its
3 response to a temperature change in the containment.
4 Perhaps Mr. Kreps could add to that one if you
5 are interested.
6 A (WITNESS KREPS) The response time of the
7 instrument itself is somewhat quicker than that. The
8 effect of putting the spray into the containment is
9 actually going to depend on the pressure and temperature
10 you started at. But the operator would have a response
11 indication within a matter of a minute or two minutes to
12 tell him for sure whether or not he was, in fact,
13 spraying the containment or the suppression pool.
14 JUDGE CARPENTER: You began by saying the
15 instrument. Which instrument are you referring to?
16 WITNESS KREPS: The containment and pressure
17 monitors. The monitoring instruments on the control
18 board.
19 JUDGE CARPENTER: Thank you.
20 WITNESS SCHMITT: Let me address the two
21 issues that dealt with radiation monitoring. There is a
22 requirement in the reg guide to have radiation monitors
23 installed in order to indicate a breach of the primary
24 containment leaking into the secondary containment, and
25 to detect significant releases from the primary into the

1 secondary, to assess that release and to perform
2 long-term surveillance.
3 We have radiation monitors in the station that
4 will allow us to perform these functions. And these are
5 noble gas effluent radiation monitors that take samples
6 of the primary containment atmosphere and monitor them
7 for the radioactivity content. I am sorry, it is on the
8 secondary containment. The sample is the secondary
9 containment atmosphere.
10 The contention stems from the fact that we do
11 not satisfy literally what the reg guide wants, in that
12 the reg guide stipulates that this detection of
13 significant release, release assessment, long-term
14 surveillance and detection of breach shall be done using
15 radiation exposure rate monitors. Generally, meaning
16 area radiation monitors. Monitors that see the area in
17 which they are mounted and respond to all radiation that
18 impinges upon them.
19 We believe that that type of monitor is
20 inappropriate for this application, for the application
21 of detecting leakage into the atmosphere of the
22 secondary containment, because these radiation monitors,
23 the area radiation monitors, would see all of the
24 radiation source terms that exist in the secondary
25 containment after an accident. These source terms would

1 include radioactivity in the liquids in the ECCS
2 systems, and that would be a substantial contributor to
3 the radiation that these monitors see.
4 And that radiation would cause a loss of
5 sensitivity of those kinds of monitors to accomplish
6 these purposes, detect leakage out of the primary into
7 the secondary. So we contend that atmospheric monitors,
8 monitors that are looking at the atmosphere in the
9 secondary containment, are more appropriate to
10 accomplish this purpose. And so, we meet the intent of
11 the reg guide; we do not meet literally the words in the
12 reg guide.
13 JUDGE CARPENTER: Mr. Schmitt, if there were
14 an accident and if you were monitoring the radiation in
15 the way that you just testified to, would you do
16 anything in addition to that in order to discover where
17 the leaks -- if you detected that there must be a leak
18 someplace because the general area-wide survey, the
19 indication with the noble gas sampling, -- was there
20 anything else that you would do in order to comply with
21 the function that is applied in Reg Guide 1.97, Rev. 2?
22 WITNESS SCHMITT: It is a little difficult to
23 answer that directly. Are we assuming that we have an
24 accident, and right now the secondary containment is not
25 to be entered, Judge Carpenter?

1 JUDGE CARPENTER: I did not specify what the
2 level of the signal was. I simply specified you
3 indicated that you would look at that atmosphere in the
4 way that you indicated, and then I asked you what you
5 would do, having gotten an indication.
6 (Panel of witnesses conferring.)
7 WITNESS SCHMITT: If you detect that there is
8 leakage of the primary into the secondary, there really
9 is not much operator action that can be taken. You can
10 try to reduce or remove the motor force by reducing the
11 pressure in the primary containment. But beyond that,
12 there really isn't much operator action that can be
13 taken to reduce or remove leakage of the primary into
14 the secondary containment.
15 Did that address the question?
16 JUDGE CARPENTER: Well, your answer -- let's
17 be sure I understand your answer. You are essentially
18 testifying that you don't see that there is much else
19 you can do. I am trying to learn about this. It seemed
20 to me that the suggestion in Reg Guide 1.97, Revision 2,
21 which had area monitors would, in some way, provide some
22 insight into localizing -- and I quite agree that one
23 may question the balance between getting a signal which
24 essentially integrates over the whole area, vis a vis
25 the specific information about a particular location.

1 And I was curious to know if the levels were
2 such -- let's go that far -- if the levels were such
3 that one could enter the secondary containment, what
4 would LILCO plan to do?
5 WITNESS SCHMITT: Okay. If it were possible
6 to enter into the secondary containment, one could
7 probably equip individuals to handle the situation and
8 send them in with portable radiation monitoring
9 equipment, in order to try to localize the area where
10 the leakage is occurring.
11 JUDGE CARPENTER: Can you see any benefit to
12 having had the local radiation monitors for the
13 condition where survey meters couldn't be used? No
14 individual could enter the containment. But what virtue
15 would there be to doing it both ways? I guess that is
16 the logical point I come to.
17 WITNESS SCHMITT: The answer to the question
18 is that if you were not going to enter, then there is no
19 benefit to additional area radiation monitor type of
20 instrumentation. And that stems from the fact that the
21 operator action, regardless of where leakage might be,
22 is the same. Location, or indication of location of
23 leakage, really does not give you anymore information
24 that you are able to act on.
25 JUDGE CARPENTER: One last question. Would

1 you refresh my memory as to what the operator action
2 would be?
3 WITNESS SCHMITT: Okay. If there is leakage
4 from the primary containment into the secondary
5 containment, the operator action would be to attempt to
6 remove the motor force which would be -- if he could --
7 to depressurize the primary containment so that there
8 was no longer a pressure differential. So the primary
9 containment would cease to leak into the secondary
10 containment.
11 JUDGE CARPENTER: Thank you.
12 JUDGE MORRIS: Mr. Schmitt, just a quick
13 followup. Aside from the permanently installed
14 instrumentation that has been discussed, is there
15 anything else the operator could do to either confirm or
16 identify the kind of radiation or the location of the
17 radiation, assuming that he is denied access to the
18 secondary containment?
19 WITNESS SCHMITT: Yes, Judge Morris. The
20 post-accident sampling system would allow a technician
21 to draw samples in a safe manner of the atmosphere in
22 the secondary containment, and in that way you can get a
23 better picture of what is going on in the secondary
24 containment during this period when you cannot have
25 personnel enter it.

1 Those samples are taken in order to have a
2 gamma isotopic analysis performed on them. You can
3 identify the particular radionuclides and the
4 concentration of each particular radionuclide in the
5 containment, and over the course of the accident you can
6 trend what is going on at various locations, and so,
7 keep your finger on what is developing in the secondary
8 containment.
9 JUDGE MORRIS: And that ability would be
10 present regardless of whether you met 1.97, Revision 2
11 literally or not. Is that correct?
12 WITNESS SCHMITT: Yes, it would.
13 JUDGE MORRIS: And would this be an action
14 that you would always do in such a situation?
15 WITNESS SCHMITT: Sampling via the
16 post-accident sampling system?
17 JUDGE MORRIS: Yes.
18 WITNESS SCHMITT: It would be an action which
19 would be advisable and would be taken in order to help
20 you analyze a situation. It is not proceduralized that
21 thou shalt always do this action. But having that
22 capability available to you at no small expense, you
23 would want to use that capability. It would give you a
24 much better handle on what was going on in the secondary
25 containment. And so, I would say that it would probably

1 always be done -- the sampling in the secondary
2 containment.
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1 JUDGE MORRIS: Would it be correct to say that
2 permanently installed instrumentation is for the purpose
3 of detecting the presence of a leak and the sampling is
4 to find the character of the leak?
5 WITNESS SCHMITT: No, I don't think that's
6 true. The permanently installed instrumentation that is
7 drawing a sample of the atmosphere in the secondary
8 containment allows you to keep in front of the operator
9 an indication of what's going on in the secondary
10 containment. To the operator it is a gross indication.
11 We can draw samples from that monitor, as well as
12 samples of the secondary containment, via the
13 post-accident sampling system, and any of those samples
14 could then be analyzed with care on the gamma
15 spectroscopy equipment.
16 JUDGE CARPENTER: Just to make it logically
17 complete, Mr. Schmitt, you said you didn't think you
18 would do the sampling under all circumstances. Under
19 what circumstances would you not do the sampling?
20 WITNESS SCHMITT: You need to interpret the
21 situation or run through in your mind what the
22 situations might be that would cause you not to sample.
23 But as a for-instance, if the noble gas effluent
24 monitors indicated that there was no concern with
25 leakage into the secondary containment and you had other

1 samples that you preferred to draw and analyze in an
2 expedient manner, a sample of the primary coolant, for
3 instance, you might do that and put secondary
4 containment sampling at a lower priority, and in fact
5 maybe never get to it before the incident cleared, if
6 you assume a small incident.
7 If you assume something going on for a long
8 period of time, after you did the samples that you
9 really needed on a high priority basis, then you would
10 probably sample the secondary containment atmosphere
11 even if the installed instrumentation indicated no need
12 to do so.
13 JUDGE CARPENTER: Continue to try to help me
14 to understand. You did refer to a condition where there
15 was no indication on the noble gas indicator. Let's
16 stay with situations where there is. And remember, our
17 peculiar perspective is public safety. I was trying to
18 see, from the point of view of having gotten an
19 indication that something was going on in the atmosphere
20 of the secondary containment, I was trying to see under
21 what conditions you were confident that you didn't need
22 to explore it with gamma spectrometry with respect to
23 public safety in terms of knowing pretty quickly what
24 isotopes might leave the secondary containment in some
25 unexpected way.

1 WITNESS SCHMITT: I believe I said you may not
2 draw a sample rapidly if there was indication that there
3 was not leakage from the primary into the secondary
4 containment. If there were, if there was then the
5 concern is for public health and safety if we have a
6 problem with the secondary containment.
7 But if that were the case, if there were
8 indication that there is leakage into the secondary
9 containment, then you would want to sample the secondary
10 containment, do a gamma isotopic and continue to monitor
11 it in order to remain aware of the potential that you
12 have on your hands in case there was leakage from the
13 secondary containment.
14 JUDGE CARPENTER: I would like to acknowledge
15 that in my questioning I took you beyond the specific
16 contention with respect to the question of whether the
17 fixed area monitors are preferable to the strategy which
18 LILCO is putting forth. I just wanted to get a little
19 perspective, but I wanted it clear that I recognize that
20 I went beyond the particular question that is before us
21 this morning.
22 But you did -- I can't resist. You did tell
23 me that I can't find what you just testified to, that
24 one would want to take the samples formalized in any
25 procedure at the present time. There are no specific

1 instructions, when that noble gas indicator gets to a
2 certain value one should proceed without delay to take
3 samples and submit them to gamma spectrometry.
4 WITNESS SCHMITT: Perhaps the question stems
5 from not differentiating, as we discuss this, between
6 what's in the secondary containment and you want to
7 remain aware of so that you can form plans, develop
8 priorities for a possible situation that may develop
9 during an accident, versus sampling and analysis and
10 being aware of what is being released at all times from
11 the plant, including when the accident is in progress.
12 The monitors, the effluent monitors, are used
13 to continually monitor what is being emitted to the
14 atmosphere, and dose calculations are being done, real
15 time, using real time net data, to determine what
16 potential doses might be to people offsite. You're
17 always aware of that.
18 And in the questioning we were just talking
19 about, on the line of questions we just went through,
20 had to do with, well, what about what was in the
21 secondary containment and how much you know about that
22 and how much do you think you need to know about that.
23 We always know what's going out of the plant and now
24 we're talking about how soon and how well and how often
25 do you need to take a look at what is in the secondary

1 containment and the potential that it represents for a
2 more serious consequence and needing to include that in
3 the planning that is going on in the emergency support
4 facilities.
5 Does that help clear up your questioning?
6 JUDGE CARPENTER: Well, yes. You wandered
7 back to routine operation as opposed to the
8 post-accident monitoring contention. That's definitely
9 the balance of what we want to talk about.
10 WITNESS SCHMITT: No, this monitoring of
11 effluents is going on at all times, during normal and
12 during the emergency operation.
13 JUDGE CARPENTER: I understand that.
14 Specifically, the County has drawn our attention to the
15 post-accident monitoring situation, so I presume that
16 that was clear from what you're talking about.
17 WITNESS SCHMITT: Yes.
18 JUDGE CARPENTER: Well, I don't wish to
19 belabor this. Thank you for helping me.
20 BY MR. BLACK: (Resuming)
21 Q Mr. Schmitt, I thought Judge Morris asked this
22 question, but I'm not so certain that I heard a
23 definitive answer. So I will repeat it: Does the
24 post-accident sampling system give LILCO the capability
25 to not only analyze the radionuclides, but to pinpoint

1 the area of leakage in the secondary containment once
2 those radionuclides are analyzed?
3 A (WITNESS SCHMITT) No. It allows you to
4 sample from various points in the secondary containment,
5 but in my opinion it does not allow you to locate the
6 area of leakage from the primary into the secondary.
7 MR. BLACK: Thank you. That's all the
8 questions I have.
9 WITNESS RIGERT: There's something I wanted to
10 add on that point. I think one of the main reasons that
11 we took exception to this idea of using area monitors
12 for detection of penetration, containment penetration
13 and hatch leakage, is the way that the secondary
14 containment is built. Essentially, there are no sealed
15 compartments in the secondary containment. It is all
16 one air space, with very few exceptions.
17 And the system after an accident, the reactor
18 building standby ventilation system, initiates. And one
19 of its main purposes is to provide a well-mixed
20 atmosphere in the secondary containment, and also for
21 some heat removal. It has cooling capability in it, but
22 the idea would be that a leaking penetration would
23 produce airborne contamination.
24 That airborne contamination will be mixed by
25 the reactor buiding standby ventilation system and will

1 show up throughout the building, depending on the mixing
2 efficiency of the ventilation system, with some
3 homogeneous concentration or nearly homogeneous
4 concentration.
5 An area monitor would really only -- it would
6 primarily, in our opinion, be seeing the radiation that
7 we talked about earlier shining from objects in its
8 field of view, piping, and even direct shining right to
9 the primary containment wall from radioactivity perhaps
10 in the suppression pool of the primary containment
11 atmosphere.
12 So we feel the whole concept of using an area
13 radiation monitor, it might apply if you have a
14 containment where all of your penetrations were in
15 segregated compartments and you put monitors in each of
16 those compartments. But it's just not the way our
17 building is built.
18 BY MR. BLACK: (Resuming)
19 Q So it is LILCO's position at this time that
20 there is virtually no benefit whatsoever to adding an
21 area radiation monitor versus the noble gas effluent
22 monitors?
23 A (WITNESS RIGERT) It would actually be a
24 detriment in that it would probably result in
25 occupational exposure from maintenance and callibration

1 work. There is the cost to consider. It would be
2 substantial.
3 MR. BLACK: I have no further questions.
4 JUDGE BRENNER: Do Staff witnesses have a view
5 on that last response, primarily by Mr. Rigert?
6 BOARD EXAMINATION
7 BY JUDGE CARPENTER:
8 Q You covered both of the radiation monitors?
9 A (WITNESS RIGERT) We did, yes.
10 A (WITNESS ROSSI) Certainly we are going to
11 look very carefully at how useful this radiation
12 monitoring equipment might be, and we will certainly
13 take into account the fact that -- well, we don't intend
14 to require licensees or applicants to spend a
15 considerable amount of money to put in instrumentation
16 that we ultimately conclude will not provide a moderate
17 amount of information. And so -- but I can't make a
18 final judgment on what they are saying at this time.
19 BY JUDGE BRENNER:
20 Q I should have asked my question more
21 specifically. Certainly, I understood from your written
22 testimony and your oral testimony yesterday and this
23 morning that the Staff is not prepared to make a final
24 judgment as to whether in the long term LILCO should
25 make certain modifications to equipment as to the

1 radiation monitors, in fact as to each of these four
2 items that we are concerned with now in this
3 contention.
4 What I was asking is whether there was any
5 other reasoning offered by LILCO -- and let me broaden
6 it -- as to each of these four items that Mr. Black has
7 now asked LILCO about, and also Judge Carpenter, any
8 disagreement on your part? Because we might look at
9 their answers in terms of judging whether in the interim
10 that would be a technical support, if we were to look
11 for a technical support in addition to the legal
12 argument as to whether a license could be issued while
13 the Staff was still considering in the longer term
14 whether other modifications could be made.
15 So because there is a possibility we might
16 look at that for the interim, if there is something in
17 that answer that you can now presently disagree with or
18 that you are presently inclined to assign little weight
19 to, we would certainly like to hear about that now,
20 without prejudice to what your ultimate and final
21 position might be.
22 A (WITNESS ROSSI) I didn't hear anything in the
23 answer that I could state that I disagree with and then
24 support that disagreement. I think there's one further
25 verification, that flow meters are not required in any

1 emergency procedures on the part of LILCO. I would like
2 to perhaps hear that statement. That might be a useful
3 thing to look into.
4 Q From the standpoint that if there was
5 something in the procedure that --
6 A (WITNESS ROSSI) Clearly, if there is
7 something in a procedure that they are going to be using
8 when the plant initially starts up that would make use
9 of any of these flow meters, that would certainly affect
10 our decision on whether that instrument had to be
11 installed at that time.
12 It is our belief that there isn't any, but
13 it's something that you might want to ask them.
14 Q Okay. I'll ask them now.
15 Was that based on a considered review of the
16 procedures or more of a recollection at this time?
17 A (WITNESS KREPS) It's based on reviews, since
18 I have reviewed all the Shoreham procedures in the last
19 several months. In fact, I have written most of them,
20 and when I write procedures I write the procedures based
21 on what instrumentation we have. So I don't call for an
22 operator to use something that he doesn't have. So none
23 of our procedures will call for him to be using those
24 flow meters.
25 BY JUDGE CARPENTER:

1 Q Are you invoking common sense?

2 A (WITNESS KREPS) I attempt to when I write

3 procedures also.

4 (Laughter.)

5 BY JUDGE BRENNER: (Resuming)

6 Q In fairness to Dr. Rossi, I think your concern

7 might be that sometimes there are general procedures and

8 you wanted to be sure that there was a check that the

9 procedures were deemed applicable to the particular

10 instrumentation at a particular plant, even though there

11 are some general guideline procedures.

12 A (WITNESS ROSSI) That is correct. I wanted to

13 make sure that on the Shoreham plant that there has been

14 a review made of those procedures by LILCO and that

15 these particular four instruments would not be required

16 in those procedures.

17 Q Okay, and I think we have Mr. Kreps' answer.

18 BY JUDGE MORRIS:

19 Q Dr. Rossi, Revision 2 of Reg Guide 1.97

20 applies equally to BWR's and PWR's; is that correct?

21 A (WITNESS ROSSI) That is correct. However,

22 there is a different -- Table 1 lists the variables for

23 BWR's and Table 2 lists the variables for PWR's. So

24 there is a different list of variables for the two types

25 of plants.

1 Q And the four variables we are considering in
2 this contention are Table 2?
3 A (WITNESS ROSSI) I haven't looked to see. I
4 have not compared or looked at Table 2 to see whether
5 they are also on PWR's. I just haven't done that.
6 Q My real question is, do these four apply
7 specifically to boilers or do they apply both to boilers
8 and pressurizers?
9 A (WITNESS ROSSI) That's the question that I
10 can't answer. I haven't looked to see whether they are
11 the same thing as required -- well, wait. I can look
12 now. It appears that Table 2, the PWR variables, that
13 there is on page -- Reg Guide 1.97, page 19 of Table 2,
14 there is a variable referred to as "radiation exposure
15 rate (inside buildings or areas, e.g., auxiliary
16 building, reactor shield building, annulus,
17 fuel-handling building)," which are in direct contact
18 with primary containment where penetration hatches are
19 located, the purpose of which is to indicate breach.
20 That would appear, based on my quick look
21 right now, to be analogous to the BWR situation. So it
22 would appear to me, based on what I just read, that the
23 same situation exists on PWR's.
24 Q Let me be sure that we are communicating. I
25 want to know if the four items that we are discussing

1 apply specifically to boiling water reactors.

2 A (WITNESS ROSSI) Well, I'm still not sure I

3 understand your question. There are apparently several

4 kinds of radiation monitors that would apply to PWR's.

5 So for those it would appear to be similar kinds of

6 instruments that are called for in Reg Guide 1.97, Rev.

7 2, for the PWR's.

8 And it's just been pointed out to me here that

9 there is -- well, PWR's don't have what we call standby

10 liquid control systems. They have other systems that

11 are used to put in boric acid. It appears that there

12 are flow instruments there. But on a PWR the boric acid

13 has a different significance, in my opinion, than it

14 does for the BWR. It is more directly required for safe

15 shutdown on a PWR than it is a BWR.

16 The sprays -- I believe that there is an

17 analogous requirement for the PWR. There would be

18 differences in the system, but it appears that there is

19 an analogous requirement there. However, I can't say

20 right now the degree to which the spray is tied in with

21 the RHR in the same way on a PWR as it might be on a

22 BWR.

23 Does that --

24 Q My concern is that in developing the Reg Guide

25 there was specific attention paid to the application of

1 these items to a boiling water reactor. It was not a
2 broad concept applied to water reactors in general?
3 A (WITNESS ROSSI) Oh, I believe that is
4 correct. There is a separate table for BWR's and PWR's,
5 which I believe took into account the basic differences
6 between BWR's and PWR's. However, it has become
7 apparent from reviews that have been done on the
8 construction permits that the tables may not have
9 distinguished between every possible BWR design, but
10 they do distinguish between BWR's and PWR's.
11 JUDGE MORRIS: Thank you.
12 JUDGE BRENNER: All right. Any further
13 examination by the County based on all the rounds of
14 questions?
15 MS. LETSCHE: No, Judge Brenner.
16 JUDGE BRENNER: The same to the Staff -- I'm
17 sorry, to LILCO.
18 MR. EARLEY: No questions.
19 JUDGE BRENNER: What we would like to do,
20 unless there is objection by LILCO and the Staff, is to
21 have the County witness sworn in, but leave the Staff
22 and LILCO witnesses up there at this point, which is a
23 slight variation of our stating that we would wait until
24 the very last round. And the reason for that is Judge
25 Carpenter has questions that he wants to ask at the

1 beginning of County witness and perhaps the other
2 witnesses.
3 If you thereafter want your experts next to
4 you before you ask questions of the County witness, just
5 say so and we will allow that, if that is an acceptable
6 way to proceed.
7 Another way to do it is to have Judge
8 Carpenter hold his questions while you keep your experts
9 next to you, but we would rather go ahead with his
10 questions first.
11 MR. BLACK: Staff certainly has no objection
12 to that procedure. But I think you ought to also ask
13 the County, since they were the ones that raised the
14 objection.
15 JUDGE BRENNER: It doesn't matter to the
16 County in this instance because in any event Mr. Minor
17 would be up there. The circumstances have changed a
18 little bit. This would be Mr. Minor's normal turn to be
19 up there in any event.
20 MR. EARLEY: LILCO has no objection, although
21 when we get into our cross-examination of Mr. Minor it
22 would be helpful if I could have Mr. Rigert to consult
23 with.
24 JUDGE BRENNER: All right. After Judge
25 Carpenter finishes his initial round and any follow-up

1 immediately of those questions, we will let the other
2 witnesses go back to their normal places and leave just
3 Mr. Minor up there.
4 At some point it might be useful to put the
5 Revision 2 of the Reg Guide into evidence or have it
6 marked as an exhibit. Perhaps at the end the Staff or
7 somebody else might want to have a copy available for
8 the reporter.
9 I guess we would ask Mr. Minor to take the
10 stand at this time, if there can be room made for him
11 around the middle of the table or wherever it's
12 convenient.
13 Ms. Letsche.
14 Whereupon,
15 GREGORY C. MINOR,
16 called as a witness by counsel for Suffolk County,
17 having been previously duly sworn, was examined and
18 testified as follows:
19 DIRECT EXAMINATION
20 BY MS. LETSCHE:
21 Q Mr. Minor, do you have before you a copy of a
22 document entitled "Prepared Direct Testimony of Richard
23 B. Hubbard and Gregory C. Minor on Behalf of Suffolk
24 County and the Shoreham Opponents Coalition Regarding
25 Suffolk County Contention 27 and SOC Contention 3,

1 Post-Accident Monitoring"?

2 A (WITNESS MINOR) Yes, I do.

3 Q And does the copy that you have before you

4 consist of a two-page summary followed by 19 pages of

5 testimony and one attachment?

