

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

4 -----:

5 IN THE MATTER OF: : Docket Nos.
6 CONSOLIDATED EDISON COMPANY OF : 50-247 SP
7 NEW YORK (Indian Point Unit 2) :
8 POWER AUTHORITY OF THE STATE OF : 50-286 SP
9. NEW YORK) Indian Point Unit 3) :

10 -----:

11 Westchester County Courthouse
12 111 Grove Street
13 White Plains, N.Y.

14 Thursday, April 7, 1983

15 The hearing in the above-entitled
16 matter convened, pursuant to notice, at 9:15 a.m.

17 BEFORE:

18 JAMES GLEASON, Chairman
19 Administrative Judge

TROI

ADD:
J. Whetstone EW-439
J. ARON H-1009

21 OSCAR H. PARIS
22 Administrative Judge

Return Orig w/ fasteners

24 FREDERICK J. SHON
25 Administrative Judge

1 A P P E A R A N C E S:

2 On Behalf of Licensee, Consolidated Edison Company
3 of New York

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5 Assistant General Counsel

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10 On Behalf of Licensee, The Power Authority of the
11 State of New York

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1 On Behalf of the Nuclear Regulatory Commission
2 Staff

3 JANICE MOORE, ESQ.
4
5

6 On Behalf of the Intervenors
7
8

9 Rockland Citizens For Safe Energy
10

11 JUDITH KESSLER

12 ZIPPORAH S. FLEISHER

13 ALSO PRESENT:

14 MR. BLUM
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C O N T E N T S

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2			
3	WITNESSES	DIRECT CROSS REDIRECT RECROSS BOARD	
4	(Bley, Perla, Wesley)		
5	COLARULLI	12987	
6	BLUM	12994	
7	COLARULLI	13065	
8			
9	Min L. Lee		
10	BRANDENBURG	13083	
11			
12	Meyer		
13	COLARULLI	13089	
14			
15	Schmer		
16	FLEISHER	13099	
17			
18			
19		EXHIBITS	
20	NUMBER	RECEIVED	
21	P.A. 47	Letter	13064
22			
23			
24			
25			

1 JUDGE GLEASON: All right. If we can
2 proceed, please.

3 The Licensees have a responsibility
4 for witnesses today. How do you want to proceed?

5 MR. COLARULLI: Your Honor, we call,
6 the Power Authority and Con Edison call to the
7 stand Dr. Dennis C. Bley, Mr. Harold Perla and
8 Dr. Don Wesley.

9 JUDGE GLEASON: All right. Messers.
10 Perla and Wesley, you have not been sworn in, have
11 you?

12 MR. PERLA: I have been.

13 MR. COLARULLI: Mr. Perla has been
14 sworn in but not Dr. Wesley.
15 Whereupon,

16 DR. DONALD WESLEY
17 was sworn in by the Administrative Law Judge and
18 testified as follows:

19 DIRECT EXAMINATION

20 BY MR. COLARULLI:

21 Q. Could you please state your full name
22 and business address.

23 A. (Witness Bley) Dennis C. Bley,
24 Pickard, Lowe And Garrick, Irvine, California

25 A. (Witness Perla) Harold F. Perla,

1 Pickard, Lowe And Garrick, Irvine, California.

2 A. (Witness Wesley) Donald A. Wesley,
3 Structure Mechanics Associates, Newport Beach,
4 California.

5 Q. Would each of you please state your
6 current position.

7 A. (Witness Bley) I'm a consultant with
8 Pickard, Lowe And Garrick.

9 A. (Witness Perla) I'm an associate
10 consultant with Pickard, Lowe And Garrick.

11 A. (Witness Daum) I'm vice-president of
12 Structural Mechanics Associates.

13 Q. Dr. Wesley, do you have in front of
14 you a two-page letter dated December 30, 1982,
15 from you to Mr. H. F. Perla with a five-page
16 attachment and a three-page resume?

17 A. (Witness Daum) Yes, I do.

18 Q. Was this letter and the attached
19 tables prepared either by you or under your direct
20 supervision?

21 A. (Witness Daum) It was prepared under
22 my supervision.

23 Q. Do you have any changes or
24 corrections to this letter and the tables?

25 A. (Witness Daum) There are two changes

1 that I might mention.

2 On page 2 of the letter in the second
3 paragraph, I believe, about the third sentence, it
4 says "The back fill at the wall drops off rapidly
5 to the local plant grade elevation of 17 foot six
6 inches over approximately 90 percent of arc."
7 That's a typographical error, and it should
8 read "90 degrees of arc."

9 Further correction in Table b, the
10 final median accelerator capacity at the bottom of
11 that table should read 2.7 rather than 2.9g.