6 A (WITNESS MINOR) Yes, it does.

7 Q Have your professional qualifications been

8 previously entered into the record in this proceeding?

9 A (WITNESS MINOR) Yes, they were bound in at

10 the time of the 7.B contention.

11 Q Were you the primary author of this testimony,

12 Mr. Minor?

13 A (WITNESS MINOR) Yes, I was.

14 MS. LETSCHE: Judge Brenner, I would like to

15 note for the record that, although Mr. Hubbard was a

16 supporting author of this testimony, as Mr. Minor has

17 stated, he was the primary author and therefore he is

18 appearing for cross-examination.

19 We have the copy of the testimony which will

20 be given to the reporter. It has been marked to

21 indicate the Board's rulings on the LILCO motion to

22 strike, and those rulings are at pages 7042 to 7053 of

23 the transcript. We have not, however, made changes

24 throughout the testimony to delete either Mr. Hubbard's

25 name or to change the pronoun from plural to singular.

1 BY MS. LETSCHE: (Resuming)

2 Q Mr. Minor, do you have any corrections or

3 additions, other than those which reflect the Board's

4 rulings on the LILCO motion to strike, to make in the

5 prepared direct testimony on this contention?

6 A (WITNESS MINOR) Yes. There are two

7 corrections I would like to make, one of which was in

8 the first page of the summary where, in the fourth line

9 from the bottom, it says "July '83 implementation

10 date." That should be "June '83."

11 The second is on page 16, in answer A-12. The

12 next to the last sentence in that answer, it should be

13 "June '83" instead of "June '82." And I believe you

14 restricted that question to items not responsive to the

15 Board's motion to strike. There are additions with

16 regard to that as well.

17 Q Yes, I will come to that in a minute.

18 With the corrections that you have just noted,

19 is your direct testimony on Suffolk County contention 27

20 and SOC contention 3 correct and accurate to the best of

21 your knowledge?

22

23

24

25

1 A (WITNESS MINOR) Yes.

2 MS. LETSCHE: Judge Brenner, as you recall,
3 subsequent to the Board's ruling and at the Board's
4 suggestion, or at least with the Board's permission, Mr.
5 Minor prepared a revised Table 1 to replace the Table 1
6 that had been in his prefiled testimony. He also
7 prepared a revised Answer 10 to replace the Answer 10 in
8 his prefiled testimony, and a revised Answer 13 to
9 replace the one in his prefiled testimony.

10 He also prepared a comprehensive
11 cross-reference of items related to Suffolk County
12 Contention 27, which was a table referring to several
13 documents that all the parties have used and referred
14 to, relating to compliance with Reg Guide 1.97,
15 particularly the items in Contention 27.

16 That document was provided with an
17 accompanying cover letter from Mr. Lanpher, dated July
18 26, 1982, to counsel for LILCO and counsel for the
19 staff, with a statement that we anticipated having those
20 documents bound into the record, along with the prefiled
21 testimony.

22 Both of those parties have reviewed the
23 documents and indicated that they have no problem with
24 that. And we have provided the Board with copies of
25 that information, also. And we would like to have that

1 document bound into the record and submitted along with
2 the prepared direct testimony of Mr. Minor.
3 JUDGE BRENNER: There is no problem in getting
4 it in. And your statement is accurate reflecting the
5 prior agreement of the parties. I will check in a
6 moment, but mechanically, you just want to keep it
7 separate and bind it in after? Is that the case?
8 MS. LETSCHE: I think the easiest way would be
9 to bind them in one after the other. The notation that
10 I had made in the prefiled testimony reflecting the
11 Board's ruling on the motion to strike includes a
12 reference to the revision, which would then, if we bind
13 in this letter and the additions immediately subsequent
14 would follow in the record, then I think it would make
15 sense.
16 JUDGE BRENNER: Okay, we will do it that way
17 for ease now. If you later have to reference some of
18 these revised pages and findings, I will let you figure
19 out how to do it, since they are not numbered. We will
20 leave it this way for now. If we do something like this
21 in the future, one possible alternative way might be to
22 call the question and answer 10 page 13A -- why don't we
23 do that now?
24 MS. LETSCHE: Let me just say one other thing
25 so that the record is clear. On the copy of Mr.

1 Lanpher's letter with the attachments which I intend to
2 provide to the reporter, I have identified each of those
3 items as -- well, the table as Revised Table 1, the new
4 question and answer 10 as Revised Question and Answer
5 10, and the same with respect to 13. So that it is
6 clear exactly what these are. And they have the July
7 27, 1982 date on the top of each page.
8 JUDGE BRENNER: Okay, I will leave it at
9 that. Usually, testimony is referenced later in the
10 findings by page number, and so where you might have
11 your problem I am sure you will solve it either by
12 reference to a revised page or something of that nature.
13 You are prepared to move these documents into
14 evidence now?
15 MS. LETSCHE: I will just ask Mr. Minor if he
16 had prepared these additional documents and then do so.
17 BY MS. LETSCHE (Resuming):
18 Q Mr. Minor, do you have before you a letter
19 dated July 26, 1982, from Lawrence Lanpher to W. Taylor
20 Revely, III and Bernard Bordenick, Esq., with an
21 attached Revised Table 1, Review of Reg Guide 1.97, a
22 revised Question and Answer 10 dated July 27, 1982, a
23 revised Question and Answer 13 dated July 27, 1982, and
24 a Table entitled Comprehensive Cross-Reference of Items
25 Related to Suffolk County Contention 27?

1 A (WITNESS MINOR) The copy that I happen to have
2 with me does not have question 13 in it. Other than
3 that, I do.
4 (Pause.)
5 Yes.
6 Q With the exception of the letter from Mr.
7 Lanpher, were the attachments to that letter prepared by
8 you as part of your -- or, as revisions to your direct
9 testimony on Suffolk County Contention 27?
10 A (WITNESS MINOR) Yes, they were.
11 Q And are those documents true and correct, to
12 the best of your knowledge?
13 A (WITNESS MINOR) Yes, they are.
14 MS. LETSCHE: At this time, Judge Brenner, I
15 would like to move the Prepared Direct Testimony of
16 Messrs. Hubbard and Minor Regarding Suffolk County
17 Contention 27 and SOC Contention 3, as well as the other
18 document; that is, the attachments to Mr. Lanpher's July
19 26, 1982 letter, into evidence as if read.
20 JUDGE BRENNER: Okay. You might want to leave
21 the letter as a cover to it, also, unless there are
22 objections.
23 MS. LETSCHE: I did. I intended to do that.
24 If I didn't make that clear, I intended to submit the
25 entire package, including the letter.

1 JUDGE BRENNER: Okay. Are there any
2 objections?
3 MR. BLACK: I would like to ask Mr. Minor
4 which portions of this testimony Mr. Hubbard prepared.
5 JUDGE BRENNER: All right. Well, -- then you
6 might object to the admission, depending on the answer.
7 MR. BLACK: Could.
8 JUDGE BRENNER: You will have to take it
9 further than just prepared, if you are going to do that.
10 MR. BLACK: I might, depending on the answer I
11 get.
12 MR. EARLEY: Judge, may I suggest something?
13 I was interested in exploring the same thing. I will
14 not object to the admission, but reserve the right, if
15 in further cross examination it becomes apparent that
16 Mr. Hubbard has substantial input to any part of the
17 testimony, that we would be able then to object to the
18 admission of that particular portion or ask for Mr.
19 Hubbard's presence, so he can be cross examined.
20 JUDGE BRENNER: The latter is likely to be
21 your relief unless you also establish that Mr. Minor
22 knows so little about the now pertinent portions. So
23 why don't we do it that way? Mr. Black, the way you
24 suggsted it would be appropriate, but it is complicated
25 here because in order to ease time, I have not required

1 the parties to strike out portions of the testimony
2 which are no longer pertinent now that the contention
3 has been narrowed to the four items. So you have that
4 complication, along with the further exploration that
5 you now wish to conduct.
6 So let's see where it is at, especially if it
7 is going to be any relief accorded, it is more likely to
8 be -- well, let me not speculate. We will see what is
9 up.
10 MR. BLACK: I have no problems with that
11 procedure of going to it later through motions to strike
12 or supplementation of the panel.
13 JUDGE BRENNER: All right. We will adopt Mr.
14 Earley's suggested approach then, and bind the documents
15 as identified into the record, admit it into evidence
16 and bind it into the record as if read.
17 (The information referred to follows:)
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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 O.L.
(Shoreham Nuclear Power Station, Unit 1)	)	

PREPARED DIRECT TESTIMONY OF
RICHARD B. HUBBARD AND GREGORY C. MINOR
ON BEHALF OF SUFFOLK COUNTY
AND THE SHOREHAM OPPONENTS COALITION

REGARDING

SUFFOLK COUNTY CONTENTION 27

AND

SOC CONTENTION 3

POST-ACCIDENT MONITORING

May 25, 1982

SUMMARY OF TESTIMONY ON

SC CONTENTION 27 AND SOC CONTENTION 3

The Shoreham instrumentation to assess plant and environs conditions during and following an accident has not been demonstrated as providing control room operators with the required instrumentation to monitor radioactivity releases, thus violating the NRC's General Design Criteria, the post-TMI requirements of Revision 2 of Regulatory Guide 1.97, and the emergency preparedness planning standards of NUREG-0654.

Evidence of deficiencies in LILCO's ability to demonstrate compliance with the post-accident monitoring requirements is provided in this testimony. Reg. Guide 1.97, Revision 2 is a result of one of the highest priority lessons from the TMI-2 accident. Because of the acknowledged safety significance of the post-accident monitoring instrumentation, compliance with Revision 2 of the Guide should be demonstrated prior to the issuance of an operating license for Shoreham. If that is not possible, LILCO should be required to provide assurance to the NRC Staff that each requirement of the Reg. Guide can and will be complied with by the Staff's ~~July~~ June, 1983 implementation date. To date, LILCO has failed to demonstrate that there is a reasonable liklihood that Shoreham will comply with Reg. Guide 1.97, Revision 2 requirements by June, 1983. Such a demonstration

should be required prior to the issuance of an operating license.

Attachments

1. NUREG-0654, "Planning Standards Pertaining to Post-Accident Monitoring."

PREPARED DIRECT TESTIMONY OF
RICHARD B. HUBBARD AND GREGORY C. MINOR
REGARDING
SUFFOLK COUNTY CONTENTION 27 AND SOC CONTENTION 3
POST-ACCIDENT MONITORING

Q1. State your names and company affiliation.

A1. My name is Richard B. Hubbard and my name is Gregory C. Minor. We are employed by MHB Technical Associates at 1723 Hamilton Avenue, Suite K, San Jose, California. A statement of our qualifications and experience has been provided earlier in a separate submittal to this Board.

Q2. State the Contention.

A2. Suffolk County Contention 27 was accepted by the Board as follows:

> The recent Revision 2 of Reg. Guide 1.97, "Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant Environs Conditions During and Following an Accident", details needed devices and qualifications of instruments. Shoreham is deficient in the following areas:
>
> (a) Radiation Exposure Rate Monitoring (Item 18, Table 1; Items 20 and 41, Table 2);*/
> (b) Radioactivity Concentration or Radiation Level in Circulating Primary Coolant (Item 11, Table 1; Item 14, Table 2);
> (c) Continuous On-Line Monitoring of Halogen in Effluent (Item 39, Table 1; Item 43, Table 2);

*/ The item and table numbers used in this contention refer to the information provided in the Affidavit of Brian R. McCaffrey submitted in support of LILCO's Motion for Summary Disposition of SOC Contention 3, dated July 13, 1981.

(d) Secondary Containment Area Radiation Monitor (Item 36, Table 1; Item 17, Table 2);

(e) Reactor Coolant System Soluble Boron Concentration (Item 3, Table 1; Item 4, Table 2);

(f) Analysis of Primary Coolant (Gamma Spectrum) (Item 12, Table 1; Item 15, Table 2);

(g) Drywell Spray Flow and Suppression Chamber Spray Flow (Items 21 and 24, Table 1; Items 23 and 23A, Table 1; Item 37, Table 2);

(h) Standby Liquid Control System Flow (Item 28, Table 1; Item 37, Table 2):

(i) Plant and Environment Radiation Monitoring (Item 40, Table 1; Item 45, Table 2);

(j) Post-Accident Sampling Capability (Item 42, Table 1; Item 47, Table 2); and

(k) BWR Core Thermocouples (Item 5, Table 1; Item 13, Table 2).

To the extent that these words are essentially identical to SOC Contention 3, the following testimony addresses both contentions and is jointly authored.**/

Q3. What is the purpose of your testimony?

A3. To emphasize the importance of post-accident monitoring equipment in nuclear plants, to comment on the status of Shoreham's response to Reg. Guide 1.97 and, particularly, the lack of evidence that LILCO will satisfy Reg. Guide 1.97, Rev. 2, by June, 1983, and to explain why compliance with Reg. Guide 1.97 should be demonstrated at Shoreham prior to the issuance of an operating license.

**/ G. C. Minor is the primary author and R. B. Hubbard is the supporting author.

Q4. What are the NRC requirements for instrumentation to assess plant and environs conditons during and following an accident?

A4. The chief NRC requirements relevant to this testimony are as follows:

(a) General Design Criterion (GDC) 13 of Appendix A requires, in part, that instrumentation be provided to monitor variables and systems over their anticipated ranges for accident conditions as appropriate to ensure adequate safety.

(b) GDC 19 of Appendix A requires, in part, that a control room be provided from which actions can be taken to maintain the nuclear power unit in a safe condition under accident conditions, including loss-of-coolant accidents, and that equipment, including the necessary instrumentation, at appropriate locations outside the control room be provided with a design capability for prompt hot shutdown of the reactor.

(c) GDC 64 of Appendix A requires, in part, that means be provided for monitoring the reactor containment atmosphere, spaces

containing components for recirculation of loss-of-coolant accident fluid, effluent discharge paths, and the plant environs for radioactivity that may be released from postulated accidents.

Following the TMI-2 accident, the NRC advised LILCO that:[1/]

> "The applicant will be expected to upgrade post-accident monitoring instrumentation in accordance with Revision 2 to Regulatory Guide 1.97... The schedules and specific implementation requirements for this upgrading are discussed in NUREG-0737 and Commission Memorandum and Order (CLI-80-21). An evaluation of the applicant's new instrumentation to meet these requirements will be issued upon submittal of an acceptable design..."

LILCO has not yet formally submitted its complete design to the NRC. Thus, the NRC Staff has not evaluated the LILCO proposal for post-accident monitoring.

Q5. What is the importance of post-accident monitoring equipment?

A5. Post-accident monitoring equipment can be of great importance to an operator in mitigating a reactor accident. Accurate information about the plant variables listed in Reg. Guide 1.97 can assist the operator in assessing the nature of an accident and in measuring the effectiveness of his actions. Conversely, the lack of such information,

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1/ NUREG-0420, Shoreham SER, p. 7-13.

even for just one or two key variables, could exacerbate the course of an accident.

Q6. Did the TMI accident, in your opinion, document the importance of accurate and reliable post-accident monitoring equipment?

A6. Yes. The reviews after TMI showed that the original regulatory guidance on post-accident monitoring equipment was insufficient. During the TMI accident, some monitoring equipment showed off-scale readings; other variables which would have been desirable for the operator to know were not being monitored.

Q7. In your opinion, is Reg. Guide 1.97, Revision 2, designed to address these problems?

A7. Yes. Reg. Guide 1.97, Revision 2, is meant to address these shortcomings. The NRC considered it essential that "degraded conditions and their magnitude be identified so that operators can take actions that are available to mitigate the consequences".[2/] The NRC also felt it essential that "required instrumentation be capable of surviving the accident evironment in which it is located for the length of time its function is required".[3/] For these reasons, Reg.

2/ Regulatory Guide 1.97, Revision 2, December, 1980, Nuclear Regulatory Commission, p. 2.

3/ Ibid 2, p. 2.

Guide 1.97, Revision 2, contained an expanded list of plant variables to be measured, over wider ranges than before, and with upgraded qualification requirements. The "Discussion" which precedes the revised Guide states that the list of plant variables is a minimum list.[4/] I understand this to mean that none of the items is "optional"; all are essential and important to safety.[5/] Thus, in the implementation of Reg. Guide 1.97 requirements, operators of nuclear plants should establish with reasonable certainty that all requirements will be met in a complete and timely manner.

Q8. Describe the Reg. Guide 1.97 requirements and schedules for post-accident monitoring equipment as they apply to Shoreham.

A8. Table 1 (which begins on the following page) lists the variables to be monitored according to Reg. Guide 1.97. For each variable, the NRC Staff's required implementation date is given, as well as LILCO's current schedule for completion. Also, for each variable the Table shows the modifications (if any) needed at Shoreham to measure

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4/ Ibid 2, p. 3.

5/ The safety priority rankings in Appendix B to NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident," shows two of the four highest ranked items (each with 210 priority points), are "Additional Accident Monitoring Equipment" and "Identification of and Recovery from Conditions Leading to Inadequate Core Cooling".

See Revised Table 1

TABLE 1: REVIEW OF R.G. 1.97

ITEMS APPLICABLE TO SHOREHAM

	Item*/Variable	Reg. Date 6/	Lilco Date 7/	Modification 8/	Status 9/ (4/6/82)
1.	Neutron Flux	6/83	Later	Upgrade qualifications, power supply and equipment	Awaiting GE generic solution
2.	Control Rod Position	6/83	---	None	Complete
3.	RCS Boron Concentration	6/83	6/83	Need new instrument	Post-accident Sampling System 10/
4.	Coolant [illegible], Reactor	Fuel Load	Later	Qualify transmitter, recorders; upgrade power supply	Awaiting GE generic solution
5.	BWR Thermocouples	6/83	Later	Approx. 16 Thermocouple Loops	LILCO believes they are not necessary.
6.	RCS Pressure	6/83	6/83	Qualify transmitters and recorders	Qualification in progress
7.	Primary Containment Pressure, Drywell	Fuel Load	Fuel Load	Qualify recorder; expand range	11/
8.	Drywell Sump Level	Fuel Load	Later	New qualified equipment (instrumentation)	Awaiting GE generic solution. LILCO believes not necessary

* Numbering follows LILCO's 7/13/81 Table 1 of B. McCaffrey's Affidavit.

See Revised Table 1

	Item/Variable	Reg. Date	LILCO Date	Modification	Status (4/6/82)
9.	Primary Containment Pressure, Suppression Chamber	Fuel Load	Fuel Load	Qualify recorder	11/
10.	Primary Containment Isolation Valve Position	6/83	6/83	Qualify Limit Switches and Lights	Qualification in progress.
11.	Radioactivity Concentration Primary Coolant	6/83	Later	New activity monitor or shielding modification	Awaiting GE generic solution
12.	Primary Coolant Analysis	Fuel Load	Fuel Load	New instrumentation.	P.A.S.S. 10/
13.	Primary Containment Area Radiation	Fuel Load	Fuel Load	Qualify equipment; expand range	11/
14.	Suppression Pool Water Level	Fuel Load	Fuel Load	Qualify transmitters, recorders; relocate taps, additional instrumentation to expand range	Schedule dependent on timely delivery of equipment on order
15.	Containment/Drywell Hydrogen Concentration	Fuel Load	Fuel Load	Qualify recorder; expand range	Range expansion in progress
16.	Containment/Drywell Oxygen Concentration	Fuel Load	Fuel Load	Qualify recorder	Range expansion in progress
17.	Containment Efflucent Radioactivity, Noble Gases	Fuel Load	Fuel Load	Upgrade qualification; expand range	Some analysis complet

See Revised Table 1

	Item/Variable	Reg. Date	LILCO Date	Modification	Status (4/6/82)
18.	Radiation Exposure Rate	6/83	Later	Portable radiation monitoring equipment	Awaiting GE generic solution, LILCO plans to request exemption
19.	Main Feedwater Flow	6/83	---	None	Complete
20.	Condensate Storage Tank Level	6/83	---	None	Complete
21.	Suppression Chamber Spray Flow	6/83	Later	New qualified instrumentation	Awaiting GE generic solution
22.	Suppression Pool Water Temperature	6/83	6/83	Qualify recorders, RTD's; expand range	11/
23.	Drywell Atmosphere Temperature	Fuel Load	Fuel Load	New qualified temperature element	Installation in progress
24.	Drywell Spray Flow	6/83	Later	New qualified instrumentation	Awaiting GE generic solution
25.	MSIV Leakage Control System Pressure	6/83	6/83	Upgrade qualification	Qualification in progress
26.	SRV Position	Fuel Load	Fuel Load	Qualify transmitter	11/
27.	RCIC, HPCI, Core Spray, and RHR Systems Flow	6/83	6/83	Qualify transmitter and indicator	Qualification in progress
28.	LPCI and SLCS Systems Flow	6/83	Later	New instrumentation	Awaiting GE generic solution

See revised Table 1

	Item/Variable	Reg. Date	LILCO Date	Modification	Status (4/6/82)
29.	SLCS Storage Tank Level	6/83	Later	Upgrade qualification	Awaiting GE generic solution
30.	RHR Heat Exchanger Outlet Temperature	6/83	6/83	Qualify thermocouples and recorder	Qualification in progress
31.	Cooling Water Flow to ESF System Components	6/83	6/83	Qualify transmitters and indicators	Qualification in progress
32.	Cooling Water Temperature to ESF System Components	6/83	6/83	Qualify thermocouples and recorder	11/
33.	High Radioactivity Liquid Tank Level	6/83	---	None	Complete
34.	Emergency Vent Damper Position	6/83	6/83	Upgrade qualification	11/
35.	Status of Power Sources	6/83	6/83	Upgrade qualification	Qualification in progress
36.	Secondary Containment Area Radiation	6/83	Later	New Monitor	Awaiting GE generic solution, LILCO pla to request exemptio.
37.	Sump Level in Spaces of Equipment Required for Safety	6/83	6/83	Upgrade qualification	11/

See revised Table 1

	Item/Variable	Reg. Date	LILCO Date	Modification	Status (4/6/82)
38.	Effluent Radioactivity Noble Gases, Station Vent	Fuel Load	Fuel Load	Upgrade qualification and power supply	Partial exemption
39.	Effluent Radioactivity, Halogens and Particulates	Fuel Load	Fuel Load	None	11/
40.	Plant and Environs Radiation	6/83	6/83	High range survey equipment	No progress. No qualification require
41.	Plant and Environs Radioactivity	6/83	6/83	None (however, this contrasts with 4-6-82 Table).	No progress. No qualification require
42.	Post Accident Sampling	Fuel Load	Fuel Load	New equipment system	P.A.S.S. 10/
43.	Wind Direction	6/83	--	None	Complete
44.	Wind Speed	6/83	---	None	Complete
45.	Estimation of Atmospheric Stability	6/83	---	None	Complete
46.	Environs Radioactivity Exposure Rate	6/83	Later	New monitoring stations	There is some confus about the true conten of this requirement. 1

See Revised Table 1

	Item/Variable	Reg. Date	LILCO Date	Modification	Status (4/6/82)
47.	Environs Radioactivity, Radio Halogens and Particulates	6/83	6/83	Provide portable equipment	No progress. No qualification require
48.	RBSVS Flow		---	Upgrade qualification	Complete

6/ "Reg. Date" from testimony of B. McCaffrey, LILCO Motion for Summary Disposition of SOC Contention 3, July 13, 1981, Table 1.

7/ "LILCO Date" From April 6, 1982, Table, "SNPS Conformance to Reg. Guide 1.97, Revision 2".

8/ Ibid 6/, Table 2.

9/ Ibid 7/.

10/ Post Accident Sampling System - means that this requirement will be taken care of by the PASS, which is to be designed, procured, qualified, built, and installed. We don't know how far along LILCO is.

11/ No progress has been made in the relevant area, or, if it has, LILCO's April 6, 1982 table doesn't mention it.

12/ LILCO's April 6, 1982 Status Report Table refers the reader to the July, 1981 Errata to Rev. 2 of Reg. Guide 1.97.

that variable. Finally, LILCO's current status of compliance is given.

Q.9. What is your opinion of the status of LILCO's response to Reg. Guide 1.97 with regard to Shoreham?

A.9 As demonstrated by the preceeding Table, the LILCO response is incomplete and, indeed, one cannot assess at this point when - if ever - LILCO will meet certain necessary requirements.***/ Indeed, since the contention was originally drafted, LILCO's areas of deficiency have increased over those enumerated in the contention.

~~Q10. Describe the details of post-accident monitoring items you feel are incomplete at Shoreham.~~

See revised Q & A 10

~~A10. The April 6, 1982 LILCO update of Reg. Guide 1.97 issues shows only eight items are complete, out of nearly fifty.15/ Of the remaining items, only 15 clearly show progress. The remaining 24 items, which may or may not have been addressed at all, fall into two classes. For 12~~

***/ In his July 13, 1981 Affidavit supporting Summary Disposition of SOC Contention 3, Brian McCaffrey stated that "Shoreham is being modified as necessary to meet (Reg. Guide 1.97), with a few exceptions". 13/ (Emphasis added) Recently, LILCO updated the status of each item from Reg. Guide 1.97. Again, there were some items where LILCO apparently does not intend to comply. 14/ The LILCO commitments in the status reports on virtually all items were vague and specific dates were absent.

13/ Ibid 6, p. 2.

14/ Ibid 7.

~~15/ Ibid 7.~~

issues, LILCO is waiting for a BWR Owners' Group resolution. In some cases, LILCO hopes to support an exemption request based on Owners' Group conclusions. For 12 additional items, the status update comments: "Required instrumentation already included in design". However, these same items call for upgraded qualification at Shoreham, and no mention is made of progress in that area.[16/]

See Revised Q+A 10

Based on this sketchy information, it is impossible to assess whether LILCO can meet the June, 1983 deadline for implementation. In its original assessment of the impact of Reg. Guide 1.97, LILCO estimated that virtually all of the items would take at least a year to complete.[17/] The average estimated completion time was 15-18 months. Therefore, there is reason to question whether some items can be purchased and installed in approximately 12 months, which remains between now and June, 1983. The items of most concern at this time are those for which LILCO has stated may be subject to delay ~~due to difficulties in delivery scheduling.~~

Q11. Please comment on the cases where LILCO is relying on the BWR Owners' Group position to provide an exemption from the Reg. Guide 1.97, Revision 2 requirements.

~~16/ Ibid 7.~~

~~17/ LILCO letter to NRC, SNRC-460, January 30, 1980.~~

A11. There are ~~five~~ four requirements in Reg. Guide 1.97, Revision 2 for which LILCO is seeking exemptions by virtue of the BWR Owners' Group position. These are: in-core thermocouples, standby liquid control system flow, secondary containment area radiation monitor, and radiation exposure rate. ~~and drywell sump level~~[18] The Owners' Group report has been completed for the thermocouple issue, but the remaining ~~four~~ three issues are still being studied. If these studies and reports are completed but the NRC rejects the Owners' Group findings, LILCO would then have to comply with the Reg. Guide 1.97, Revision 2 requirements. In all of the above ~~five~~ four cases, the Reg. Guide requirements result in new equipment to be purchased and incorporated into Shoreham's design.[19] LILCO has estimated the time needed for compliance with Reg. Guide 1.97, Revision 2 in ~~three~~ two of the ~~five~~ four cases as follows:

a)	Radiation exposure rate	18 months
~~b)~~	~~Drywell sump level~~	~~18-24 months~~
b)	In-core thermocouples	21-32 months[20]

For the other two items, no estimate of implementation time was made by LILCO. However, judging from the requirements of Reg. Guide 1.97, Revision 2, the modifications would be significant. There is no assurance at this point that the

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18/ Ibid 6, p. 2.

19/ Ibid 17.

20/ Ibid 17.

NRC Staff will find the Owners' Group position acceptable for any of the ~~five~~ four items. Thus, there is a significant question as to whether these ~~five~~ four requirements of Reg. Guide 1.97, Revision 2, can be satisfied by June, 1983, as required.

Q12. Are there other Reg. Guide 1.97, Revision 2, requirements from which LILCO may seek relief?

A12. Yes. In Mr. McCaffrey's July 13, 1981 Affidavit, ~~five~~ four items from the Reg. Guide were identified as "subject to potential implementation delays, largely because of possible constraints on equipment availability."[21/] Those items are: ~~neutron flux,~~ RCS boron concentration, drywell spray flow, suppression chamber spray flow, and post-accident sampling system. LILCO may need to extend its implementation dates for some or all of these items, again raising a question whether LILCO can meet the June, 198~~2~~3 completion date.

~~Q13. Will you summarize your comments on the status of Shoreham's response to Revision 2 of Reg. Guide 1.97?~~

~~A13. Of the total list of Reg. Guide 1.97 requirements, only eight items are claimed as being completed by LILCO. However, these items must still be reviewed by the NRC before any of the items are considered to be complete.[22/] Of the~~

See revised Q + A 13

21/ Ibid 6, p. 2.

~~22/ "NRC Staff Answers to SOC's First Set of Interrogatories and Requests for Production of Documents", August 12, 1981, Contention 3, response 1.a.(3).~~

See revised Q+A 13

remaining items, the status is as follows:

a. Five requirements may be delayed because of projected difficulty in obtaining equipment.

b. Five other requirements are the subjects of LILCO requests for regulatory relief, based on BWR Owners' Group studies. There is no evidence that the equipment will be obtained or that the NRC will find the Owners' Group studies acceptable. If the NRC rejects the studies and requires LILCO to comply with the Reg. Guide 1.97, Revision 2 requirements, the estimated time of implementation could be 18 months or more.

c. Seven other requirements are being studied by the BWR Owners' Group. Although LILCO is not seeking relief on these items at this time, it is awaiting the results of the Owners' Group studies. There is no evidence that the results will be available in time to be implemented at Shoreham before June, 1983.

d. For twelve other requirements, LILCO's April 6, 1982 status update table does not provide any indication of progress to date. The status of these items, and the time needed to comply with the Reg. Guide requirements, cannot be determined.

see revised Q+A 13

e. Ten requirements are clearly being worked on by LILCO, although again there is insufficient data to assess how long it will be before these requirements are satisfied.

Thus, of the total list of forty-seven requirements, none has been officially satisfied.

Q14. In your opinion, then, has LILCO demonstrated a basis to believe that Reg. Guide 1.97, Revision 2 requirements will be complied with by June, 1983?

A14. No.

Q15. Does LILCO's failure to meet Reg. Guide 1.97 have implications beyond the specific regulatory guide items?

Stricken

A15. Yes. This uncertainty and possible delay in implementing Reg. Guide 1.97, Revision 2 may also have a harmful effect on Shoreham's emergency planning. For example, the NRC's checklist for NUREG-0654 criteria calls for post-accident monitoring equipment in three of the planning criteria, (including eleven separate items), specifying:

a. Meteorological phenomena monitors (on and off-site).

b. Radiological monitors (process, area effluent, portable, and sampling).

c. Process monitors (system temperatures and pressures, flow rates, levels, etc.).

d. Off-site radiological monitors.

e. Identification of parameters to be used in assessing the severity of reactor incidents.[23]

23/ NUREG-0654/FEMA REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Preparedness in Support of Nuclear Power Plants", November, 1980.

Attachment 1 lists NUREG-0654 planning standards and criteria which pertain to post-accident monitoring. These planning standards include a number of the Reg. Guide 1.97, Revision 2 items. Since compliance with applicable on-site emergency planning criteria is a prerequisite to fuel load, compliance with Reg. Guide 1.97, Revision 2 appears also to be appropriate prior to fuel load.

Q16. Please summarize your conclusions.

A16. The safety significance of the post-accident monitoring issue has been mentioned earlier in the testimony. Reg. Guide 1.97, Revision 2 results from the highest priority TMI-2 lessons. In the interest of providing the public with a safe and reliable plant, compliance with Reg. Guide 1.97, Revision 2 should be demonstrated before the issuance of an operating license. If that is not possible, LILCO should at least be required to provide considerably more assurance to the NRC Staff that each requirement of the Reg. Guide can and will be satisfied by June, 1983. To date, LILCO has failed to demonstrate that there is a reasonable liklihood that Shoreham will comply with Reg. Guide 1.97, Revision 2, requirements prior to June, 1983. In our opinion, such a demonstration should be required before any operation license is issued.

Stricken

ATTACHMENT 1

NUREG-0654 REQUIREMENTS PERTAINING TO

POST-ACCIDENT MONITORING

ATTACHMENT 1

NUREG-0654 REQUIREMENTS PERTAINING TO POST-ACCIDENT MONITORING

The requirements of NUREG-0654[1/] state, in part:

H.5. Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with NUREG-0654 as well as those to be used for conducting assessment.

The equipment shall include:

a. geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic);

b. radiological monitors, (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);

c. process monitors, (e.g., reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components); and

6. Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:

1/ The material in this attachment is reprinted from NUREG-0654, Rev. 1/FEMA REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans in Support of Nuclear Power Plants", Nuclear Regulatory Commission, November, 1980. Numbering follows the NUREG format.

a. geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic);

b. radiological monitors, including rate-meters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program.

7. Each organization, where appropriate, shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility.

8. Each licensee shall provide meteorological instrumentation and procedures which satisfy the criteria in Appendix 2, NUREG-0654, and provisions to obtain representative current meteorological information from other sources.

9. Each licensee shall provide for an onsite operations support center (assembly area) which shall have adequate capacity and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras and communications equipment for personnel present in the assembly area.

I.1 Each licensee shall identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of NUREG-0654. Such parameter values and the corresponding emergency class shall be included in the appropriate facility emergency procedures. Facility emergency procedures shall specify the kinds of instruments being used and their capabilities.

2. Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post-accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring in accordance with NUREG-0578, as elaborated in the NRC letter to all power reactor licensees dated October 30, 1979.

3. Each Licensee shall establish methods and techniques to be used for determing:

a. the source term of releases of radioactive material within plant systems. An example is the relationship between the containment radiation monitor(s) reading(s) and radioactive material available for release from containment;

b. the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors;

4. Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions.

5. Each licensee shall have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of NUREG-0654. There shall be provisions for access to meteorological information by at least the nearsite Emergency Operations Facility, the Technical Support Center, the Control Room and an offsite NRC center. The licensee shall make available to the State suitable meteorological data processing interconnections which will permit independent analysis by the State, of facility generated data in those States with the

resources to effectively use this information.

D.1 An emergency classification and emergency action level scheme as set forth in NUREG-0654 must be established by the licensee. The specific instruments, parameters or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class.

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July 26, 1982

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Dear Taylor and Bernie:

Enclosed you will find proposed revision pages to the Suffolk County Contention 27 testimony, designed to replace portions which were deleted pursuant to the LILCO motion to strike. Let me briefly explain what is enclosed.

First, we have revised the Table which is contained in the existing testimony. Certain corrections were made to the substance of the Table. In addition, the letter notations on the left-hand margin now correspond to the letters in Contention 27. This change was made for ease of reference.

Second, we have revised Question and Answer 10 to pertain solely to the items in the Contention. We have also revised Question and Answer 13 in the same manner.

Finally, I enclose a new Table designed to be solely a convenience to the parties. This new Table constitutes a cross-reference between the Contention and the various other tables which have been discussed in the testimony. It is our intention, as a convenience, to have this new cross-reference table bound into the record as part of the testimony. .

Please advise me or Tip Letsche whether you have any objection to these revised pages of SC 27 testimony being

included in the testimony sponsored by Messrs. Minor and Hubbard.

Best regards.

Sincerely yours,

Lawrence Coe Lanpher

LCL/dk
Enclosure

Revised TABLE 1: REVIEW OF R.G. 1.97

ITEMS APPLICABLE TO SHOREHAM*

	Item**/Variable	Reg. Date 6/	Lilco Date 7/	Modification 8/	Status 9/ (4/6/82)
a)	Radiation Exposure Rate (RG 1.97 Rev. 2 Items E-3, E-11, C-14)	6/83	Later	Portable radiation monitoring equipment	Awaiting OG generic solution; LILCO plans to request exemption.
b)	Radioactivity Concentration Primary Coolant (RG 1.97 Rev. 2 Item C-1)	6/83	Later	New activity monitor or shielding modification	Awaiting OG generic solution
c)	Effluent Radioactivity, Halogens and Particulates (RG 1.97 Rev. 2 Item E-10)	Fuel Load	Fuel Load	None	11/
d)	Secondary Containment Area Radiation (RG 1.97 Rev. 2 Items C-14, E-2)	6/83	Later	New Monitor	Awaiting OG generic solution. LILCO plans to request exemption.
e)	RCS Boron Concentration (RG 1.97 Rev. 2 Item B-3)	6/83	6/83	Need new instrument	Post-accident Sampling System 10/
f)	Primary Coolant Analysis (RG 1.97 Rev. 2 Item C-2)	Fuel Load	Fuel Load	New instrumentation	P.A.S.S. 10/

* Revised to delete items not covered in SC 27.

** Designations revised to use letter designation in SC 27, and references to RG 1.97 variables added.

7/27/82

	Item/Variable	Reg. Date 6/	Lilco Date 7/	Modification 8/	Status 9/ (4/6/82)
g-1)	Suppression Chamber Spray Flow (RG 1.97 Rev. 2 Item D-3)	6/83	Later	New qualified instrumentation	Awaiting OG generic solution
g-2)	Drywell Spray Flow (RG 1.97 Rev. 2 Item D-8)	6/83	Later	New qualified instrumentation	Awaiting OG generic solution
h)	SLCS System Flow (RG 1.97 Rev. 2 Item D-17)	6/83	Later	New instrumentation	Awaiting OG generic solution
i)	Plant and Environs Radiation (RG 1.97 Rev. 2 Item E-13)	6/83	6/83	High range survey equipment	Equipment will be procured
j)	Post Accident Sampling (RG 1.97 Rev. 2 Items E-18, E-19)	Fuel Load	Fuel Load (some items 6/83)	New equipment system	P.A.S.S. 10/ Schedule subject to equipment availability
k)	BWR Thermocouples (RG 1.97 Rev. 2 Items B-5, C-3)	6/83	Later	Approx. 16 Thermocouple Loops	Being reviewed by BWROG and NRC for alternatives.

6/ "Reg. Date" from testimony of B. McCaffrey, LILCO Motion for Summary Disposition of SOC Contention 3, July 13, 1981, Table 1.

7/ "LILCO Date" From April 6, 1982, Table, "SNPS Conformance to Reg. Guide 1.97, Revision 2".

8/ Ibid 6/, Table 2.

9/ Ibid 7/.

10/ Post Accident Sampling System - means that this requirement will be taken care of by the P.A.S.S. which is to be designed, procured, qualified, built, and installed. We don't know how far along LILCO is.

11/ This item deleted from SC-27 by agreement among the parties.

Revised Q & A 10

July 27, 1982

Q. 10. Describe the details of post-accident monitoring items you feel are incomplete at Shoreham.

A. 10. The April 6, 1982 LILCO update of Reg. Guide 1.97 issues shows that none of the 11 SC-27 categories are complete. 15/ Of the 11 SC-27 categories, only 4 clearly show progress (categories e, f, i and j). For 6 of the remaining categories (categories a, b, d, g, h and k), which may or may not have been addressed at all, LILCO is waiting for a BWR Owners' Group resolution. In some cases, LILCO hopes to support an exemption request based on Owners' Group conclusions (e.g., category k). One additional category (c) has been deleted from SC-27.

Based on this sketchy information, it is impossible to assess whether LILCO can meet the June, 1983 deadline for implementation. In its original assessment of the impact of Reg. Guide 1.97, LILCO estimated that virtually all of the items would take at least a year to complete. 17/ The average estimated completion time was 15-18 months. Therefore, there is reason to question whether some items can be purchased and installed in approximately 12 months, which remains between now and June, 1983. The items of most concern at this time are those for which LILCO has stated may be subject to delay due to difficulties in delivery scheduling.

15/ Ibid 7.

16/ Deleted.

17/ LILCO letter to NRC, SNRC-460, January 30, 1980.

Revised Q. A 13 July 27, 1982

Q13. Will you summarize your comments on the status of Shoreham's response to Revision 2 of Reg. Guide 1.97?

A13. Of the total list of Reg. Guide 1.97 requirements in SC-27, none are claimed as being completed by LILCO. The status is as follows:

a. Some requirements may be the subject of LILCO requests for regulatory relief, based on BWR Owners' Group studies. There is no evidence that the equipment will be obtained or that the NRC will find the Owners' Group studies acceptable. If the NRC rejects the studies and requires LILCO to comply with the Reg. Guide 1.97, Revision 2 requirements, the estimated time of implementation could be 18 months or so.

b. Other requirements are being studied by the BWR Owners' Group. Although LILCO is not seeking relief on these items at this time, it is awaiting the results of the Owners' Group studies. There is no evidence that the results will be available in time to be implemented at Shoreham before June, 1983.

c. For most requirements, LILCO's April 6, 1982 status update table does not provide any indication of progress to date. The status of

---

22/ Deleted

these items, and the time needed to comply with the Reg. Guide requirements, cannot be determined.

d. Some requirements are clearly being worked on by LILCO, although again there is insufficient data to assess how long it will be before these requirements are satisfied.

Thus, of the total list of SC-27 requirements, none has been officially satisfied.

COMPREHENSIVE CROSS-REFERENCE
OF ITEMS RELATED TO
SUFFOLK COUNTY CONTENTION 27

SC 27 Letter	Item/Variable	Reg.Guide 1.97 Table Number	4/6/82 Update Table Number	McCaffrey Affidavit Motion for Summary Disposition(7/13/81) Table 1 Number	Table 2 Number
a	Radiation Exposure Rate	E-3,E-11,C-14	20,41,17A	18,46	20,41
b	Radioactivity Concentration in Primary Coolant	C-1	14	11	14
c	Effluent Radioactivity, Halogens & Particulates	E-10	43	39	43
d	Secondary Containment Area Radiation	E-2,C-14	17,41	36	17,41
e	RCS Boron Concentration	B-3	4	3	4
f	Primary Coolant Analysis	C-2	15	12	15
g-1	Suppression Chamber Spray Flow	D-3	23A	21	23A
g-2	Drywell Spray Flow	D-8	23	24	23
h	SLC System Flow	D-17	37	28	37
i	Plant & Environs Radiation	E-13	45	40	45
j	Post-Accident Sampling	E-18,E-19	47	42	47
k	BWR Thermocouples	B-5, C-3	13	5	13

7/27/82

BY MS. LETSCHE (Resuming):

Q Mr. Minor, can you summarize your testimony concerning Suffolk County Contention 27?

A (WITNESS MINOR) The Shoreham instrumentation to assess plant and environs condition during and following an accident have not been demonstrated as providing control room operator with the required instrumentation to monitor or mitigate the effects of an accident including radioactivity releases, thus violating the NRC's general design criteria, the post-TMI requirements of Revision 2 of Regulatory Guide 1.97, and the emergency preparedness planning standards of NUREG-0654.

LILCO has not demonstrated compliance with the post-accident monitoring requirements of Reg Guide 1.97, Rev. 2; and Reg Guide 1.97, Rev. 2 is a result of one of the highest priority lessons from the TMI-2 accident.

Because of the safety significance of the post-accident monitoring instrumentation, compliance with Rev. 2 of the guide should be demonstrated prior to the issuance of an operating license for Shoreham. If that is not possible, LILCO should be required to provide assurance to the NRC staff that each requirement of the Reg Guide can and will be complied with by the staff's June 1983 implementation date.

1 To date, LILCO has failed to demonstrate that
2 there is a reasonable likelihood that Shoreham will
3 comply with Reg Guide 1.97, Rev. 2 requirements by June
4 1983. Even if LILCO believes they are not required to
5 meet some parts of Reg Guide 1.97, Rev. 2, LILCO has not
6 submitted their reasons and their reasoning to the staff
7 for the staff's review. And the staff has not completed
8 such review of deviations.
9 Absent this review, LILCO and the NRC have not
10 demonstrated Shoreham's safety. Such a demonstration
11 should be required prior to the issuance of an operating
12 license.
13 MS. LETSCHE: Judge Brenner, Mr. Minor is
14 available for cross examination.
15 JUDGE BRENNER: Another reason that I
16 shortcutted your possible approach was that I wanted to
17 get to judge proper discretion, and this way you will
18 have the benefit of your witnesses next to you, and you
19 will go into whatever line of questioning you want to
20 pursue, including the one you suggested before.
21 JUDGE CARPENTER: I would like to thank the
22 county for allowing me to engage in this experiment, and
23 I thank the witness for allowing himself to be a guinea
24 pig. What I would like to do for the next few minutes
25 is to pursue with all the members of the panel available

1 now -- it is a composite panel of all parties -- in a
2 technical sense, that I am a technical member of this
3 Board and we have listened to many hours of regulatory
4 aspects of this contention.
5 I would like to keep the panel focused for the
6 moment on technical aspects with respect to the four
7 items that are in this contention, and focused on public
8 safety.
9 BOARD EXAMINATION
10 BY JUDGE CARPENTER:
11 Q Mr. Minor, to the extent that you can at this
12 time, having heard the recent testimony -- and the
13 reason I wanted to do this at this point is, -- having
14 heard the recent testimony by the applicant with respect
15 to these four items, I would like to go through the four
16 items as briefly as we can but with sufficient detail to
17 provide a technical basis for some notion about public
18 safety with respect to the applicant's stated position
19 with respect to these four items.
20 At this time, he hopes to be in compliance
21 with the functional aspects indicated in Regulatory
22 Guide 1.97, Rev. 2, even though staff is not prepared to
23 evaluate that at this time, and get you to help the
24 Board with our question of: Can we find a technical
25 basis for agreeing with that or disagreeing with that at

1 this time, since the staff is not going to pursue this,
2 except on schedule as specified by Dr. Rossi, of one to
3 two years. And we obviously have to form some opinion
4 within the next six months or a year at least.
5 So if we could go to items having to do with
6 radiation monitors, I would like to start focusing on
7 whether you have any notion that, based on what you
8 heard, again, this morning, to the extent it repeats the
9 prefiled testimony and to the extent that you heard
10 anything new, whether in your technical professional
11 opinion, LILCO's position is sound; that for the interim
12 period, they can meet the spirit and the functionality
13 implied in the Reg Guide 1.97, Revision 2, with the
14 strategy that they put forth, the technical strategy.
15 Let's start with radiation monitoring.
16 A (WITNESS MINOR) First, based on the testimony
17 we have so far, I have trouble relating that to an
18 interim period, because I believe LILCO's position is
19 that they don't ever hard to do it. So we are talking
20 about the long-term solution that they are proposing.
21 The concern I have with both the radiation
22 monitoring issues, which are letters A and D, is that
23 they are asking for equipment for the purpose of
24 assessing a long-term surveillance of particular areas
25 in the containment and other buildings.