12 Q. Now, with these changes, is this
13 letter and attached tables true and accurate to
14 the best of your knowledge, information and belief?

15 A. (Witness Daum) Yes.

16 MR. COLARULLI: Your Honor, we would
17 move that this two-page letter and the attached
18 tables and and resume be admitted into evidence as
19 an exhibit to the Licensees's Question 1 testimony
20 and that it be bound into the record as if read.

21 JUDGE GLEASON: What is the number?
22 Can you give us it? Did you say Power Authority
23 or Licensees?

24 MR. COLARULLI: Well, your Honor, we
25 can have it numbered, if you like, but we thought

1 it would be easier and more complete just to have
2 it marked as an exhibit to our Question 1
3 testimony, which is what we did with the IPPSS
4 itself and the amendment.

5 JUDGE GLEASON: All right.

6 MS. MOORE: Your Honor, are the
7 figures being offered as an exhibit to the
8 testimony as well? There's some --

9 JUDGE GLEASON: I gather.

10 MR. COLARULLI: Yes. The figures of
11 the risk curves are the same as those in our
12 Question 1 testimony.

13 JUDGE GLEASON: All right. Now, is
14 this being offered in connection with Mr. Wesley's
15 testimony?

16 MR. COLARULLI: Well, in connection
17 with the Licensees's Question 1 testimony.

18 JUDGE GLEASON: Well, why wasn't this
19 handled when their testimony was before us on
20 Question 1?

21 MR. COLARULLI: As you may recall
22 from the complicated chain of events, this
23 material is not a part of Amendment 1; and at that
24 time, when we had, in effect, attached as an
25 exhibit to testimony in January or rather in

1 February when the panel was here, we had said --
2 we had offered to make further witnesses available
3 to talk about this additional seismic capacity
4 analysis.

5 The Board took us up on the offer.

6 In that regard, we decided that we
7 would put this in as an exhibit.

8 I should note that during the
9 February hearing, we distributed this very same
10 document, and it was based upon that that the
11 issue came up.

12 JUDGE GLEASON: Just tried to get
13 the reference as to why it's going in. You have
14 already given that to me. All right.

15 Is there objection?

16 Hearing none, the letter would be
17 admitted into the record as evidence and as an
18 exhibit to the testimony of the witnesses before
19 us.

20 MR. COLARULLI: Your Honor, because
21 of the confusion that has attended this seismic
22 analysis, we would appreciate it if you would
23 allow Dr. Bley to briefly summarize the impact of
24 this analysis and, again, as we discussed
25 yesterday, that impact is reflected in the

1 Question 1 testimony.

2 JUDGE GLEASON: All right. Go ahead,
3 Dr. Bley.

4 DR. BLEY: Yes, your Honor. The
5 impact of these new results essentially eliminates
6 the possibility of containment failure from a
7 seismic event. Even when accounting for the uncertainty
8 associated with the new median acceleration values
9 indicated -- I'm sorry -- the new median
10 acceleration values, the containments would not
11 fail at accelerations up to the upper bound
12 acceleration of 0.8g.

13 The result is that the sequences
14 leading to the SIQ Release category no longer
15 apply to either unit at Indian Point.

16 Since release category SIQ was one of
17 the major contributors to estimated early
18 fatalities at the Indian Point Units, we revised
19 the IPPSS calculations of estimated early
20 fatalities to show the reduction.

21 This reanalysis is reflected in the
22 Licensees's Question 1 testimony in this
23 proceeding.

24 MR. COLARULLI: Your Honor, the
25 witnesses are ready for cross-examination.

1 MR. BLUM: Your Honor, prior to
2 beginning cross-examination, I would like
3 clarification on one point.

4 JUDGE GLEASON: Yes.

5 MR. BLUM: We have been assuming that
6 the superceded pages of IPPSS, that is the ones
7 that were part of IPPSS prior to Amendment 1 had
8 been retained as a part of the record of this
9 proceeding.

10 JUDGE GLEASON: That's right. That
11 is correct.

12 MR. BLUM: Okay. Thank you.

13 JUDGE GLEASON: Now, let me point out
14 another matter here.

15 Dr. Bley, without going back and
16 having the time to go back too much on the
17 testimony with respect to Amendment 1, which you
18 participated in on Question 1, are you qualified
19 to respond to all of the information contained in
20 that amendment, because we had some problem with
21 respect or at least to the issues that we have not
22 been denying the party an opportunity to
23 cross-examine with respect to those.

24 So I want to get that clear.

25 MR. BLEY: Yes, your Honor, between

1 Mr. Perla and myself, we should be able to respond
2 to all the material here. We have not done all
3 the detail work in the analyses, but we are
4 familiar with everything in it.