1 As an alternative, LILCO is proposing not
2 localized indication, but gross indication in the
3 building stack, and monitors in the building stack.
4 That is a gross indication of what is going on in the
5 secondary containment, for instance, but it does not
6 give you any specific indication of what is going on in
7 locations where leaks may be more likely to occur. And
8 the areas that had been mentioned before are
9 penetrations and hatches.
10 The sampling system does provide some
11 alternate means of verifying the makeup and constituency
12 of the gases and fission products that would be in the
13 secondary containment. However, there again, you have
14 some fixed locations, and they are not necessarily near
15 the areas that you are interested in as potential leak
16 sources.
17 I do not recall the exact locations of those
18 sample points, but I do recall that there are not very
19 many of them, so you certainly would not cover all the
20 locations where leaks could occur.
21 As far as long-term surveillance, one of the
22 items of interest to me would be to have the area
23 radiation monitors of the higher range that is called
24 for in the reg guide to determine what the status is in
25 these particular areas in the event that there were

1 really a high release. Similarly, it would be helpful
2 to have an indication of the local status without having
3 to send people in to make that determination. And in
4 the long term, I think that would be of benefit, to not
5 have to expose people to go in and determine what the
6 exposure might be.
7 Those would be my main concerns with the
8 proposed alternative which LILCO has set forth for Reg
9 Guide 1.97, Rev. 2, Items A and D.
10 Q LILCO has made the point that noble gas
11 monitors are a good way, following the appearance of
12 radioactive materials in the secondary containment,
13 because it does give you a way of searching the whole
14 containment, if you will, since that air is being
15 circulated all the time.
16 I am trying to be sure I understand the degree
17 of significance you are putting to the localized
18 measurements. Let's consider two cases. One where the
19 levels are low enough so that it is reasonable for
20 somebody to enter the area, and the other case where the
21 levels are high enough so that it is not reasonable.
22 You are perceiving a threat that I need to understand.
23 A (WITNESS MINOR) One of the purposes for such
24 instrumentation would be the indication of a breach. I
25 would agree that in the gross sense, you can get the

1 indication of a breach of the containment, of the
2 primary containment, by a gross sampling of the
3 secondary containment overall. But that does not help
4 you to locate the breach at all. It does not give you
5 an indication of what areas are accessible or more
6 accessible than others, because there will be a mixing,
7 certainly by the time it reaches the noble gas monitors
8 in the stack, of all the gases both from the reactor
9 building and from some of the other buildings as well.
10 So, you are going to be dealing with a mixture
11 of flows arriving at the stack to be released, and going
12 past the noble gas monitors there. There are also
13 radiation monitors in the reactor building standby
14 ventilation system which you can use to help
15 differentiate that.
16 But again, my concern is these are gross
17 indications, not specific indications.
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1 Q But staying focused in the context of
2 post-accident monitoring, I am still trying to
3 understand your feeling that it is important to know
4 where the leak is, where the breaching is, presuming
5 that the breaching is so serious as to prevent ordinary
6 inspection, et cetera. We are sort of in the area that
7 something substantial has happened, and I am trying to
8 get a feeling for why you think it is important to know
9 what is causing it right away versus much in the spirit
10 of the symptom-oriented operating procedures. So, just
11 knowing that symptom has occurred, and then you have
12 plenty of time after the accident to understand what had
13 happened.
14 A (WITNESS MINOR) Leave it for long-term
15 surveillance. I think it would be appropriate to know
16 the conditions in the area of personell hatches, for
17 instance, equipment hatches, and a likely leak point
18 which would be the penetration seals, and I don't
19 totally subscribe to LILCO's view that no one would need
20 to go into the secondary containment after an accident.
21 I feel eventually someone would. In fact, there are
22 some conditions where they may need to go in there
23 fairly early into an accident. I am thinking
24 specifically of the ATWS event that we discussed in
25 testimony a few weeks ago, and there is discussion there

1 of an alternative of going down and manually scramming
2 the HCU's on the specific rods. That is in the
3 secondary containment, and it would be an area that they
4 would have to have access to to achieve that goal.
5 As we heard in that testimony also, this is
6 something you do fairly early in an accident.
7 Hopefully, in an accident that hasn't already resulted
8 in release, but if it has, you may still have to take
9 that action.
10 Q I think it would be helpful -- you see, I am
11 trying to understand why LILCO's position is distinctly
12 different than yours from the public safety point of
13 view, right down to specifics that in the interim, until
14 staff has testified that they are going to look at these
15 items very, very carefully with the time period of one
16 to two years, and the question is in the interim, can
17 this board have the notion that the strategy that LILCO
18 has put forth at the present time is a reasonable
19 assurance.
20 That is the question that is before this
21 board, not what would be nice, or trying to second-guess
22 staff's thorough technical evaluation in the future. I
23 am trying to keep it very narrow, in the sense of what
24 this board has to do. I am afraid you went sort of
25 beyond that. You see, I am trying to find any specific

1 that you can bring to the board's attention that I can
2 get LILCO to address right now, and not leave the record
3 dangling.
4 Well, you mentioned this need to manually
5 scram an ATWS. You see, I am going to have trouble
6 evaluating that.
7 A (WITNESS MINOR) I am having trouble
8 evaluating your question.
9 Q I was trying to see if you could come up with
10 some sharply focused points that we could get on the
11 record right now and have a dialogue back and forth, so
12 I could really see where the disagreement was.
13 A (WITNESS MINOR) I feel that the staff may
14 eventually decide that LILCO's submittal is not
15 adequate. Is that what you are saying?
16 Q No, I am saying that clearly the staff has
17 testified that they are not going to do this evaluation
18 now. They are going to in an orderly way over the next
19 one to two years, and that is as per Commission
20 instructions, and all that remains for this board to
21 look at is much in the spirit of ATWS. The ATWS
22 exercise is in the interim. This board must find that
23 the applicant's posture provides reasonable assurance,
24 and I am trying to see if you could help me develop a
25 perspective that where is the soft spot in that

1 posture. I would like to explore that soft spot.

2 A (WITNESS MINOR) Judge Carpenter, I am not

3 sure this is going to exactly respond to your concern,

4 but let me try this. The whole issue of Reg. Guide 197,

5 Rev. 2, came out of TMI, and it was a rather expedited

6 basis on which this Reg. Guide was created to provide

7 adequate instrumentation to follow an accident, both the

8 development and mitigation of an accident.

9 Q I am sorry. Let me interrupt. Let's go to

10 stand-by liquid control, and I can make my point.

11 A (WITNESS MINOR) Judge Carpenter, excuse me.

12 Could I have a chance to address one item that you did

13 bring up and I did not address at all? That is the one

14 to two year period.

15 Q Okay.

16 A (WITNESS MINOR) For two reasons. One is that

17 you have called it an interim period and I have called

18 it a permanent period, because I think that one to two

19 years is going to be the basis for their future

20 operation of the plant, and they aren't intending to

21 change anything. The accident at TMI occurred with only

22 90 full power equivalent days roughly of operation. I

23 think we are talking about a one to two year period

24 where Shoreham will surely achieve those same levels of

25 exposure of the fuel, and I believe that also it is

1 possible for the Shoreham plant to get into accidents of
2 a comparable type to TMI if things went wrong. I don't
3 say that I have a defined scenario that I can lay out to
4 you here.
5 I find it inappropriate to delay
6 implementation of this Reg. Guide that long, and I find
7 it further inappropriate to delay even the consideration
8 of the proposal that long, which as we have heard today,
9 the data is there. It has been submitted in two or
10 three forms already. Granted, it has been changing over
11 that period of time, but the NRC has decided they will
12 not even review it for even part of the items, and
13 frankly, I find that unacceptable from my personal point
14 of view. Excuse me.
15 Q Well, that question was going to be my final
16 question. If you want to make it first, fine. I was
17 trying to go through the items from a technical point of
18 view to get your help. Turning to Item H, standby
19 liquid control, and you say they will testify what seems
20 to me between the monitoring of the pressure, the pump
21 status, the valve continuity, and the tank level, those
22 seem to me to be quite substantial information in the
23 interim, until staff gets around to final decision.
24 A (WITNESS MINOR) This one I really have
25 trouble understanding the reasoning. The flow meter on

1 the standby liquid control is not an impossible thing to
2 do. It has been proposed on various BWR 6 systems by
3 General Electric. It is not that complicated, and it
4 does resolve the fundamental question of whether you
5 really have flow going into the reactor without relying
6 on the operator to make an inference from all of the
7 indirect indications we are talking about.
8 Certainly, if you have a running light on in
9 the pump and the pressure comes up, you will know that
10 the pump is doing something. It does not tell you what
11 is going into the reactor. It does not tell you if you
12 have a leaking valve or a broken pipe. It doesn't tell
13 you if you have blown your relief valve and you are
14 recirculating some of that flow.
15 The indications of tank level being reduced
16 are going to be rather slow. You are looking for a
17 response as soon as you can in those indications,
18 because that really is an indication that you have
19 gotten to the point where you have to rely on the
20 standby liquid control, and supposedly you have tried
21 many of your other alternate mechanisms. You have tried
22 your manual scram and your alternate rod insert and so
23 forth.
24 You have tried your other techniques, and you
25 are now relying on standby liquid control. To wait and

1 see if you get a reduction in neutron flux will require
2 that you reach a level of boron concentration in the
3 core that is going to start to really decrease flux
4 appreciably, and that may be -- is a considerable period
5 of time.
6 All of these, I grant you, are indications in
7 one way or the other that there may be flow occurring to
8 the vessel, but they are all indirect indications, and
9 the question I have is why not put a direct indication
10 on a system which is going to be your primary reliance
11 for shutting down the plant in the event you can't scram
12 the rods.
13 A (WITNESS ROSSI) Can I make a comment on
14 that?
15 Q That is the reason I wanted to do it this
16 way.
17 A (WITNESS ROSSI) I don't know what the rules of
18 this are, but I would like to comment on that. I
19 believe we are talking about, in the case of the standby
20 liquid control system, a situation where a reactor scram
21 system that is designed to IEEE 279 and has considerable
22 redundancy in it, it is looked at from the standpoint of
23 licensing event reports that come into the NRC from time
24 to time for weaknesses. When weaknesses are found,
25 action is taken to correct those on a reasonable time

1 scale, so there is every reason to believe that the
2 reactor scram system is going to work.
3 When we are talking about the use of the
4 standby liquid control system in the event that I have
5 some kind of an anticipated transient where that
6 redundant, carefully designed, periodically reviewed and
7 continuously monitored through LER systems does not
8 work, and then we are going to a backup system which is
9 the standby liquid control system. Here we have another
10 system that is designed to rigid requirements, safety
11 grade requirements.
12 We have -- I can't describe precisely the
13 redundancy, but there is redundancy in the system, I
14 believe, in terms of pumps and valves, and now we are
15 saying the operator manually initiates that system. He
16 observes that the pumps start up through the kinds of
17 variables that LILCO has described it this morning.
18 He verifies that certain things have occurred
19 in that system with indications that are there, and now
20 we are hypothesizing that all of those indications have
21 either failed or are giving the operator incorrect
22 information, and it is just inconceivable to me at this
23 point in time why the Shoreham plant cannot be allowed
24 to operate for a time period until we have looked
25 carefully at this to determine whether that flow meter

1 really tells you enough to warrant putting it in.

2 Q Well, I think the record is very clear. Judge

3 Brenner suggests we might have lunch, and if you

4 gentlemen are willing to continue with this experiment

5 after lunch, I think it is making an excellent record.

6 JUDGE BRENNER: One reason I am thinking of

7 recessing for lunch a few minutes earlier than we

8 normally do is, we are going to adjourn earlier today,

9 probably around 4:00, because we need some time to

10 confer on matters, primarily emergency planning.

11 WITNESS ROSSI: Could I make a comment before

12 we adjourn?

13 JUDGE BRENNER: Sure.

14 WITNESS ROSSI: In view of my last answer, I

15 would like to point out the fact that when you get an

16 answer like that, you are getting basically one branch's

17 -- one person from one branch's view, and I think you

18 have to keep that in mind when we continue this

19 experiment, that the answers you are going to get from

20 me are not going to have the benefit of discussions that

21 I might like to have with members of other branches

22 within the NRC on things that they may know from a

23 different perspective than I know, and I think that is

24 very important when you evaluate my answers.

25 Part of our considered, careful review that we

1 want to do would include various perspectives that other
2 branches within the NRC have, and it would also have the
3 benefit of perspectives that I think we will gain by
4 discussions on each of those items with licensees and
5 perhaps meetings.
6 I just wanted to point that out in order to --
7 primarily to put some quantification on my previous
8 answer.
9 JUDGE BRENNER: Yes, I understand that. I
10 also point out that the staff has had not one but two
11 opportunities to give us a technical analysis, item by
12 item, as to why it thought it was okay to permit
13 licensing now while considering the long-term picture in
14 the future, and that, it seems to me, would not have
15 been inconsistent with the position advocated by the
16 staff that you want to deliberate for the future to
17 determine what permanently should be done, but in the
18 meantime, tell us now why it is okay to go ahead, and we
19 also have to deal with Mr. Minor's point that the
20 interim might well be permanent, because once we lose
21 jurisdiction, if we choose to give it up, it may be that
22 it will never be done.
23 So, if we have to go on the basis of a
24 technical analysis as distinguished from an argument
25 that the Commission instructed boards not to look at it

1 at all, we may well have to find -- make our findings
2 with respect to a long-term -- without possibly
3 precluding further additions on closer study, but that
4 is going to be very delicate also, and we could have
5 benefitted quite a lot by the kind of technical analyses
6 involved in different staff disciplines that you just
7 alluded to, and we didn't get that in the first
8 testimony, and we didn't get it in the second testimony
9 that we specifically invited, primarily because we
10 didn't see it in the first set.
11 So, that is our response to your comment, but
12 we appreciate that as an individual expert, you are
13 giving us the benefit of your views here also.
14 WITNESS ROSSI: Can I make one comment on
15 that? I think you have to keep in mind that the number
16 of items here has continually diminished, and it only
17 got to the four relatively recently, and even in spite
18 of that fact, considered staff judgments in items like
19 this take a moderate amount of time, and we have allowed
20 for the fact that we may want to use consultants, and I
21 am just not sure that there was time to do the kind of
22 reasoned judgments, particularly in the long term, that
23 you are asking for.
24 JUDGE BRENNER: Well, this contention has been
25 around for quite a while, and we didn't hear any motions

1 to defer the litigation along with others that we have
2 deferred also, and we in fact asked the parties to
3 consider that, because we saw problems with some
4 information that might have been lacking when we
5 addressed that specifically to the staff, and staff
6 counsel had an opportunity even at that late date, which
7 was just before our last break, to tell us we should
8 hold off on it.
9 So, we tried to be sensitive to that, and we
10 have not gotten all the help we think we could have
11 technically from the staff. The staff is essentially
12 putting all its eggs in the one basket of saying that
13 the SECY paper and Commission policy statement stands
14 for the proposition that the board does not have to look
15 at these items.
16 JUDGE CARPENTER: You look as though you want
17 to respond, Mr. Minor.
18 JUDGE BRENNER: Let Mr. Black respond.
19 MR. BLACK: I just want to take this
20 opportunity to say that I think that your previous
21 comments don't sit too well with me from the standpoint
22 that we as a staff feel, of course, that we are guided
23 by the SECY paper at this particular point in time, and
24 to that extent I think there is clear guidance in there
25 that the staff should not come down with these hard,

1 reasoned, technical positions on these particular items,
2 and that is what we are guided by at this time, and of
3 course you have asked me to do a legal analysis of if in
4 fact that is the case, and I will do that, but I do not
5 want the witnesses to sit up there and think that they
6 have been spanked by the board for some reason when in
7 fact they have been guided by our legal analysis of the
8 SECY paper.
9 JUDGE BRENNER: All right. But you had better
10 be sure you are right on the legal analysis. My only
11 point is, it is not uncommon to litigate matters in the
12 alternative, and the initial filing of the testimony was
13 well before the Commission said what it said. So, at
14 that earlier time I would have expected some analyses.
15 It is not perfectly clear to me. I have not done a
16 thorough analysis. I have looked at it a few times, and
17 I indicated the things you will have to look at to get
18 to where you want to go, and I don't think it is going
19 to be easy, to be very frank. I don't think the
20 Commission addressed the particular problem we have. If
21 so, I haven't seen it, so maybe when you lay it out
22 clearly I will see it.
23 Can we break now, or does someone else want to
24 chime in? It was not a criticism of Dr. Rossi. I
25 wanted to fill out the record. When he talked about not

1 having the benefit of other staff people here, it is not
2 as if we are jumping into these issues by surprise. That
3 is my point.
4 MR. BLACK: Before we recess, I would like to
5 note for the record that I will be handing out the NRC
6 staff position with respect to the Phase I consolidated
7 emergency planning contentions which I alluded to
8 previously.
9 JUDGE BRENNER: Thank you.
10 MS. LETSCHE: Judge Brenner, I think Mr. Minor
11 did want to make one comment in response to what Dr.
12 Rossi said.
13 WITNESS MINOR: Yes. I have to take exception
14 to what Dr. Rossi was talking about in these items of
15 diminished four. It is not by our intent that they have
16 diminished to four, and I don't think that is what the
17 staff has to look at overall, four issues. They have a
18 lot of issues where LILCO has said they are not going to
19 comply with this Reg. Guide except by some alternate
20 means that they feel is adequate, and each one of those
21 is going to take an assessment.
22 What we are allowing here is four issues to be
23 heard, and believe me, that is not my opinion, that that
24 is an adequate list of issues.
25 MR. EARLEY: Judge, I move that that comment

1 be stricken. It is not relevant to any issue that is in
2 contention in this proceeeding.
3 WITNESS MINOR: I think we need to establish
4 our rules. I thought we had a dialogue.
5 JUDGE BRENNER: The dialogue is on the
6 testimony. I am not going to strike it, but it doesn't
7 go directly to the finding we have to make. I think I
8 also understand the context of Dr. Rossi's comment a
9 little differently than you did, Mr. Minor, but
10 regardless of which one of us is correct, it does not
11 matter in terms of what we have to look at for a
12 decision on this contention.
13 So, for that reason, there is no reason to
14 pursue it. Well, we ended up closer to the normal
15 breaking time anyway. Let's just break for an hour,
16 until 1:15.
17 (Whereupon, at 12:12 p.m., the board was
18 recessed, to reconvene at 1:15 p.m. of the same day.)
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1 AFTERNOON SESSION

2 (1:15 p.m.)

3 JUDGE CARPENTER: I would like to continue

4 questioning for just a few more minutes in the vein that

5 we were pursuing before the break.

6 Whereupon,

7 JERRY MAUCK,

8 JOSEPH BARON

9 JOHN SCHMITT,

10 JOHN KREPS,

11 JOHN RIGERT,

12 CHARLES ROSSI,

13 GREGORY C. MINOR,

14 the witnesses on the stand at the time of recess,

15 resumed the stand and, having been previously duly

16 sworn, were further examined and testified as follows:

17 BOARD EXAMINATION -- RESUMED

18 BY JUDGE CARPENTER:

19 Q We've been looking at four specific items of

20 equipment in this contention. Mr. Minor, you've tried

21 to help me with respect to three of them. I'd like now

22 to get your help with the fourth one, having to do with

23 the spray system, where the point has been made that in

24 the interim the flow from the RHR can be monitored and

25 the temperature and pressure in the containment can be

1 monitored.

2 I want to see if you could help me with any

3 technical reservations you have about that?

4 A (WITNESS MINOR) Again, I don't necessarily

5 agree with your reference to the interim. But with that

6 point aside, my technical concern with that is that the

7 RHR flow indication as it is presently configured on

8 Shoreham shows that the flow indicators in the common

9 leg between the pump and the various discharge points

10 for the RHR system -- and those discharge points number

11 four or five different locations that that pump can be

12 discharging to. In the MPCI mode the discharge is at

13 the recirc loop. In the containment spray the discharge

14 is to the headers inside the containment, and in the

15 suppression pool mode the discharge is the spray inside

16 of and above the pool in the suppression chamber. And

17 also, there is a test mode where that flow can be

18 discharged back to the pump itself for testing the

19 pump.

20 And there's a couple of others. There's also

21 a head spray pipe that comes off that same common line

22 where the flow indicator is, and I believe there is also

23 some cross-ties there and some small line connecting to

24 the fuel pool. So there are various ultimate

25 destinations for the flow that would be measured by that

1 one flow element on RHR.

2 There is a flow element on head spray. At

3 least it is indicated in the FSAR that there is. And

4 there is no other that I have been able to determine on

5 that system.

6 The concern I have is that you are relying

7 again on an indirect indication. You are relying on the

8 flow indication plus multiple valve indicators,

9 indicating not only which valves are open but hopefully

10 which valves are correctly closed, because one or more

11 of the other discharge points being open would give you

12 a path for an alternate discharge point in that flow

13 which would not be to the destination you're after.

14 The simplest thing would be to provide the

15 flow elements in the individual legs so you would know

16 what you are dealing with. In the discussion of the rad

17 monitor earlier, I believe one of the LILCO witnesses

18 testified that if you had indications that there was a

19 high fission product content in the containment area you

20 may try to reduce the primary pressure to reduce the

21 leakage. But one way you would attempt to reduce that

22 is to turn on your suppression flows, either your spray

23 flows in the containment or your suppression pool.

24 It seems like all these things tie together in

25 one way or another, and we are making up for a lack of a

1 direct indication or a needed mitigation resulting from
2 an indirect indication of radiation by going to a flow
3 system, where you again don't have exact indication of
4 your flow. Instead, you have an applied indication from
5 valve lineups and the one flow element in the RHR loop.
6 Those would be my main concerns with that
7 system.
8 Q Could you help me just a little further. What
9 actions can you mention the operator taking to mitigate
10 this accident if he had this direct indication of flow
11 or, conversely, if he had a direct indication of failure
12 to flow?
13 A (WITNESS MINOR) If he relies on just the RHR
14 flow indication and the valve lineup, he assumes that he
15 is getting pressure -- excuse me. I keep saying
16 pressure. He gets containment spray flow or suppression
17 pool flow. If he relies on that, but the valves are
18 improperly aligned or other valves are open that he
19 thinks are closed or he has not checked one way or the
20 other, then he may be getting a false indication of its
21 operability or its actual operation.
22 These flow indicators are of the type in Reg
23 Guide 1.97 that are desirable to actually show the
24 operation of systems, and that is where I feel this
25 would be useful to actually show what is flowing in the

1 system you are interested in.

2 WITNESS RIGERT: If I could explain what we

3 were getting at with the spray flow indication, a couple

4 of points are that: First, the containment response

5 would be very dramatic when drywell sprays were turned

6 on. It would not be a very slow or indirect response.

7 You would see results very quickly on the containment

8 pressure.

9 And the alternate flow paths that are

10 mentioned here I believe in all cases have two valves

11 that can be isolated. Yes, that's correct. You would

12 be postulating that you have two valves shut, or you

13 think you have two valves shut and the lights are

14 telling you that, and possibly both of those valves are

15 not shut, before you would get a situation where some of

16 the flow was diverting to this other, undesired flow

17 path.

18 And then you still would have your pressure

19 indicator, which is the primary variable, telling you

20 whether or not your sprays are accomplishing the desired

21 function. If for some reason you thought you were

22 getting spray flow and nothing was happening to the

23 pressure, you would immediately try to -- well, maybe I

24 could ask the operating people to speak about that, if

25 you would try to secure the alternate flow paths or

1 maybe turn the other loop on into the spray flow,
2 whichever.
3 A (WITNESS KREPS) There would be a number of
4 possibilities of what you would do. It would be the
5 same as if you had the flow meter there and it wasn't
6 working. If it didn't show any flow, you would take the
7 same actions as if you didn't get a response from
8 containment pressure or containment temperature: verify
9 the valve lineups or switch one of the other loops of
10 RHR.
11 A (WITNESS MINOR) As I understand that, though,
12 you are relying not on your primary indication of
13 whether or not there is flow, but on an indirect
14 indication of whether there is change in the pressure in
15 the containment.
16 A (WITNESS KREPS) Well, the purpose of putting
17 in the flow is to change the pressure. That's what
18 we're actually looking to do, is to change containment
19 pressure. That's what we are going to be concerned
20 about, rather than what the flow is.
21 A (WITNESS MINOR) But the operator may feel
22 that he is going to get that change in flow -- excuse me
23 -- change in pressure as a result of flow that is
24 incorrectly indicated on the RHR. So you are asking him
25 to look at a secondary indication to find the function

1 of the system, whether or not there is really flow in
2 that system.
3 A (WITNESS KREPS) But he's looking at the
4 primary indication for the variable that he is concerned
5 about, which is containment pressure.
6 A (WITNESS MINOR) I think, Judge Carpenter, you
7 see the difference in our points of view.
8 A (WITNESS RIGERT) I think another aspect, too,
9 is that we are reluctant to be adding these
10 instruments. This was mentioned earlier, about operator
11 considerations, control room design. But also there is
12 the concern that we would be cutting into safety-related
13 systems to install these flow elements. We would be
14 adding additional piping.
15 There is more concern. The more piping you
16 have, the more potential you have for minor leaks in
17 instrument lines. There of course is the concern of
18 adding additional equipment in the reactor building,
19 which makes maintenance more difficult in those areas.
20 There are those kinds of negative aspects to
21 adding this instrumentation that we see have a very real
22 impact in this very hypothetical improvement, which we
23 don't even feel is an improvement from adding the flow
24 indicator. And if you got to that point of deciding
25 that you wanted to indicate all flow paths, you could go

1 all-out and have instruments all over the place.

2 Q You have all been very helpful. One last

3 question. Mr. Minor, it does seem to me that if the

4 purpose of that system, the function of that system, is

5 to reduce pressure, then the pressure monitor is not an

6 indirect estimate of some variable, but it's got the

7 operator focused on the thing that he should be focused

8 on. I pose that as my perception, to get your comment.

9 A (WITNESS MINOR) If he turns on the system

10 expecting it to produce the flow and to produce pressure

11 reduction in a process or a procedure where he is also

12 doing other things, he may take the indication of flow

13 as assurance that he is going to get his achieved,

14 desired end, and not until later come back to verify

15 that he has for some reason not obtained the reduction

16 in pressure that he was looking for inside the

17 containment.

18 So I believe it is potentially a misleading

19 indication of the operator, and I believe it is in the

20 spirit of TMI that that type of requirement was added in

21 in Reg Guide 1.97 to avoid things that could be

22 misleading to the operator or ambiguous.

23 A (WITNESS RIGERT) One thing I wanted to point

24 out which I think this statement just reminded me of is

25 this theory that the interim position is the final

1 position. And what we're trying to demonstrate -- in
2 our testimony we have said in those tables that we have
3 prepared was that these items were pending the generic
4 resolution, and therefore we weren't doing anything in
5 the interim, and we gave these explanations for why we
6 were doing them.
7 And it's true that in our opinion our
8 explanations are adequate for the permanent, the
9 long-term solution. But as a minimum they are adequate
10 for the interim solution, and we're still subject to
11 review and direction from the NRC, as described in the
12 SECY document, now.
13 So I just wanted to point that out in here at
14 this time.
15 A (WITNESS ROSSI) I would like to make a couple
16 of comments. I think SECY 82-111, as I read it, is
17 pretty clear that there is every intent of ultimately
18 resolving all of Reg Guide 1.97, Rev. 2, in a formal,
19 final way. So there is no reason to believe that the
20 interim solution will be the final solution, unless in
21 our careful review of the final solution we conclude
22 that we are going to accept the LILCO approach that they
23 have stated here.
24 There will be a formal review, audit review,
25 and we will concentrate on the proposed deviations from

1 the precise guidance in Reg Guide 1.97, Rev. 2, and that
2 will be the long-term solution. And there is no reason
3 to believe that it necessarily will be the same as the
4 interim one.
5 Another comment I would like to make is --
6 A (WITNESS MINOR) Can I comment on that before
7 you go to another point?
8 A (WITNESS ROSSI) Sure.
9 A (WITNESS MINOR) I find it discouraging to
10 look forward to two more years before we find out
11 whether they are going to be an interim or a permanent
12 solution. In the meantime, this plant may load fuel and
13 be operating at fuel power for a sizable period of
14 time.
15 I find it also untenable that when you know
16 the BWR owners group decision is going to be don't do
17 it, that you need to obtain the assessment from various
18 other plants in order to look at LILCO's situation for
19 these particular indicators. I don't think it's any
20 mystery what you're going to get from the other plants,
21 and I don't believe that any other Mark II is probably
22 going to come in with an exception to this BWR owners
23 group position.
24 So I wonder why you are delaying such a
25 determination beyond the date when this plant could use

1 the evaluation to implement or not implement, as you may
2 decide, before they load fuel, which may or may not turn
3 out to be fairly close to the original June '83
4 implementation date. I interpret the NRC SECY 111
5 document term "flexibility" to possibly read in both
6 directions, that it could be flexible in terms of
7 speeding up some plants where it may be helpful to give
8 it implementation before fuel load, as well as delaying
9 and dragging it out for a total of four years after that
10 Reg Guide was originally issued. I don't find that as a
11 reasonable term for "flexibility."
12 A (WITNESS ROSSI) Well, I think, for one thing,
13 I think you're reading a lot into my estimate of one to
14 two years instead of the estimate that I gave yesterday
15 as to the possible time. That seems to become almost a
16 schedule, which my estimate was never intended to be.
17 That is indeed an estimate. We would hope that it would
18 be more rapid than that. But again, it is an estimate.
19 In regard to the interim operation of
20 Shoreham, I would like to reiterate what was in our
21 testimony as to why the Staff concludes that it's safe
22 to operate Shoreham in the interim, and that's the point
23 that the plant has been reviewed in accordance with the
24 standard review plan to ensure that sufficient
25 indications are available for the operator to cope with

1 the design basis events that are analyzed in chapter 15
2 under the conservative assumptions that are made in
3 chapter 15.
4 Those conservative assumptions include
5 conservative assumptions about equipment failures. From
6 what I have heard from Mr. Minor's testimony today, I
7 have heard nothing that would indicate that these
8 additional indications are required to cope with the
9 design basis events as they are analyzed in chapter 15.
10 A (WITNESS MINOR) I would like to comment on
11 that. The assurance that this plant is safe based on a
12 standard review plan review is somewhat hollow if we
13 aren't sure even what review plan was reviewed to. The
14 original review of this plant to my recollection goes
15 back many, many years, probably two revisions of the
16 standard review plan, which probably had a considerably
17 different content than you would have if you were
18 reviewing it to today's standard review plan.
19 Therefore, I don't find that a reassuring
20 claim, that in the interim the Reg Guide 1.97
21 characteristics will be complied with because we have a
22 standard review plan review for Shoreham.
23 Well, that's enough for now.
24 BOARD EXAMINATION
25 BY JUDGE BRENNER:

1 Q Dr. Rossi, what about Mr. Minor's assertion
2 that your rationale for waiting so that you can look
3 together at what all the BWR plants of the Shoreham type
4 might submit and might therefore have a coordinated
5 position in about the same time frame for all similar
6 plants doesn't make much sense when you know now what
7 the owners group position is and that there's no reason
8 to believe that that position would change?
9 A (WITNESS ROSSI) It is my understanding that
10 that owners group position is still being reviewed and
11 is indeed not a final owners group position. You know,
12 we may think we know what's in the owners group position
13 and LILCO may think they know how that final review is
14 going to come out. I am not so sure that that is the
15 situation.
16 Perhaps LILCO can tell me if I am right about
17 the status of the owners group position.
18 A (WITNESS RIGERT) I would say you're basically
19 right. It's one thing, I guess, for me to say that I am
20 virtually certain this will be the position. I don't
21 know if someone like the NRC wants to then go based on
22 that and hire a consultant or go into a review. That's
23 up to them to decide.
24 I don't envision this position changing,
25 though. But it is not an official owners group position

1 at this time.

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1 Q Well, putting it more particularly, with
2 respect to LILCO's position, unless you -- I take it
3 unless something is pointed out to you, that you now
4 have not considered -- LILCO is not planning to change
5 its position that this equipment is not necessary in any
6 timeframe.
7 A (WITNESS RIGERT) Definitely.
8 Q Dr. Rossi, what about Mr. Minor's other
9 assertion that the indication that there should be
10 flexibility in the schedule in this SECY paper could
11 work both ways, and that maybe that should include due
12 regard for the timeframe for licensing of Shoreham in
13 this hearing.
14 A (WITNESS ROSSI) Certainly, I think the
15 flexibility would allow for going either way. Again, I
16 think the problem with adjusting the time schedule for
17 this plant to only correspond to the hearing neglects
18 the other things that are mentioned in terms of orderly
19 review, allowing us time to collect the information we
20 feel we need, and possibly use consultants.
21 A (WITNESS MINOR) May I make a comment on that?
22 Q Let me ask one other thing, or Mr. Black, and
23 we all have to be re-reading this SECY document in light
24 of the staff's arguments, and we will need a further
25 explanation than we have discussed already, which would

1 also include, I suggest, the concept of the status of
2 the law with respect to deferral to post-hearing status
3 of resolution of aspects of a contested issue to the
4 staff. Which, I think it is fair to say, is discouraged
5 by some cases absent other justifications.
6 Is there anything in the SECY documents or the
7 Commission's approval that says plants shall be licensed
8 in the interim? It talks about the flexible schedule
9 with respect to -- I didn't see any particular phrase
10 that expressly said that what the Commission means is
11 licensing should proceed on plants for which there is
12 now an operating license review. I am not saying it is
13 not in there; I just do not recall it as of this moment
14 and I am wondering if you know anything directly on that
15 right now that might be helpful.
16 I recognize that sometimes, inferences may be
17 made from the treatment of operating reactors as to what
18 that means for the necessity and sufficiency of
19 requirements for new plants currently undergoing an
20 operating license review, and sometimes the distinction
21 is made between those two different postures of plants
22 expressly, in addition to possible inferences.
23 A (WITNESS ROSSI) I don't know that I can point
24 to a specific -- there are many references, I believe,
25 to operating license applicants in here. Enclosure A

1 indicates in the first paragraph that the recommended
2 requirements set forth in this document have been
3 reviewed by the Commission and, at a meeting held June
4 21st, 1982, were approved by the Commission as
5 appropriately clarifying and providing greater detail
6 with respect to related TMI Action Plan requirements
7 contained in NUREG-0737, and it has underlined "for all
8 operating license applicants."
9 I am not sure that I legally understand
10 precisely what that means, but there is one reference to
11 operating license applicants. This is in the
12 introduction, I guess, to the attachment.
13 Q We can go through it also more deliberately --
14 A (WITNESS ROSSI) I am not sure I can answer
15 your question because some of the statements that relate
16 to tying this to NUREG-0737 -- I have already indicated
17 I believe that they may be legal questions rather than
18 questions that I am competent to answer. So I had
19 probably best say that I cannot answer your question.
20 Q All right. My question was if you knew of
21 something offhand. I don't take the fact that you do
22 not to mean that it is not there, so don't worry about
23 it from that point of view.
24 JUDGE CARPENTER: I thank the county for
25 allowing me to let this occur, and I think the half hour

1 was well spent. At least, I understand many of the
2 questions much more clearly than I did a half hour ago.
3 I am not sure I see all the answers yet. Thank you very
4 much.
5 WITNESS RIGERT: Could I add a couple of
6 points? I was taking notes and we went from one
7 parameter to the next without my realizing we were about
8 to do that. I have a couple of points I would like to
9 make on some of the earlier parameters.
10 For instance, on the standby liquid control
11 system, Mr. Minor explained why a flow meter would help
12 in the event of a broken pipe, as an example. The
13 concern we would have in that case is that even with a
14 broken pipe, the flow meter, depending on where the
15 break occurred, would still register 43 GDM with a
16 positive displacement pump.
17 You would really, in that case, look to your
18 pressure indicator to tell you that -- if your pressure
19 indicator is only reading 50 pounds, let's say, you know
20 you are not pumping into the reactor. Tank level is
21 kind of put down as not being very responsive. Tank
22 level should change about one inch per minute, so you
23 won't see a change in the first five or ten seconds. I
24 am not saying that. But within a couple of minutes, you
25 should see some movement of the tank level indicator.

1 And a concern we had, -- we looked into it
2 somewhat and we are still not 100 percent sure of
3 ourselves -- is putting a slow element in the standby
4 liquid injection line, whether it would produce any kind
5 of a flow blockage. There is always the concern of
6 precipitating of sodium pentoborate solution, and if you
7 put an orifice plate in there or any instrument path,
8 you have these concerns. And primarily for reasons like
9 that, we are reluctant to go cutting up a system again
10 and installing instruments in it until we are crystal
11 clear on what the benefit is of doing that in the first
12 place.
13 Then, on the radiation monitoring, it was
14 mentioned that our stack monitor would be monitoring a
15 diluted indeterminant mixture of turbine
16 building-reactor building-radwaste building
17 ventilation. The monitor we are referring to, the noble
18 gas effluent monitor, is on the reactor building standby
19 ventilation exhaust stack, and it would be purely
20 secondary containment atmosphere that it would be
21 sampling.
22 Also, the implication has come in here that
23 the reg guide in some way says that you need to localize
24 or specifically locate a penetration leak. If that were
25 true, which I don't think it is, it would result in an

1 incredible amount of instrumentation.

2 I would estimate we might have about 100

3 piping penetrations, maybe around 50 piping

4 penetrations, perhaps 100 instrument line penetrations,

5 maybe 30 or 40 electrical penetrations, then several

6 equipment hatches and personnel hatches around the

7 containment in different areas, as well as the drywell

8 head itself. If we were to try to instrument these to

9 the point where someone would say that penetration

10 number 72 is leaking, that would be inconceivable. I

11 don't think it could be done at all without spending

12 tremendous amounts of money and complicating the plant.

13 The idea was that, if anything, if you have an

14 area of your plant that is in communication with hatches

15 and penetrations, then that area should be monitored so

16 that a leak into that area would be identified but not

17 located specifically. And our point is that the

18 airborne monitoring we do with our noble gas effluent

19 monitor will do that for us.

20 WITNESS MINOR: At the risk of perpetuating

21 this, I need to respond to those.

22 BY JUDGE CARPENTER (Resuming):

23 Q Yes. I was going to say I think you should

24 respond.

25 A (WITNESS MINOR) Perhaps I can take them in

1 their reverse order. The last one, referring to the
2 radiation monitor locations. Reading from Reg Guide
3 1.97, Rev. 2, on page 197-10, under Type C Variables,
4 that item reads, "Radiation exposure rate (inside
5 buildings or areas; e.g., aux building, fuel handling
6 building, secondary containment, which are in direct
7 contact with primary containment where penetrations and
8 hatches are located)." That is their reference to the
9 penetrations and hatches.
10 Reading under Type E Variables, E(3), the
11 third one down says, "Radiation exposure rate..." --
12 this is on page 1.97-13 of the same reg guide --
13 "Radiation exposure rate (inside buildings or areas
14 where access is required to service equipment important
15 to safety.)"
16 We have not spent a lot of time talking about
17 servicing or maintenance, but in long-term surveillance
18 terms, these monitors may be helpful in determining
19 access or exposure expected in certain areas where you
20 may need to do maintenance on important safety equipment
21 during the long-term mitigation of an accident. We have
22 sort of passed over that item as an item of concern.
23 I don't believe the clarification that was
24 made on the reactor building standby ventilation system
25 was anything different than I had mentioned before. The

1 point is that radiation monitor in that line is located
2 further upstream, let's say, from the point where the
3 containment leakage would occur. And through the mixing
4 of the ventilation system flows, it would be very
5 difficult or impossible to assess which point created
6 the leak that resulted in the indication of the noble
7 gas monitor.
8 On the standby liquid control system flow
9 monitor, I again indicate that this is not an unproven
10 or impossible design task that has been proposed on
11 BWR-6s. It is not something that cannot be done. It
12 certainly would have to be designed in. I am not trying
13 to shortchange that. It is not something you just stick
14 on; you would have to design in. But it is not
15 impossible. And certainly, there are locations where
16 you would have a good indication of the flow, and
17 depending on where the line break he is talking about
18 is, if it is beyond the check valve, it would be a loss
19 of coolant accident anyway. And your standby liquid
20 control flow would never reach the vessel.
21 If it is upstream of the check valve, and the
22 line break were to occur there, your flow would indicate
23 that you were flowing. But you would not be reaching
24 the containment. Excuse me, I mean you would not be
25 reaching the vessel. That part is true.

1 A (WITNESS RIGERT) I wanted to mention that I
2 did not introduce the idea of pipe breaking, because I
3 would be the first to admit that you have an ATWS and
4 then a pipe break -- we are getting far too incredible.
5 But I agree that you have to engineer it, and I am not
6 saying it is impossible.
7 On the idea of identifying a leak and the fact
8 that there is a delay because your effluent monitor --
9 it would take a while for the leakage to get to it, I
10 think that is an apparent part of the design of the
11 reactor building. You cannot expect to tailor the whole
12 reactor building to make it easy to detect penetration
13 leakages. If anything, that is the whole idea; that any
14 leakage into the secondary containment is mixed and held
15 up for any kind of -- as much time as is available
16 before it is released. And what is released is a
17 homogeneous mixture.
18 There is a mixing plenum in the standby
19 ventilation system, so your only need is to get an idea
20 of how much you are leaking. There would be no useful
21 purpose at all in trying to localize the leak.
22 Like I said before, we talked about the idea
23 that we tried to minimize the leakage by reducing the
24 containment pressure. The containment pressure would be
25 reduced whether you have a leak or not. It would just

1 be a further emphasis to the operator that the
2 containment is leaking radioactivity, and that he should
3 make an extra special effort to get that containment
4 pressure down as soon as possible. After which
5 individual penetration is leaking, that wouldn't change
6 his action in any way.
7 Q Mr. Minor, it seems to me from what I have
8 heard in the last few minutes that you are focused on
9 the long-term, post-accident monitoring, and LILCO is
10 testifying with respect to short term, immediately after
11 the accident. The thing you need to know is what is
12 happening, you need to know that you should be reducing
13 pressure as quickly as possible, and I think you are
14 testifying with respect to people going into the
15 containment and needing to be aware of where the hot
16 spots might be.
17 I want to ask why those individuals wouldn't
18 have suitable radiation protection clothing on, have
19 suitable devices for knowing whether they were going
20 into a hazardous area or not. I think that is the real
21 crux of the safety issue, in my mind.
22 A (WITNESS MINOR) I will try to identify two
23 points. I agree there is a short-term need for
24 detection of leaks, as far as determining what action
25 you may take to mitigate the effects of those leaks. I

1 was trying to add to that the concern for the long-term
2 surveillance, which is one of the issues in Reg Guide
3 1.97, and that would be trying to determine if it were
4 possible to go into an area rather than send survey
5 teams in to do that. It may be more desirable and
6 certainly lower exposure if you were able to make that
7 assessment in particular areas that you may have to go;
8 areas where there is equipment important to safety that
9 you may need to maintain in the long term.
10 Q I think I heard LILCO's position being that if
11 they were to do that in all the areas where that might
12 be desirable, it would become a major installation and
13 maintenance problem, vis a vis when we are talking about
14 serious situations with very low probability; that when
15 that situation did arise, that it could be handled most
16 expeditiously on an as-found basis.
17 A (WITNESS MINOR) I believe that one can make
18 the argument that proliferation of those items, those
19 monitors, would be overburdensome, and I agree it would
20 be if you tried to proliferate to all areas important to
21 safety. But I believe in terms of priority, as
22 identified in the reg guide, there are areas, personnel
23 hatches and major clustering of penetrations, that would
24 be more likely to be leak points and would be points
25 where you would be interested in obtaining information

1 as far as potential access.

2 If I could add a point that was made earlier,

3 and I tried to interject before lunch and didn't get a

4 chance to -- if I could just respond to that one, also.

5 I have been trying to determine in my mind the

6 justification for a weighting, a letter telling the

7 applicant what format he has to put his response in

8 before he submits it to the NRC. And I just find that

9 an appalling reason for delay.

10 If you look at the items in SECY-111 that they

11 are asking for on page 14 of the Enclosure, they are

12 items A through H, information which anybody could put

13 in any table and it wouldn't be very difficult to

14 unscramble, no matter what form you put it in.

15 LILCO testified in this discussion earlier

16 that they have that information available. I just don't

17 see why that is a reason for delaying the process of

18 evaluation of LILCO's position on these.

19 A (WITNESS ROSSI) I am not sure whether someone

20 is going to ask me to respond. I guess I will volunteer

21 to respond. I don't think the primary reason that we

22 are not reviewing the LILCO position on the short

23 timescale has to do with just putting it into a

24 particular format.

25 We do think that it is important that we give

1 some thought to the information that we need in order
2 that we get enough information in with the submittals to
3 eliminate our review of all the items where it is very
4 clear and unequivocally clear that Reg Guide 1.97, Rev.
5 2 requirements are met. That will allow us to
6 concentrate on the exceptions.
7 We know that these are going to be exceptions
8 here. From what I have heard in the last hour or so, it
9 appears -- I have heard nothing that makes me believe
10 that these particular instruments are involved with the
11 mitigation of the design basis events in Chapter 15
12 under the assumptions that are made in analyzing those
13 design basis events.
14 They are, indeed, instruments that could
15 prudently be used for unanticipated situations that
16 might go beyond design basis events that are analyzed in
17 Chapter 15.
18 I think it is very clear that it is going to
19 take considerable judgment on how far we want to go in
20 terms of measurements for that particular purpose, and
21 how much effort and cost should be put into it. It is
22 very clear that these are going to take very careful
23 judgments. I don't think it is going to be possible to
24 do analytical studies that come out with numbers that we
25 can use to guide us. They are going to be qualitative

1 judgments.

2 When we make those judgments, we want the most

3 information that we can get available before we do it.

4 That is the reason that we are not immediately trying to

5 review this particular plan on these four items.

6 Q I think we are now becoming redundant, so

7 let's declare the seminar over, and I did learn an awful

8 lot in the last 45 minutes. I thank you again.

9 A (WITNESS MINOR) You called it a seminar; we

10 dubbed it "group groping."

11 (Laughter.)

12 JUDGE BRENNER: Actually, as far as the record

13 knows, the Board went home 45 minutes ago. Judge Morris

14 is going to have a question.

15 BY JUDGE MORRIS:

16 Q I wanted to ask Dr. Rossi a question before we

17 lose him. Do you know if some kind of cost-benefit

18 analysis was done prior to propagation of Reg Guide

19 1.97, Rev. 2?

20 A (WITNESS ROSSI) I don't know of any. I

21 suspect that there was not any sort of analytical one

22 done. That would be my -- what I would guess. But I

23 don't really know the answer to your question.

24 Q Do you know whether such factors would be

25 considered by the -- I know it is the Kruger group; I

1 forget the exact initials -- CRGR?

2 A (WITNESS ROSSI) Would they be considered today

3 by them?

4 Q No, would they have been. I understand that

5 they were involved at least in the development of the

6 Commission --

7 A (WITNESS ROSSI) They were involved in SECY

8 82-111. They were not, to my knowledge, involved in the

9 writing of Reg Guide 1.97, Rev. 2. That was written

10 before their existence. I don't believe that a formal

11 cost-benefit analysis was done on SECY 82-111, either.

12 But again, I am not absolutely certain. I know of none.

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1 Q Would such factors be considered before taking
2 individual decisions on individual plants?
3 A (WITNESS ROSSI) Such factors, I believe, will
4 be considered in taking individual decisions on
5 individual plants. They may, however, be qualitatively
6 done rather than very analytically done, but I am quite
7 confident that they will indeed be considered, and I
8 think I at least have implied that in several of the
9 statements I have made, as to what we intend to do in
10 making our judgments on exceptions that are taken to
11 items in the Reg. Guide.
12 Q Thank you.
13 JUDGE BRENNER: I want to comment that we sat
14 back and allowed the witnesses to respond to each other,
15 because the witnesses were doing quite well, and I think
16 it is a high compliment to the professionalism and
17 sophistication of all the witnesses on the panel. It is
18 very easy, and I have seen instances where witnesses who
19 may have been very good technically, if put into that
20 situation, either as a technical cross examiner or on a
21 panel of witnesses with whom they disagree, degenerate
22 into non-material argument as opposed to material debate
23 of concisely and directly responding to the points. All
24 the witnesses did that, and made it easier for us, and
25 very helpful for us. That is why we allowed it to

1 proceed that way, and it was very efficient from our
2 point of view. So, we thank the witnesses for staying
3 on point when given that flexibility.
4 We can proceed now with the cross examination
5 by LILCO of the county, or we can leave all witnesses up
6 there for follow-up along the lines we have been
7 proceeding, and we would turn to LILCO first in that
8 instance, and we will leave it solely up to counsel. It
9 has been helpful to have everyone up there, but if you
10 want some advice, or advisors next to you, that would be
11 a reason to proceed as we originally intended and have
12 your witnesses excused.
13 MR. EARLEY: With the board's permission, what
14 I would like to do is just go through some follow-up
15 questions, primarily with the LILCO witnesses, and I am
16 sure Mr. Minor may want to respond. Then I have a line
17 of questioning prepared that I would just like to direct
18 to Mr. Minor. I will have to review it. Some of it has
19 been covered in the questioning, and as I go, I will try
20 and cut questions that we have covered already.
21 JUDGE BRENNER: All right. Let's be flexible,
22 and see if it works out. You proceed the way you just
23 indicated. Let us know when you get to the point where
24 you are going to want to pursue your own line of the
25 county's witness, because maybe we should allow the

1 staff and the county to jump in at that point before
2 going to your line. I have reread your cross plan while
3 we were going through this, and I do apologize that we
4 did cover some of the areas. We did not intend our
5 stopping to mean we think we have covered everything
6 that you would want to cover on those same subjects.
7 You have some particular details in there that we did
8 not particularly ask, and you may still want to ask
9 them.
10 MR. EARLEY: That is why I think I would like
11 to do the follow-up, indicate that I am finished, and
12 then have Mr. Rigert to consult with so we can cull out
13 things that we think have been covered, and just with
14 the questions we think have not been covered but would
15 like to.
16 JUDGE BRENNER: Okay. Maybe it would work out
17 that it will be timely to take a break at that point
18 anyway. We will see how it goes.
19 EXAMINATION BY THE APPLICANT
20 BY MR. EARLEY:
21 Q Mr. Rigert, in the discussion of the area
22 radiation monitoring system, Mr. Minor indicated that
23 one of the areas he might like to see an area radiation
24 monitor would be around the access hatches. Would you
25 please tell the board where the post-accident sampling

1 system takes its airborne samples within the reactor
2 building?
3 (Whereupon, the witnesses conferred.)
4 A (WITNESS RIGERT) The post-accident sampling
5 system secondary containment atmosphere samples are
6 taken at the personnel access point on elevation 63 from
7 the turbine building, and the personnel and truck access
8 point on elevation 40 from the outdoor access to the
9 reactor building. There is also a point off the reactor
10 building standby ventilation system.
11 Q Mr. Schmitt, is it true that even if the
12 operator knew the location of a particular leak from the
13 primary to the secondary containment, your entry
14 procedures into the reactor compartment would entail the
15 same sorts of preparations and the same type of
16 equipment regardless of whether he knew or did not know
17 where the leak was?
18 A (WITNESS SCHMITT) Yes, that's true. It might
19 be that that was the NRC's reasoning. The Reg. Guide
20 does not ask for location of leakage. It asks for
21 indication of leakage.
22 Q Dr. Baron, could you give us some idea of the
23 amount of equipment that would have to be installed in
24 the control room to put in place an area radiation
25 monitoring system of the sort that is called out in

1 Regulatory Guide 1.97?

2 A (WITNESS BARON) I think that the question is

3 -- we are a little vague internally on what exactly is

4 called out for installation of an area monitoring system

5 in Reg. Guide 1.97, Rev. 2. Our initial studies

6 indicated that if we were looking for primary

7 containment penetrations, hatches, et cetera, that we

8 would be probably in the range of 20 to 30 monitors.

9 From discussions that have occurred, that have evolved

10 both -- primarily internally between us and LILCO, it

11 appears that the number would probably have expanded

12 into where, as Mr. Rigert had indicated, that number

13 would have potentially expanded up to a very large

14 number.

15 In itself, expanding within the control room,

16 then it would account for several panels, and it would

17 severely impact the arrangement of where we could locate

18 the particular panels inside the control room.

19 Specifically, I think that there was a real question in

20 terms of when we were evaluating the necessity for this

21 particular item, on what benefit we were gaining out of

22 it, and particularly in terms of the long-term

23 surveillance of the leakage or long-term surveillance of

24 any leak.

25 We recognize that the initial leak or the

first leak, if it came from one specific location, may be able to be recognized very rapidly on a single area monitor, but due to the high ventilation rate and high recirculation rate inside the building, within a very short time period in terms of minutes, this would homogeneously be throughout the secondary containment, and that this reading would then be -- or apparent in all other readings, and any incremental leakage or leakage from a new area would no longer be able to be visible.

So that for assessment of long-term or rate of change leakage, we assessed that noble gas monitors would provide the most information and the best response.

A (WITNESS MINOR) What are the ground rules here? Are we still in a free-for-all, or is this guided missiles here?

JUDGE BRENNER: I was going to say there are no set ground rules. I would have hesitated to phrase it "free-for-all," but I am not going to disagree with that, either. Why don't you jump in if you want to?

WITNESS MINOR: I can see we are going by several points here, and there are some comments I would like to make. The post-accident sampling system points measured as monitoring points, if you will, are not covering all of the areas that are of interest within

1 the secondary containment. I didn't want it to be left
2 on the record that these, I believe, three points they
3 mentioned did cover all the areas you would be
4 interested in.
5 The second point they mentioned is that the
6 Reg. Guide calls for indication, not location on a leak,
7 of an indication of a leak in the secondary containment,
8 but certainly it also calls for information that would
9 help the decision with regard to servicing of important
10 safety equipment, and to that extent it would be helpful
11 to have equipment of an adequate range to be able to
12 detect profiles and distribution of radiation within the
13 containment, and I don't agree that all the containment
14 is going to see the same radiation level in a few
15 minutes.
16 I don't believe that is true, certainly not if
17 you have a sixth linkage point and you have a tuned
18 reactor building standby ventilation system and
19 secondary containment ventilation system. It is going
20 to have predetermined flows and flow distributions, and
21 you will see from distribution of the radiation that
22 will not be uniform throughout that building.
23 I would agree that it will be mixed by the
24 time that it gets to the mobile gas monitors, and that
25 will detect an indication of the presence, but certainly

1 wouldn't rule out further definition as to location.

2 The equipment and the control room argument I

3 find a little bit of a snow job. Certainly you can

4 hypothesize that if you put ARM's everywhere, it is

5 going to take several panels and a lot of equipment to

6 put it in. Then you don't have any room in the control

7 room. I don't think that is the intent of Reg. Guide

8 1.97, nor do I believe the NRC would ever require such a

9 proliferation. There are some areas that would be more

10 important than others, and those should be ferreted out,

11 and equipment used at those locations, and considered at

12 those locations, not simply a random, shotgun pattern of

13 equipment everywhere in the secondary containment.

14 I guess that covers the points so far. Thank

15 you.

16 BY MR. EARLEY: (Resuming)

17 Q Mr. Minor, am I correct in interpreting your

18 concern with equipment maintenance to be that it would

19 be helpful to know what radiation level is present in

20 the area of the piece of equipment you might be going in

21 to service?

22 A (WITNESS MINOR) Yes, that is certainly part

23 of the concern. The other part would be to be able to

24 detect if that were an area that were of higher level of

25 radiation than others, which would indicate that it is a

1 potential starting point of a leak. Similarly, it would
2 be to have instrumentation that was of the right range
3 to be able to measure a wide range of levels that may be
4 beyond the level where you would ever require access,
5 but at least a read-on scale during those possible high
6 readings and not be just saturated.
7 Q What do you think the operator would do with
8 that information as to the radiation level in the area
9 of the piece of equipment?
10 A (WITNESS MINOR) I don't want to presuppose
11 any particular accident or any particular operator
12 decision, but I believe it would be useful information
13 from the standpoint indicated in these types of
14 variables, that is, to assess the breach of barriers and
15 how to mitigate and determine the necessary long-term
16 actions in the event of an accident.
17 Q I am trying to focus on your concern that you
18 need to know the radiation level in the area of a piece
19 of equipment that you say we might have to go in and
20 service. You emphasized that it is good to know this
21 information, but precisely what actions would the
22 operator take based on that information if he had it?
23 A (WITNESS MINOR) Potentially it would be the
24 difference between an operator knowing he needed to -- I
25 would like to make some maintenance operations in an

1 area inside the secondary containment during the
2 long-term surveillance or mitigation of an accident, and
3 having access to information allowing him to make that
4 decision reasonably versus sending in a team to find out
5 the radiation levels were higher in that particular area
6 than would have been indicated by the noble gas monitor
7 somewhere up the stack or area radiation monitors
8 located in different areas than that particular
9 equipment
10 Q Are you suggesting then that an entry into a
11 reactor building following an accident would be done
12 without taking area radiation surveys with portable
13 instrumentation if you had this equipment available?
14 A (WITNESS MINOR) No, I am not trying to imply
15 that they wouldn't take necessary measures to try and
16 reduce the doses these workers would receive in
17 accessing the containment, but I am saying that it would
18 be useful information to the decision process in
19 attempting to decide on a long-term policy for
20 mitigation of an accident.
21 Again, you are saying this as if I am
22 inventing this. If you look at Reg. Guide 1.97 on Page
23 1.97-13, the purpose of some of these devices we are
24 talking about is detection of significant releases,
25 release assessment, and long-term surveillance. The

1 particular task they are talking about is access to
2 areas where access is required to service equipment
3 important to safety. I believe that is a reasonable
4 thing to do.
5 A (WITNESS RIGERT) I would like to add to
6 that. I think this illustrates the confusion and
7 perhaps a flaw in the Reg. Guide that an area radiation
8 monitor in an area, let's say, like an RHR pump area, if
9 that monitor -- how would the operator interpret the
10 readings on that monitor? At one point, you mentioned
11 that that would be an indication of a breach of
12 penetration in the area, but the fact that it is near
13 the RHR system, we would expect the high reading during
14 operation because of the fluids being handled.
15 It doesn't really lend itself to
16 interpretation by the operator that there is a localized
17 leak. We would expect that the direct shine off the
18 ECCS piping would probably overwhelm the leakage from
19 the airborne, and the airborne itself is only detectable
20 by a sampling type of radiation monitor which is our
21 mobile gas effluent monitors.
22 Also, the thing we seem to be overlooking is
23 that we do have a complete radiation monitoring system
24 in there with radiation monitors that go to either one
25 or ten R per hour, which is a substantial enough level

1 that if those monitors did go off scale, we would assume
2 these areas are fairly hot, to the point where people
3 would not go in there without great precautions.
4 If, on the other hand, there were monitors
5 during an accident indicating low levels, we wouldn't
6 send a team in there without precautions being taken,
7 because we would tend to disbelieve that monitor or be
8 concerned that -- that monitor is only reading one spot
9 in the containment, and there are other areas of
10 elevated radiation. So, in either case, a containment
11 entry -- what we are doing first of all here is talking
12 about remarkable failures which thrust us into a
13 condition of requiring containment entry which our basic
14 position isn't expected to occur, but if we were in that
15 situation, these entries would be made with the survey
16 techniques, the health physics procedures that we have
17 been talking about, whether we have that high range
18 monitor or not.
19 A (WITNESS MINOR) I think we would agree that
20 you would use the normal health physics techniques for
21 entering a high radiation area. Where we disagree is
22 the value to a decision process of having a meter whose
23 full scale is 10 R per hour saturated, and not knowing
24 what the actual reading is, whereas the readings we are
25 talking about in this regulation talk about -- excuse

1 me, this Regulatory Guide talk about readings up to
2 10 R per hour. Something that would allow you to be
3 on scale, let's say, is 20 R per hour instead of
4 uncertain whether it is 100 or 1,000.
5 These are the types of differences I think we
6 are disagreeing on.
7 A (WITNESS SCHMITT) We are concerned some that
8 additional area radiation monitors on top of what we
9 have already installed to cover this what-if situation
10 and to give us this minimal additional information which
11 may assist a team that is going to make an entry using
12 normal health physics practices and portable
13 instrumentation and such, that those additional
14 installed monitors are going to cost us dose during the
15 normal plant operation in order to maintain them and
16 calibrate them. So you could probably mount a pretty
17 good argument that those monitors are inconsistent with
18 ALARA.
19 A (WITNESS MINOR) I am not trying to restrict
20 your ingenuity and creativity here. It may be that you
21 would find it beneficial in some areas to actually
22 expand your post-accident sampling system capability,
23 which would not require the same type of maintenance
24 dose problems.
25 A (WITNESS SCHMITT) The post-accident sampling

1 system does airborne samples, and as Dr. Baron discussed
2 earlier, we expect good, rapid mixing and so rapid and
3 sensitive response to a breach.
4 A (WITNESS BARON) If I might add, relative to
5 the response time, using the assumptions in Chapter 15
6 of the SAR relative to design basis LOCA, because that
7 is one of the situations which we did study, that the
8 instruments that we provided for the noble gas effluent
9 monitors have a ten-decade range, from 10^{-6} through 10
10 and one-fourth microcuries per cc of mixed noble gases,
11 and in the first five minutes following the LOCA, using
12 the assumptions in Chapter 15, six of those decades are
13 already used in the following hour.
14 If we go up an additional decade, that is
15 approximately where the thing sort of flattens out and
16 continues within that level for, say, the next 50 hours
17 before starting to go into a downturn. That assumes a
18 relatively high degree of mixing, 50 percent, which is
19 the mixing model that is used, the parameter that is
20 used within the assessment, but it shows that within a
21 very short time period the noble gases are uniformly
22 dispersed throughout the building, and that it would
23 become very difficult to assert, you know, or get a
24 profile other than, say, within a factor of two which
25 may be missed by any equipment within the room.

1 So, we are really concerned about what the
2 value in terms of long-term surveillance of an area
3 monitor would provide.
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1 JUDGE BRENNER: Dr. Baron, maybe I'm the only
2 one, but I didn't understand what you meant by the fact
3 that the factor of two may be masked by any other
4 equipment in the room.
5 WITNESS BARON: Any other equipment in the
6 room would provide a shining, a shine component that may
7 mask the difference from a leaking component or leaking
8 penetration, if it's a small leak. And the leakage in
9 general that we're talking about is relatively small, a
10 small volume.
11 BY MR. EARLEY: (Resuming)
12 Q Mr. Kreps, do you agree with Mr. Minor that
13 the ATWS emergency operating procedure is an example of
14 a procedure that would require you to enter the reactor
15 building under high radiation conditions?
16 A (WITNESS KREPS) An ATWS event by itself would
17 not be resulting in any high radiation areas in the
18 building. If it had been promulgated by some other
19 event, such as a LOCA, and we got an ATWS, we're talking
20 about two very low probability events. Then the reactor
21 does not scram and the ultimate rod insertion doesn't
22 work, the manual scram buttons don't work, the tripling
23 individual breakers don't work. Then we'd be at the
24 point in the procedure where everything else has failed
25 and the procedure calls for an entry to the HCU room for

1 manual operation.

2 However, if we had a high radiation condition

3 there the operator would not do that. He would then

4 just go straight on to injection of standby liquid

5 control.

6 A (WITNESS MINOR) I find that contrary to the

7 testimony of a few weeks ago, when we went to the

8 standby liquid control within the first minute and 20

9 seconds, I believe, of the accident without bothering to

10 go to the HCU areas, as I recall. I recall he had made

11 that decision based on other parameters.

12 A (WITNESS KREPS) Well, the ATWS mitigation,

13 there's a number of steps in there, all of which are

14 done parallel, depending on what indications he has as

15 to how far in the procedure he goes.

16 A (WITNESS MINOR) That was the reason I was

17 pointing that out. It may be that if he was far enough

18 downstream in that procedure to where he had already had

19 some failed fuel, that he could have radiation in the

20 containment. And if there were leakage, he could have

21 water radiation in the second containment in the area.

22 I was just trying to point out that I did not fully

23 accept LILCO's position that there is no need to go into

24 the secondary containment during an accident. I just

25 don't buy that.

1 A (WITNESS RIGERT) I just want to point out
2 that we don't really consider an ATWS to be an accident
3 in the classical sense. It's not within the design
4 basis of the plant.
5 Also, we keep overlooking the fact that there
6 is a radiation monitoring system already in the area,
7 and if you did postulate an ATWS with rapid fuel damage,
8 which we're saying won't occur, but if it did happen
9 your monitor would go offscale and the operator -- I
10 assume he would just skip that step, and because there
11 are many contingencies and actions to be taken in the
12 procedure, he just wouldn't tell the man to go out into
13 the reactor building and try that one method.
14 But we've got to keep remembering that we do
15 have a radiation monitoring system in place.
16 MR. EARLEY: Judge, I have no further
17 questions of the combined panel. I will have further
18 questions of Mr. Minor.
19 (Board conferring.)
20 JUDGE BRENNER: All right. We would like to
21 proceed this way. We won't take a break now. We'd like
22 to take a break in about 15 minutes.
23 If the Staff and then in turn the County wish
24 to ask questions of all the witnesses combined before we
25 split them up for Mr. Earley's cross-examination of Mr.

1 Minor, this is Staff's opportunity if it wishes. You
2 will still have an opportunity for further
3 cross-examination of Mr. Minor.
4 MR. BLACK: No, I have no questions of the
5 combined panel.
6 JUDGE BRENNER: And of course, you will still
7 have the opportunity for follow-up, for redirect of Mr.
8 Minor.
9 MS. LETSCHE: No, I don't have any questions
10 for the remainder of the panel.
11 JUDGE BRENNER: I guess I could have saved the
12 explanations, since all of you seem to understand what
13 we're doing better than I do.
14 In that case, maybe we will take a break so
15 Mr. Earley can confer and take a look at his cross plan
16 in light of the ground that we have covered already.
17 And we will come back at 2:45.
18 Dr. Rossi?
19 WITNESS ROSSI: Are we to come back on the
20 panel?
21 JUDGE BRENNER: No. I should have made that
22 clear. We're going to come back with only Mr. Minor as
23 a witness, and the other witnesses can be where they
24 want to be. And you will have to negotiate that with
25 your own counsel.

1 (Witnesses Mauck, Rossi, Baron, Rigert,
2 Schmitt and Kreps excused.)
3 (Whereupon, at 2:25 p.m., the hearing was
4 recessed, to reconvene at 2:45 p.m. the same day.)
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1 (2:45 p.m.)

2 JUDGE BRENNER: All right, we're ready to

3 proceed, Mr. Earley.

4 MR. BLACK: Judge Brenner, before we proceed

5 with Mr. Earley's cross-examination, Mr. Rossi indicated

6 to me that he made a misstatement on a Board question

7 pertaining to the cost-benefit analysis of Reg Guide

8 1.97, and he insisted that he come back to the stand and

9 clear that up at this point, if the Board would grant

10 him leave to do so.

11 JUDGE BRENNER: Okay.

12 Whereupon,

13 CHARLES ROSSI

14 was recalled to the stand and, having been previously

15 duly sworn, was further examined and testified as

16 follows:

17 REDIRECT EXAMINATION ON BEHALF

18 OF THE REGULATORY STAFF

19 BY MR. BLACK:

20 Q Mr. Rossi, do you recall the question from

21 Judge Morris regarding whether Reg Guide. 1.97, Rev. 2,

22 has a cost-benefit analysis associated with it?

23 A (WITNESS ROSSI) Yes, I do.

24 Q Did you give an incorrect statement?

25 A (WITNESS ROSSI) I believe I did. Well, I

1 think I actually stated that I was unaware of any that
2 existed. There is what's called a value impact
3 statement and it's at the end of the Regulatory Guide.
4 So if you have a copy of the Regulatory Guide, it does
5 contain that.
6 It does give us some estimates on the costs
7 for implementation of the Regulatory Guide. It gives a
8 little bit less detailed information on the benefits in
9 terms of safety. And I only very quickly read through
10 it during the break, but I did want to correct my
11 previous answer and make you aware of that.
12 JUDGE MORRIS: Thank you. We appreciate
13 that.
14 (Witness Rossi excused.)
15 JUDGE BRENNER: All right, Mr. Earley, we can
16 proceed with your cross.
17 CROSS-EXAMINATION ON BEHALF OF APPLICANT
18 BY MR. EARLEY:
19 Q Mr. Minor, you are listed as the primary
20 author of this testimony and you have Mr. Hubbard listed
21 as the supporting author. Would you please describe Mr.
22 Hubbard's role in the preparation of this testimony?
23 A (WITNESS MINOR) Yes. When we originally
24 prepared this testimony, I prepared the entire first
25 draft. I went over it with Mr. Hubbard, asked him to

1 make comments on it, and based on his review and
2 comments we jointly made some revisions to it.
3 Perhaps a major revision he suggested we add
4 was the discussions of the particular Regulatory Guides
5 that apply, and that appears on page 3 and 4, plus
6 numerous other small changes throughout the testimony.
7 Q By the section on page 3 and 4, do you mean A,
8 B and C that carries over to page 4?
9 A (WITNESS MINOR) Yes, question and answer 4.
10 Q Are there any other sections in particular
11 that Mr. Hubbard had anything other than editorial
12 comments on?
13 A (WITNESS MINOR) No. I would say that this
14 section, modification of this section, was in the nature
15 of editorial comment also, question and answer 4, that
16 is.
17 Q Well, did Mr. Hubbard have anything of
18 substance to add to this testimony?
19 (Pause.)
20 MS. LETSCHE: I'm going to object to that
21 question. I don't think it's at all clear what you
22 mean, Mr. Earley, by "of substance." I think Mr. Minor
23 has stated what Mr. Hubbard's involvement was.
24 MR. EARLEY: Mr. Minor just characterized the
25 change as editorial, and I am trying to find out what

1 substantive contribution Mr. Hubbard had to the
2 preparation of this testimony.
3 JUDGE BRENNER: Well, I'm not sure how
4 productive this is going to be, Mr. Earley, given the
5 answer we have now. I'm not saying that you shouldn't
6 have begun to pursue the line, but now that we
7 understand a little better the joint preparation of the
8 testimony -- let me pursue this a little bit.
9 As I understand it, Mr. Minor, the only item
10 that you would identify as being a separable item
11 stemming from Mr. Hubbard's thought would be question
12 and answer 4, and whatever other items may have
13 initially stemmed from Mr. Hubbard's review of your
14 draft is quite intertwined with what you already have,
15 as opposed to some severable parts that you can point
16 to.
17 WITNESS MINOR: That's very correct. It's
18 difficult to recall exactly which markup items came from
19 Mr. Hubbard and which ones came from me. But it was a
20 joint editing process from the main draft.
21 For instance, we discussed what information to
22 include in the table versus what to include in the text,
23 and some of those items -- and he made comments that
24 were incorporated. But it's hard for me to recall
25 exactly which items were added as a result of his

1 discussion.

2 JUDGE BRENNER: Unless, Mr. Earley, you can

3 tell me why you think it might be productive to go

4 further in light of that answer --

5 MR. EARLEY: I don't intend to pursue it.

6 BY MR. EARLEY: (Resuming)

7 Q Mr. Minor, have you ever designed an area

8 radiation monitoring system for a nuclear power plant?

9 A (WITNESS MINOR) Yes, I have.

10 Q For what power plant was that?

11 A (WITNESS MINOR) Perhaps I need to define the

12 term "design." You might be thinking of it differently

13 than I am. At General Electric there was a process in

14 design engineering which involved the layout and

15 configuration of an area radiation monitoring system for

16 the plant. This included the basic detectors for some

17 specific functions, such as main steam line monitoring,

18 but also the general area radiation monitoring and its

19 local panel.

20 These systems were generally configured with

21 the consultation of the utility for their direct

22 application and resulted in elementary diagrams and

23 system diagrams for the area radiation monitoring. As

24 to which plants those applied to, I would have trouble

25 zeroing in on exactly which plants. It probably was

1 about half a dozen plants that were going through the
2 pipeline in the period of 19 -- oh, let's say the early
3 1970's, late 1960's.
4 Q Approximately when was the last time you were
5 involved in this design of a radiation monitoring system
6 you just described?
7 A (WITNESS MINOR) It would be somewhere in the
8 early 1970's, about 1970, maybe '72, somewhere around
9 there.
10 Q Have you been involved in the design of any
11 radiation monitoring systems since that time?
12 A (WITNESS MINOR) No. I would define that as
13 the last time.
14 Q Could you describe your role in the design of
15 that area radiation monitoring system?
16 A (WITNESS MINOR) Two different roles. Early
17 in one of my assignments as a design engineer at General
18 Electric, I was involved in the design of some area
19 radiation monitoring components. This is not the
20 detector itself, but some of the electronics associated
21 with the radiation monitor.
22 Later it was in terms of the system design
23 that I was referring to earlier, and my function there
24 was as manager of a component that was performing those
25 designs. Then subsequent to that I was responsible for

1 an organization that was doing qualification work for
2 the detectors and for the electronics associated with
3 the area of radiation monitoring.
4 Q So you are not responsible for assessing the
5 health physics area associated with the radiation
6 monitoring system?
7 A (WITNESS MINOR) That's correct.
8 Q And I take it that that system is not a Reg
9 Guide 1.97, Revision 2, system or a system that would
10 comply with Revision 2?
11 A (WITNESS MINOR) That's hard to say, because
12 there are many pieces there. And some of those
13 components were classified as safety-related components
14 and were qualified accordingly. And they I'm sure would
15 qualify for Reg Guide 1.97 under some capacity. They
16 may not have exactly the same range, but they would have
17 some of the same characteristics and qualifications.
18 In general, though, the systems were not being
19 designed to meet Reg Guide 1.97, Rev. 2, because it
20 didn't come into existence until 1980.
21 Q Have you ever been involved in the
22 installation of radiation monitoring equipment at a
23 nuclear power plant?
24 A (WITNESS MINOR) I have been involved in the
25 checkout of installation, but not directly in the

1 installation.

2 Q Have you ever operated a radiation monitoring

3 system in a nuclear power plant?

4 A (WITNESS MINOR) Yes, in connection with the

5 installation checkout I was performing checks of the

6 equipment at the reactor that was talked about.

7 Q Could you describe what you mean by an

8 installation checkout?

9 A (WITNESS MINOR) This was for the SEFOR

10 reactor in Arkansas. I went down to check out the

11 electrical and safety-related equipment, measuring

12 equipment, including area radiation monitoring. I wrote

13 the preop tests for it and actually performed some

14 installation work on some of the in-core detectors and

15 some of the cabling to make sure that it would meet the

16 requirements.

17 Q You mentioned in-core detectors. Are in-core

18 detectors part of a radiation monitoring system?

19 A (WITNESS MINOR) No. I was describing the

20 work that I was doing there, of which area radiation

21 monitor was a part.

22 Actually, I should correct that. They were

23 ex-core. They were out of core monitors. I'm sorry.

24 Q Have you ever been licensed to operate a

25 nuclear power plant?

1 A (WITNESS MINOR) No, I haven't.

2 Q Have you ever participated in a nuclear power

3 plant simulator?

4 A (WITNESS MINOR) No, I have not, although I

5 have been involved in the review of simulators when we

6 were specifying some for purchase by General Electric.

7 Q Have you ever observed a training session at a

8 nuclear power plant simulator?

9 A (WITNESS MINOR) I have observed nuclear power

10 plant simulators, but not long-term. I have observed

11 them during periods when people were training, but I was

12 not participating.

13 Q So you never would have observed the operation

14 of various systems in the simulator?

15 A (WITNESS MINOR) Only to the limited extent

16 that I just defined.

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1 Q Have you ever observed the operation of the
2 standby liquid control system or the RHR system in a
3 nuclear power plant?
4 A (WITNESS MINOR) Not actual operation. I have
5 observed the systems.
6 Q Have you ever been involved in the design or
7 installation of flow meters for systems in nuclear power
8 plants?
9 A (WITNESS MINOR) Only from the standpoint of
10 being manager of a component that created the elementary
11 diagrams for the systems which included the applications
12 of the flow meters.
13 Q What would that responsibility include with
14 respect to those flow meters, just placing them on the
15 diagrams?
16 A (WITNESS MINOR) Yes, placement on the diagram,
17 making sure they are on the parts list, and that they
18 were contained on the necessary system drawings and
19 component drawings for the plant.
20 Q Did that work involve assessing the need for
21 flow meters in various parts of a given system?
22 A (WITNESS MINOR) No, it did not. That was
23 generally a given for that type of work.
24 Q In other words, someone else would define the
25 need for a flow meter and say it was going to be placed

1 in this particular part of the system, and then you
2 would just place it on the diagrams?
3 A (WITNESS MINOR) That is generally correct, to
4 make sure that it met the necessary environmental and
5 physical characteristics for the application.
6 Q When Revision 2 of Reg. Guide 1.97 was
7 circulated for comment, did you submit comments on that
8 draft regulatory guide?
9 A (WITNESS MINOR) Actually, I did not.
10 However, I did participate in the drafting of that very
11 briefly. I was at the initial kickoff meeting in
12 California when they started the drafting of Rev. 2, and
13 I participated by correspondence in the next few
14 meetings until the first rough draft was created.
15 However, it was only by phone discussion and by
16 receiving the correspondence that I was participating.
17 I did not actually write comments on the draft.
18 Q You mentioned phone conversations. Who are
19 those phone conversations with?
20 A (WITNESS MINOR) Generally with Ed Wensinger
21 of the NRC, who is responsible for putting that draft
22 together. My early correspondence was with another
23 person from Quadrex who was also an acquaintance of
24 mine, who was involved in that drafting.
25 Q Have you been involved in the implementation

1 of Reg. Guide 1.97, Revision 2, at any nuclear power
2 plant?
3 A (WITNESS MINOR) No, I have not.
4 Q Have you conducted any item by item review of
5 Reg. Guide 1.97 to determine whether each instrument
6 individually as listed in the guide provides any
7 significant safety benefit?
8 A (WITNESS MINOR) Only the review conducted in
9 preparation for this particular testimony. And to a
10 limited extent, in the discussions that I had with the
11 drafting of the Revision 2 document.
12 Q But apart from your prefiled testimony then,
13 you have not conducted any item by item analysis of the
14 Reg. Guide?
15 A (WITNESS MINOR) That is correct.
16 Q And that would include a cost benefit analysis
17 of the Reg. Guide? You have not conducted one?
18 A (WITNESS MINOR) That is correct.
19 Q Mr. Minor, as we were discussing this morning,
20 Parts A and D of the contention involve radiation
21 exposure rate monitors or area radiation monitors. Are
22 you familiar with the radiation monitoring system that
23 is currently installed at Shoreham?
24 A (WITNESS MINOR) To the extent that I have
25 observed the area radiation monitoring panels in the

1 control room and seen the installation of a few of the
2 stations out in the plant, and read the description of
3 the FSAR, I am familiar with it.
4 Q Do you know how many monitors will be
5 installed in the secondary containment?
6 A (WITNESS MINOR) No, I don't recall the
7 number.
8 Q Do you recall the range of those radiation
9 monitors?
10 A (WITNESS MINOR) They generally vary in
11 range. And I don't recall which ones are the secondary
12 containment, but quite often they are geared to be
13 sensitive to the lower range of operation, what you
14 would call normal operation for a plant rather than
15 accident range.
16 Q The area radiation monitors referred to in the
17 Reg. Guide, one of the purposes of those monitors is to
18 detect breaches in the primary containment following an
19 accident. Isn't that correct?
20 A (WITNESS MINOR) That would be one use.
21 Probably its main use is to determine exposure rate
22 levels for personnel entering the area.
23 Q And would you agree that under accident
24 conditions there would be likely to be high radiation
25 levels in the secondary containment due to radioactivity

1 contained in systems that are located in the secondary
2 containment?
3 A (WITNESS MINOR) Certainly there are areas in
4 the secondary containment where you would expect some
5 high contamination of the coolants flowing in the
6 different piping systems. Other areas, I don't think
7 you would expect nearly as much, depending on what part
8 of the secondary containment you are in.
9 Q Would those radiation levels interfere with
10 the usefulness of area radiation monitors for detecting
11 breaches of the primary containment?
12 A (WITNESS MINOR) They could, depending on the
13 type of shielding design that is incorporated with the
14 detectors. Obviously, if you have a heavy shine from a
15 particular piping arrangement or pumping configuration,
16 you may need to either shield from that or locate the
17 sensor in an area where it does not see that direct
18 shine without some sort of intermediary concrete.
19 Q By shielding the detector, wouldn't that also
20 limit the solid angle that that particular detector
21 would be looking at?
22 A (WITNESS MINOR) Yes, it may, if it were
23 necessary to shield the substantial portion of the
24 horizon that it would normally see.
25 Q So that would mean that it would be likely in

1 order to cover a large number of penetrations you may
2 need a large number of detectors rather than just one
3 detector that covered a broad area.
4 A (WITNESS MINOR) I am not sure what you mean
5 by a large number. It may mean that you need more than
6 one, if that is your implication, or it may mean that
7 the one needs to be in a different location.
8 (Whereupon, counsel for LILCO conferred.)
9 Q Is there any way that an area radiation
10 monitor could distinguish between the background
11 radiation either coming through the primary containment
12 or from equipment in the secondary containment,
13 distinguish that from radiation due to a leakage, due to
14 a leak in the primary containment?
15 A (WITNESS MINOR) If I understood your question
16 correctly, it is distinguished from background or
17 equipment shine, background radiation or equipment
18 shine?
19 Q That is right.
20 A (WITNESS MINOR) I believe it could
21 distinguish from equipment shine if it were properly
22 shielded. As far as distinguishing from background,
23 background is probably what it would generally be
24 looking at to determine leakage.
25 Q Do you disagree with the testimony of the

1 LILCO witnesses that leakage from the primary
2 containment would be rapidly distributed throughout the
3 reactor building?
4 A (WITNESS MINOR) During the operation of the
5 ventilation system for the secondary containment in the
6 reactor building standby ventilation system for the
7 accidents, you would expect the flow of air through the
8 secondary containment to draw much of the radioactive
9 material that might leak into the secondary containment
10 not to be stuck through the absolute filters. This
11 would result in a distribution of the radioactive
12 material depending on the flow and the point of origin
13 of the leak, and I am saying that because the flow is
14 not uniform throughout the entire secondary containment,
15 nor is the leakage point likely to be uniformly
16 distributed throughout the secondary containment.
17 Q Are you aware that the RBSVS system is
18 designed to discharge only a small percentage of the
19 flow of that system?
20 A (WITNESS MINOR) I don't recall the volume
21 flow rates during accident condition.
22 Q You mentioned that the primary purpose in your
23 view of the area radiation monitoring systems listed in
24 Reg. Guide 1.97 were for the assessment of dose to
25 personnel entering the reactor building. Is that

1 correct?

2 A (WITNESS MINOR) Was this question regarding

3 Reg. Guide 1.97 equipment?

4 Q The 1.97 area radiation monitoring system.

5 You stated earlier, I believe, that you thought the

6 primary purpose of that equipment was for assessment of

7 dose to personnel entering the reactor building.

8 A (WITNESS MINOR) I think I said the purpose

9 was assessment of accident conditions and long-term

10 surveillance. That included in my mind part of the

11 input to the decision process which would involve

12 decisions to send personnel into radioactively

13 contaminated areas and would provide them data to help

14 make that decision.

15 JUDGE MORRIS: Excuse me, Mr. Earley. I am

16 not sure you got the answer you originally sought on

17 what was uppermost in your mind as to the purpose of

18 this instrumentation.

19 WITNESS MINOR: Assessment of the accident and

20 long-term surveillance were the hierarchy I was trying

21 to establish. I believe Mr. Earley was interpreting

22 that to mean assessment of dose for personnel to go into

23 the containment, and I was not saying that was

24 necessarily the highest priority. Assessment of the

25 accident development and mitigation in my mind is the

1 higher priority, and the decision process that comes
2 down through the mitigation path may involve that data
3 in determining whether to send personnel into any area
4 for maintenance or whatever may be required to help
5 mitigate the accident.
6 JUDGE MORRIS: You do list assessment as
7 first. Is that correct?
8 WITNESS MINOR: That is a difficult judgment.
9 Assessment and long-term surveillance are sort of a
10 toss-up, but I would say assessment is probably one of
11 the primary.
12 JUDGE MORRIS: What do you believe is involved
13 in that assessment? Let me call it initial assessment.
14 WITNESS MINOR: I believe the initial
15 assessment is both the detection of radioactivity in the
16 secondary containment and an attempt to discover the
17 source of that in terms of possible mitigative action
18 that may be taken, and also to determine the magnitude
19 of it.
20 JUDGE MORRIS: And did you believe that last
21 answer is totally consistent with the requirements -- I
22 won't call them requirements -- guidance of Reg. Guide
23 1.97, Rev. 2?
24 WITNESS MINOR: As far as assessment?
25 JUDGE MORRIS: Yes.

1 WITNESS MINOR: I would be glad to look at
2 their words a little more, but I think it is generally
3 consistent. If you say absolutely consistent, I am not
4 sure.
5 JUDGE MORRIS: I said wholly, I believe.
6 WITNESS MINOR: I think it is generally
7 consistent.
8 JUDGE MORRIS: The reason I am dwelling on
9 this is because I think I had rather the same impression
10 that Mr. Earley did that you were not distinguishing
11 between detection and long-term assessment for
12 mitigation purposes. As I go down the list, both for
13 primary and secondary containment, I find that the
14 purpose listed for each item is detection for actual or
15 potential breach, whereas I don't find long-term
16 surveillance or mitigation listed for each item. To me,
17 that suggests a priority in the minds of those who wrote
18 this revision of 1.97.
19 I was wondering if you had that same
20 interpretation or a different one.
21 WITNESS MINOR: Well, if you look at Item E-3,
22 for instance, it says the purpose is "detection of
23 significant releases; release assessment; long-term
24 surveillance." That is sort of the type of assessment I
25 am making. Under the variable they are talking about

1 there, it says, "inside building or areas where access
2 is required to service equipment important to safety."
3 That is where I believe the decision process would come
4 in in whether or not to send people in there as part of
5 the assessment process for the accident. That is
6 basically consistent with my assessment of their
7 assessment.
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1 JUDGE MORRIS: I agree in that particular
2 single instance, but my point was if you look at all of
3 the items that are listed, every one of them says
4 detection first, and many of them don't mention the
5 other items at all, which suggests to me that detection
6 would be the number one priority in the minds of those
7 who wrote this.
8 WITNESS MINOR: Well, some of the discussion
9 that went with the writing of this geared around the
10 idea that you were going to have to make decisions on
11 mitigation, and that at TMI, they were hampered by
12 inadequately ranged and located equipment to make those
13 decisions, to even know what condition they had inside
14 the containment.
15 I believe that is why these items,
16 particularly the ones we are talking about with this
17 contention which include (e)(3) and -- well, 11 has been
18 deleted for other reasons. But (c)(13) is another one.
19 (c)(13) seems to focus on indication of breach, or
20 (c)(14), pardon me, indication of breach, but (e)(3)
21 seems to have a somewhat different focus indicating also
22 service and maintenance.
23 I don't believe it is totally -- particularly
24 for the ones we are talking about with this contention,
25 I don't believe it is clearly that all of them are

1 focused only on detection.

2 JUDGE MORRIS: I didn't mean to imply I

3 thought they did. I just mentioned that they all do put

4 detection first. Whereas, the others do not come first

5 and are not mentioned for some of the parameters to be

6 measured.

7 WITNESS MINOR: I understand the distinction.

8 JUDGE MORRIS: Okay. I think the guide speaks

9 for itself, but I wanted to get your views on that.

10 BY MR. EARLEY (Resuming):

11 Q Mr. Minor, you would agree, wouldn't you, that

12 Shoreham does have the capability to detect leaks from

13 the primary to the secondary containment?

14 A (WITNESS MINOR) Yes, I believe they do.

15 Q And would you also agree that Shoreham has the

16 capability to assess releases but not necessarily to

17 locate, precisely locate the release?

18 A (WITNESS MINOR) Yes. As I indicated earlier,

19 there is a gross capability of detection, but there is

20 very limited capability of isolation or localizing the

21 point of leakage. I believe that was testified to

22 earlier during the group process.

23 Q You have referred a number of times in your

24 testimony that this information would be helpful in

25 making decisions on mitigation. Could you explain what

1 you mean by decisions on mitigation?

2 A (WITNESS MINOR) First of all, I am taking the

3 position that the reg guide, as it says, is designed for

4 the post-accident, if you will, the accident assessment

5 and mitigation, and that an accident having occurred

6 would require decisions by operating personnel as to

7 what steps they would take to mitigate the accident.

8 Depending on the circumstance of the accident,

9 that may involve personnel being asked to go into the

10 secondary containment for one function or another. In

11 which case, it would be necessary and important to have

12 data on both the situation and the magnitude of a

13 problem they may encounter, as far as radiation levels

14 and leakages that may be occurring in the secondary

15 containment. That would include also the source of the

16 leakage if it were available.

17 Q And it is your position that these area

18 radiation monitors would give you a better idea before

19 you entered the containment what radiation levels you

20 could expect?

21 A (WITNESS MINOR) Yes, I believe they could both

22 help you locate the leakage and determine more

23 accurately the levels and ranges that had occurred or

24 are still existent in the containment when the decision

25 is trying to be made.

1 Q And as a result of that, you would reduce the
2 exposure to the personnel who were making that entry,
3 correct?
4 A (WITNESS MINOR) I discussed this to some
5 extent earlier, that an area radiation monitor designed
6 for normal operating range that would be saturated would
7 not provide you necessarily the adequate data to decide
8 if it were possible for a man to go in there. It may
9 necessitate people to go in and make a survey to find
10 out, if it were possible, in which case you may incur a
11 dose in people going in to survey that would be
12 unnecessary if proper instrumentation were available to
13 make that assessment for you.
14 Q So in other words, your view is that this --
15 the benefit of this system would be to reduce the dose
16 to the operating personnel following an accident.
17 A (WITNESS MINOR) That would be one of the
18 benefits. The other would be to be available to provide
19 additional information in the mitigation assessment,
20 whatever that may be.
21 Q That is precisely my problem. I am not sure
22 what mitigation assessment means, and we have been
23 trying to get at that.
24 A (WITNESS MINOR) I think our problem is that we
25 would have to define an accident and talk about a lot of

1 conditions in order to set up a premise for what
2 decisions would be required. I tried to state that in
3 general as concisely as I could, that it could require
4 access to the secondary containment to perform some
5 functions, and as yet, I don't believe we can nail that
6 down exactly which one.
7 I gave the example earlier of an ATWS event
8 that proceeded to fuel rupture. There, I am sure are
9 other functions which could be required inside a
10 containment, but it would depend entirely on the type of
11 accident you were dealing with.
12 I think it suffices to say there is a great
13 deal of important safety equipment not in that secondary
14 containment. A lot of it is supposedly self-operating,
15 and a lot of it has also manual operation associated
16 with it. In the long-term mitigation of an accident,
17 you may either need to maintain the automatic function
18 or operate the manual function. That is a possibility
19 that has to be considered, and if you have the proper
20 data to help make that assessment you would have an
21 easier time of making the decision when you came to that
22 point.
23 Q I take it, though, you would not disagree that
24 having an area radiation monitoring system of the type
25 described in Reg Guide 1.97 would, during the normal

1 operation of the plant, require some maintenance and
2 cause some radiation dose to the operating personnel
3 servicing that equipment?
4 A (WITNESS MINOR) Yes. Again, we are talking
5 some, and that is an undefined term. But there would be
6 some associated with that.
7 Q Have you done any study of the relative
8 exposure that you might expect during the life of the
9 plant servicing this equipment to the exposure that you
10 might save in getting a preliminary idea before you made
11 an entry into the building following an accident?
12 A (WITNESS MINOR) No, I have not.
13 Q And again, this may be covering an area that
14 we went over when the whole panel was up there, but I
15 believe you stated that this area radiation monitoring
16 system would not obviate the need for portable radiation
17 monitoring equipment and radiation surveys when you made
18 an entry into the reactor building.
19 A (WITNESS MINOR) I believe I stated that
20 earlier.
21 Q Earlier today, the LILCO witnesses testified
22 that the mitigation action that they would take if they
23 detected a leak from the primary to the secondary
24 containment would be to reduce the primary containment
25 pressure. Do you agree with that?

1 A (WITNESS MINOR) I agree that that is one
2 possible mitigating action, to try to reduce the
3 pressure differential so that the leakage would be
4 reduced. Whether that is the one that they would choose
5 in every accident condition I can't agree to because I
6 don't know what other conditions would prevail.
7 Q But in your view, are there other mitigating
8 actions you can take to reduce leakage from the primary
9 to the secondary containment?
10 A (WITNESS MINOR) It is conceivable to me that
11 there could be leakages which would occur due to
12 improper isolation, which could be mitigated by either
13 exercising valves or in some way taking manual action to
14 be sure that valves were closed.
15 Q Well, would the area radiation monitoring
16 system give you any information with respect to what
17 mitigating action you would take to reduce the leakage
18 from the primary to the secondary containment?
19 A (WITNESS MINOR) If it were able to help you
20 locate a leak to a particular area, you may be able to
21 decide that that is the possible source of the leakage,
22 yes.
23 (Counsel for applicant conferring.)
24 Q Mr. Minor, are you suggesting that the area
25 radiation monitoring system should be designed so that

1 it could be used to detect leaks in systems in addition
2 to leaks in the primary containment?
3 A (WITNESS MINOR) This gets into the question of
4 the proliferation of detection. I am not advocating
5 that proliferation. I am instead saying there are areas
6 which are more prone to leakage than others, and that it
7 would be prudent in my mind to be sure that those areas
8 are covered. And this does not mean that every system
9 has to have that type of detection for a potential leak.
10 (Counsel for applicant conferring.)
11 Q You have indicated throughout the testimony
12 that you do have a concern about reducing the dose to
13 personnel who might have to enter the reactor building
14 for this mitigation assessment. But is there any impact
15 on the public health and safety, in your view, by not
16 having this radiation monitoring system installed?
17 A (WITNESS MINOR) I believe the only premise if
18 LILCO decided to take any action to mitigate the
19 accident would be for the protection of the public
20 health and safety, or possibly the protection of their
21 plant investment. But I believe that would be one of
22 the foremost reasons in their mind.
23 JUDGE BRENNER: I guess I didn't understand
24 that as a response to the question.
25 WITNESS MINOR: He asked me if I thought there

1 was any consideration of health and safety as a result
2 of installing these monitors, and I believe that LILCO
3 would be making accident mitigation decisions with the
4 public health and safety in mind. Therefore, if these
5 detectors help them in making those decisions, yes, they
6 would have a health and safety impact.
7 JUDGE BRENNER: Okay. I think I understand
8 what you meant a little better, and I will let Mr.
9 Earley decide whether he thinks it responds to the
10 question.
11 BY MR. EARLEY (Resuming):
12 Q But isn't it true that personnel entry into
13 the reactor building for whatever mitigation purposes
14 that might be needed could be done with or without that
15 area radiation monitoring system?
16 A (WITNESS MINOR) That is true. The presence of
17 the area radiation monitoring does not allow or inhibit
18 entry that is going to be made on the basis of a large
19 amount of data, including expected exposure rates. That
20 is one of the values that would be provided by this type
21 of instrumentation.
22 (Counsel for applicant conferring.)
23 Q Turning now to the RHR and drywell spray flow
24 and suppression chamber spray flow meters that are
25 discussed in part (g) of the contention, do you know how

many flow meters would have to be installed to meet Reg Guide 1.97, Revision 2?

A (WITNESS MINOR) As I read it, there would probably be four; one for each of the spray headers for the containment spray, and one for each of the suppression pool discharge sprays.

Q And would you anticipate that those spray flow meters would be installed on the control panels in the control room?

A (WITNESS MINOR) They would have to be accessible to the operator, and that would be a logical place to put them. Where LILCO would put them is up to LILCO, as long as they were accessible.

1 Q So that would require a modification to the
2 existing control panels?
3 A (WITNESS MINOR) It may.
4 Q And wouldn't it also require a consideration
5 of various human factors, considerations to determine
6 the appropriate locations so that it may require the
7 movement of other pieces of instrumentation that are
8 already installed?
9 A (WITNESS MINOR) That's conceivable.
10 Q Mr. Minor, do you know if the RHR system is a
11 safety related system?
12 A (WITNESS MINOR) The LPCI mode is certainly
13 safety related, and the vast majority of the components
14 are. I don't recall if every one of them is. I would
15 say generally yes, it is safety related.
16 Q Would installation of a flow meter require
17 cutting into that system to install a flow meter?
18 A (WITNESS MINOR) Yes, in some way you would
19 have to get access to one of the pipes or have some sort
20 of a flow measuring capability which may be a DP cell or
21 something, whatever you could use to get access to a
22 flow measurement. It may require the addition of an
23 orifice.
24 Q And you would agree, wouldn't you, that the
25 only purpose of using the containment sprays, either dry

1 well or suppression pool, would be to control the
2 pressure and or temperature within the containment?
3 A (WITNESS MINOR) No, I believe there is also
4 the secondary purpose of flushing iodines out of a
5 containment atmosphere, but it would also be useful in
6 reducing pressure and temperature.
7 Q And you would agree that the operator does
8 have indication of containment pressure and temperature
9 in the control room?
10 A (WITNESS MINOR) Yes, he does.
11 (Pause.)
12 Q Mr. Minor, do you know of any other BWR's that
13 are in operation or under construction that have
14 installed an area radiation monitoring system that
15 complies with Reg. Guide 1.97, Revision 2?
16 A (WITNESS MINOR) No, I don't know of any, and
17 it would be difficult to assess if any were installed
18 that did comply, because the NRC has stated that they
19 have not reviewed any, so even if the applicant thought
20 they would, the NRC might think they didn't, but I don't
21 know of any that have fully installed a 1.97 system at
22 this point and attempted to have it assessed.
23 Q Do you know of any BWR that has installed flow
24 meters in the containment spray lines?
25 A (WITNESS MINOR) No, I have not attempted to

1 survey BWR's to determine which do or do not have flow
2 meters in the spray lines.
3 Q And would your answer be the same for the
4 standby liquid control system?
5 A (WITNESS MINOR) If you limit it to operating
6 plants, that is correct, but as I have stated earlier,
7 there are BWR 6 plants that have been proposed with the
8 flow meter in the standby liquid control line.
9 Q So there are operating plants that do not have
10 a standby liquid control system flow meter installed?
11 A (WITNESS MINOR) Yes, I believe Reg. Guide
12 1.97 was attempting to draw attention to what were
13 perceived to be gaps in the instrumentation system for
14 post-accident monitoring. That was perceived to be one
15 of the gaps.
16 Q Well, do you think that that absence of a flow
17 meter in those operating plants presents an undue risk
18 to the public health and safety?
19 A (WITNESS MINOR) Undue is your term. It
20 implies a cost benefit analysis. Undue compared to
21 what? My feeling is that the cost of a flow meter is
22 not that expensive. The impact on the control room is
23 not that extensive, and the value is worthwhile, so I
24 say it should be done.
25 (Whereupon, counsel for LILCO conferred.)

1 Q So, in other words, you are saying that you
2 have to look at the benefits to be gained and balance
3 them against the possible adverse consequences and costs
4 of installing this equipment. Is that correct?
5 A (WITNESS MINOR) Yes. I am agreeing that if
6 you are going to assess whether undue health and safety
7 impact results from a decision that you would have to
8 assess the benefits and costs with and without it to
9 determine that.
10 Q And would you agree that that same sort of
11 assessment would be appropriate for the other items we
12 have discussed as part of this contention?
13 A (WITNESS MINOR) I believe that would be a
14 reasonable part of the decision process.
15 MR. EARLEY: That is all the questions I have,
16 Judge.
17 JUDGE BRENNER: Staff?
18 CROSS EXAMINATION BY STAFF
19 BY MR. BLACK:
20 Q Mr. Minor, you indicated that there were some
21 BWR 6 applications under review or design that had flow
22 meters in the standby liquid control system. Could you
23 identify those BWR 6's or stations?
24 A (WITNESS MINOR) The unit I was referring to
25 is one that I had reviewed to some extent, and that was

1 the Black Fox plant. It has since been cancelled, not
2 because of the presence of the flow meter, but for other
3 reasons.
4 Q Was Black Fox the only one that had that in
5 its design?
6 A (WITNESS MINOR) It's the only one I reviewed
7 in detail and was familiar with the existence of such a
8 flow meter.
9 MR. BLACK: That is all the questions I had.
10 EXAMINATION BY THE BOARD
11 BY JUDGE MORRIS:
12 Q Mr. Minor, would you please turn to Page
13 1.97-10 of Reg. Guide 1.97?
14 A (WITNESS MINOR) Yes, sir.
15 Q In the lefthand column on the last paragraph
16 which starts "Radiation exposure rate," and then in
17 parentheses it says "inside buildings or areas, for
18 example, auxiliary building, fuel handling building,
19 secondary containment, which are in direct contact with
20 primary containment, where penetrations and hatches are
21 located." What in your view is indicated in terms of
22 what is needed to satisfy this, one instrument in each
23 of those spaces, or more than one, and if more than one,
24 is there any particular location that they should strive
25 to achieve? Is there any more guidance on that subject

1 that you are aware of than what exists barely in this
2 paragraph?
3 Q (WITNESS MINOR) I'll give you my personal
4 view of it, and that is that this item under Type C
5 variables where they are attempting to detect a breach
6 of the different barriers is focused on those areas in
7 contact with the containment where there may be points
8 vulnerable to breach, such as they mentioned here,
9 hatches and penetrations, and my personal assessment is
10 that it would be prudent to locate monitors in the areas
11 of those major components which are potential for
12 leakage, and by that I am trying to distinguish from the
13 proliferation question that was introduced earlier. You
14 have to have multitudes of detectors. I don't believe
15 that is necessary, but I believe there would be a
16 benefit for locating some detectors in the areas of the
17 points primary vulnerable to leakage, and I am including
18 in that hatches and certainly electrical penetrations.
19 Q Now, if I go back and read the words again --
20 I am sorry if I haggle over words. Sometimes I have
21 trouble understanding them. It says, "inside buildings
22 or areas." Then it says, "for example," and it lists
23 buildings and areas, and those buildings are areas which
24 are in direct contact with primary containment where
25 penetrations and hatches are located. It doesn't tell

1 me that the monitoring is to be of those hatches or
2 penetrations. Do you read this differently?
3 A (WITNESS MINOR) Well, buildings or areas
4 where penetrations or hatches are located, if you are
5 going to be inside that, you are going to be inside the
6 secondary containment. I don't read that to be the
7 noble gas monitor on the reactor building standby
8 ventilation system, which is somewhere up the stack. I
9 read it to be in the building area where those
10 components are located.
11 Q I agree wth you on that, but I am just
12 wondering if there is any finer parsing that you would
13 infer from this other than monitoring of a building or
14 an area which has hatches or penetrations.
15 A (WITNESS MINOR) Well, I am making a finer
16 distinction, in that it would be most useful to locate
17 those detectors in the vicinity of the areas most
18 vulnerable to leakage.
19 Q But that is your interpretation?
20 A (WITNESS MINOR) That's correct. Those are
21 not in the exact words of the Reg. Guide.
22 Q I don't want to imply that I would disagree
23 with you that that would be prudent, but I just wanted
24 to have it clear what your interpretation was. Thank
25 you.

1 JUDGE BRENNER: Redirect by the county?

2 REDIRECT EXAMINATION BY THE COUNTY

3 BY MS. LETSCHE:

4 Q I just have one question, Mr. Minor. Mr.

5 Earley asked you a few minutes ago if Reg. Guide 1.97

6 radiation monitors would provide a benefit to the public

7 health and safety, and you answered that LILCO's

8 decisions concerning accident mitigation would affect

9 the public health and safety. Are there any other ways

10 that LILCO's decision with respect to accident

11 mitigation -- are there any specific ways that LILCO's

12 decision might affect public health and safety?

13 A (WITNESS MINOR) My reasoning here is that

14 decision to mitigate an accident is going to be heavily

15 swayed by the potential public health and safety impact

16 if the accident is not mitigated, so if every decision

17 made in this process during the development or progress

18 of an accident is going to have a heavy public safety

19 impact if not properly mitigated, and strictly from that

20 point of view, this equipment has safety impact in my

21 mind. Indirectly, you could say that there is a benefit

22 potentially to worker exposure and other areas, but

23 workers are not classed as public in this term. That is

24 a slightly different area.

25 Q Well, are you saying that by making a decision

1 to take some mitigation accident more rapidly or at some
2 point in time because of information provided by these
3 radiation monitors might result in reducing off-site
4 releases or post-accident doses to the general public?
5 A (WITNESS MINOR) Definitely. The very term
6 "mitigation" means you are going to reduce the accident
7 either in its potential impact or in its direct impact
8 if it is already beginning to have an impact on the
9 public. This mitigation would be most effective if
10 completed as early as possible. The earliest possible
11 information that would allow them to make that decision
12 would certainly go to reduce the potential public health
13 and safety impact.
14 MS. LETSCHE: That is all I have, Judge
15 Brenner.
16 JUDGE BRENNER: Mr. Earley, do you have
17 anything further based on the last rounds?
18 MR. EARLEY: Yes, I do.
19 RECROSS EXAMINATION BY LILCO
20 BY MR. EARLEY:
21 Q In the last series of questions you were just
22 asked, Mr. Minor, we were discussing the mitigation of
23 various accidents, and we get back to whether the
24 absence of the area radiation monitoring system
25 discussed in Reg. Guide 1.97 would preclude LILCO from

1 taking any mitigation actions that it might deem
2 appropriate.
3 A (WITNESS MINOR) I can't say absolutely that
4 it would preclude. It may delay that action, and that
5 in itself may have a health and safety impact, and that
6 is what I was just discussing a minute ago. For
7 instance, we talked earlier about the idea of area
8 radiation monitors being saturated at, let's say, for
9 example, 10 R per hour. You don't know whether it is 20
10 R or 1,000 R. You don't know what the reading is. You
11 may delay a decision until you make that assessment
12 through some indirect means rather than have the exact
13 indication available to you to show you what it is.
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1 Q Well, isn't it true that LILCO would have both
2 a direct means and the post-accident sampling system to
3 determine the radiation levels due to airborne
4 contamination?
5 A (WITNESS MINOR) In a few areas, that is true.
6 Q So you disagree with LILCO witnesses who said
7 that the reactor building standby ventilation system
8 would bring the reactor building to an equilibrium so
9 far as radioactivity concentration very quickly?
10 A (WITNESS MINOR) I believe they are going to
11 have a gradation across parts of the reactor building in
12 the secondary containment during an accident, and it
13 would not all be uniform at one level of radioactivity.
14 (Counsel for LILCO conferring.)
15 Q Are you suggesting in saying that you might
16 take mitigation action more quickly with this area
17 radiation monitoring system, that you would not take the
18 same health physics precautions and radiation survey
19 precautions that you might -- that you would take now
20 without such a system?
21 A (WITNESS MINOR) No.
22 Q So in other words, you would take essentially
23 the same steps with or without the system to enter the
24 reactor building; you just might have a little advance
25 information on what to expect when you went in there?

1 A (WITNESS MINOR) I believe I have testified at
2 least twice before today that I am not saying that the
3 proper health physics steps would be eliminated or would
4 not be in LILCO's mind when they did enter the
5 containment. I am saying that this may help you make
6 the decisions earlier.
7 MR. EARLEY: No further questions.
8 JUDGE BRENNER: Mr. Black, anything further?
9 MR. BLACK: No questions.
10 JUDGE BRENNER: Ms. Letsche, do you have
11 anything on that last question?
12 MS. LETSCHE: No, Your Honor.
13 BOARD EXAMINATION -- Further
14 BY JUDGE CHARNOFF:
15 Q Mr. Minor, you were just testifying with
16 respect to the possibility of the radiation monitor
17 allowing mitigating actions. I did not hear
18 identification of specifically what you had in mind. I
19 agree with you that many, many accidents, et cetera, et
20 cetera, but could you give me just one, for example, of
21 a mitigating accident that would depend on the presence
22 of the area radiation monitor?
23 A (WITNESS MINOR) I tried to enumerate two
24 earlier. One was the ATWS event of going to the HCUs if
25 you had a need to and needed to be able to assess the

1 radiation levels in that area.

2 The other that I talked about was the

3 incomplete or inadequate isolation which may involve

4 some mechanical steps of going into the containment to

5 complete that isolation and secure the leak.

6 JUDGE CARPENTER: Thank you.

7 (Board conferring.)

8 JUDGE BRENNER: All right. We have nothing

9 further. I guess that is it. Mr. Minor, thank you

10 again for your time and assistance on the stand. And I

11 do want to thank all of the other witnesses for LILCO

12 and the staff on this contention. You are excused now,

13 Mr. Minor.

14 (Witness Minor was excused.)

15 We would propose to recess for the day now, so

16 that we can discuss the matters that we have to discuss

17 as a Board, unless there are some miscellaneous matters

18 that should be brought to our attention before we

19 adjourn.

20 MS. LETSCHE: Judge Brenner, I have just one

21 that I probably should have brought up this morning when

22 we were talking about scheduling things. That is that

23 the county would like an opportunity to respond to the

24 objections filed by LILCO and by the staff. I think we

25 received the staff's today. Their objections to the

1 revised emergency planning contentions.

2 And we would propose to file that response on

3 Tuesday when we are filing our response to the motion to

4 compel.

5 JUDGE BRENNER: We are working on them now.

6 We were not going to invite a general response. We had

7 one or two that we were going to probably invite the

8 county to respond to, and we were going to make that

9 known shortly, probably tomorrow. We have had a lot of

10 pleadings on those contentions back and forth. We have

11 spent a lot of our time, as well as the parties' time,

12 in an all-day session and we weren't anticipating a

13 further general response.

14 There are one or two that are arguably newly

15 focused points, but not many. I can tell you one.

16 There is the iodine contention that should be readily

17 susceptible to agreement, since this stems out of a

18 settlement agreement. And we were going to ask the

19 parties to discuss that and come back to us very

20 quickly. I mean this week, with an agreed upon wording

21 of that contention.

22 Maybe the parties have already tried and

23 failed to agree, but there is no indication in the

24 papers on that one, and we would hope they can agree.

25 We took a quick look at the staff's response over the

1 lunch break, and in discussing that one the staff does
2 not allude to the fact that it stems out of that
3 settlement agreement.
4 We can decide it on what is before us, but we
5 thought the parties should have a further opportunity as
6 the original architects of the agreement. So we would
7 like to hear from the parties on that this week. We
8 want to get an order out as soon as we can. I am not
9 saying when, but we don't want to wait until next week
10 to start factoring in a new filing.
11 MS. LETSCHE: Well, in that case, when we file
12 it, could we file something first thing Friday morning?
13 MR. REVELEY: Judge, may I be heard on that?
14 The county, of course, has no procedural right to such a
15 filing, and if they want such a filing it is quite
16 possible that LILCO, upon reading it, will wish to reply
17 to the reply.
18 There have been innumerable emergency planning
19 filings on these particular contentions. We don't think
20 there need to be anymore, but if there are going to be
21 more, we may well wish to join in the procession.
22 MR. BLACK: Judge Brenner, I would like to put
23 my two cents' worth in, too. I agree with LILCO that
24 there is no procedural avenue with which the county can
25 do this.

1 I would also point out that we have been back
2 and forth on these contentions at least three times now,
3 and the county knows, or should have known, what staff
4 and LILCO positions would be with respect to most of
5 those contentions.
6 Furthermore, they were given opportunity to
7 sit down with staff and county to further particularize
8 these contentions during this -- just before this most
9 recent filing. And that opportunity was not availed of,
10 so I don't think that they should get the fourth bite of
11 the apple here in response.
12 MS. LETSCHE: Judge Brenner, let me make one
13 comment. I am not sure that it is a fourth bite at the
14 apple. The county went through and did some
15 considerable revision with respect to this filing that
16 we made on the 20th at the Board's direction. They put
17 a lot of time and effort into that.
18 We just received the objections of the other
19 parties, and as the Board suggested, it might be
20 possible that we can work out some of the objections
21 that the parties have between now and whenever we have
22 an opportunity to file something.
23 I think it also might be fruitful, however, to
24 hear the county's response. I don't anticipate that it
25 would be lengthy, because some of the positions are

1 probably fairly predictable positions that the other
2 parties took. With respect to those that the county did
3 do some substantial work in reparticularizing, however,
4 I think it might be fruitful for the Board to have the
5 county's position with respect to the objections that
6 have been made by the other parties.
7 JUDGE BRENNER: We will let you know tomorrow
8 morning, and if we are going to get a response, it is
9 going to be Friday, not Tuesday. Friday morning.
10 MS. LETSCHE: We will try to get it up here
11 Friday morning.
12 JUDGE BRENNER: We will let you know tomorrow
13 morning whether we are going to permit it. You
14 paraphrased what I said I think more broadly than I said
15 it. I have given you one example where we would like to
16 hear back from the county and the staff and LILCO
17 together. That is the iodine contention.
18 Tomorrow morning we may or may not have other
19 particular examples. We may allow you the general
20 response. We have gone through a lot of effort to give
21 the county a lot of opportunities on those contentions,
22 and how extensive the changes are is a matter for
23 debate, which we are going to be considering. We will
24 come back to you on it.
25 MR. REVELEY: Judge, may I note one thing on

1 MARK II? I am about to hand out to the parties and to
2 the Board two documents that may or may not prove
3 relevant to the litigation of the MARK II contentions.
4 One is material that everyone already has; it is Item 1
5 of the company's June 28th response to the Board's
6 request for information. That item we think has MARK II
7 implications, and we are providing it in response to our
8 obligation to indicate when those items are, in fact,
9 relevant to contentions.
10 The second item is a document that we finished
11 this afternoon entitled "LILCO's Preliminary Response to
12 Humphrey Concerns." I will be saying more about both
13 tomorrow, or whenever MARK II comes on.
14 JUDGE BRENNER: All right. In addition, at
15 the beginning of the litigation of MARK II, which will
16 be tomorrow, we want the report from the parties that we
17 required on all contentions as to what discussion took
18 place with respect to narrowing the focus of the
19 concerns, and the success and lack of success, and where
20 the issue now stands.
21 MR. REVELEY: We will do that.
22 JUDGE BRENNER: Is there anything else to be
23 discussed today?
24 MR. BLACK: With respect to the MARK II
25 contention which will be coming on tomorrow, I do have

1 available the staff's SER inputs in case the Board would
2 like that tonight. I can hand those out at this time or
3 tomorrow morning.
4 JUDGE BRENNER: All right, we will take them
5 today as soon as we adjourn.
6 (Board conferring.)
7 All right, we will recess for the day and come
8 back at 9:00 tomorrow morning.
9 (Whereupon, at 4:10 p.m., the hearing in the
10 above-entitled matter was recessed, to reconvene at 9:00
11 a.m. the following day, Thursday, August 26, 1982.)
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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

ATOMIC SAFETY AND LICENSING BOARD

In the matter of: LONG ISLAND LIGHTING COMPANY (Shoreham Nuclear Power Station)

Date of Proceeding: August 25, 1982

Docket Number: 50-322-OL

Place of Proceeding: Hauppauge, New York

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Susan A. Harris

Official Reporter (Typed)

Susan A Harris

(SIGNATURE OF REPORTER)