5 JUDGE GLEASON: Mr. Blum, they are
6 available for cross-examination on that amendment.

7 MR. BLUM: Thank you.

8 JUDGE GLEASON: I indicated that
9 because I want your cross to just be restricted to
10 this area.

11 MR. BRANDENBURG: For Mr. Blum's
12 benefit, the witnesses do have a copy of Amendment
13 1 before them which may aid Mr. Blum in his
14 cross-examination.

15 CROSS-EXAMINATION

16 BY MR. BLUM:

17 Q. Mr. Perla, looking not at Amendment 1
18 now but at the letter regarding the reanalysis
19 that, in essence, declares the impossibility of
20 direct seismic failure of the containment, is that
21 a fair characterization?

22 A. (Witness Perla) Yes.

23 Q. Are you aware of whether direct
24 seismic failure of the containment is a
25 possibility in any other nuclear plant in the

1 United States?

2 A. (Witness Perla) When one looks at the
3 distribution that is generally placed on the
4 capacity, one sees a variation from higher
5 possible values to lower possible values, and it
6 very much depends on the seismicity in other
7 locations, and, of course, there are differences
8 between containments.

9 Not all containments are alike.

10 For example, the PWR containment, is
11 a large all-encompassing structure; BWR
12 containment within a reactor building is certainly
13 smaller.

14 So one can't categorically say, "Are
15 they all about the same," if this is what your
16 question is.

17 Q. So it's your position that an
18 earthquake of nine on the Richter Scale could not
19 directly fail the Indian Point containment; is
20 that correct?

21 A. (Witness Perla) What we have is a
22 cross-section of possible earthquake sizes at
23 Indian Point, and what we have done is to evaluate
24 this particular structure's ability to withstand
25 the accelerations that would follow from those

1 earthquakes.

2 For the location of an intensity nine
3 earthquake in the vicinity, then, the statement is
4 correct, that the accelerations generated from
5 such an earthquake would not jeopardize the
6 integrity of the containment.

7 Q. Have there been any earthquakes of
8 nine on the Richter Scale in the United States in
9 our history of the last 300 years?

10 A. (Witness Perla) Do you mean Richter
11 Scale?

12 Q. Yes.

13 A. (Witness Perla) Magnitude nine?

14 Q. Yes.

15 A. (Witness Perla) I'm not familiar
16 with them.

17 Q. Do you know what the largest one has
18 been?

19 A. (Witness Perla) I'm aware of
20 earthquakes under 9, 8.3, 7.7.

21 Q. Where did the one occur that was
22 .3?

23 A. (Witness Perla) Alaska earthquake.

24 Q. And roughly when was that?

25 A. (Witness Perla) I can't be sure.

1 Q. Just approximate.

2 A. (Witness Perla) Some number of years
3 ago, certainly.

4 Q. In the mid-'60s sometime?

5 A. (Witness Perla) Possible. I think
6 that's about the time frame.

7 Q. What about the San Francisco
8 earthquake of 1906? Do you know roughly what that
9 was on the Richter Scale?

10 A. (Witness Perla) Just about 8, perhaps
11 a little over, very close to that.

12 Q. And how about the Charleston quake?

13 A. (Witness Perla) That would have been
14 intensity 10, would have been about something less
15 than 7, I suspect, 6 or so magnitude, 6 or so.

16 Q. You recall the quake in Los Angeles
17 approximately 10 or 12 years ago that caused a
18 freeway to collapse?

19 A. (Witness Perla) Yes.

20 Q. What intensity was that on the
21 Richter Scale?

22 A. (Witness Perla) I believe that was
23 7.3.

24 DR. WESLEY: I was going to say 6.

25 MR. PERLA: I think it was about 7.3,

1 in the low 7s.

2 Q. I have heard it said that wood frame
3 structures are in some ways less vulnerable to
4 earthquakes than some structures that one might
5 think of as being sturdier, that is made of bricks
6 or concrete. Is that ever true?

7 A. (Witness Perla) I believe so. It
8 does depend, of course, on what's contained within
9 the structure, but if we speak in terms of
10 generally the structure itself without its
11 contents, for example, the contents could be the
12 wood frame structure with the concrete floor with
13 some heavy equipment contained in it, which would,
14 of course, change all of that, but generally frame
15 structures, wood frame structures, would be
16 lighter, and, therefore, less susceptible to
17 damage than heavier massive structures; but then
18 again, in both cases, it is relative to the way in
19 which the structure has been built for lateral
20 loads.

21 So there are circumstances where one
22 could have a building that was masonry or concrete,
23 that, in fact, was stronger or weaker than one in
24 wood.

25 Q. In some of our recorded earthquakes,

1 there have been some fairly impressive structures
2 that have collapsed or suffered a breach of
3 containment integrity. Do you know which any of
4 these are in? Do you know some examples of that?

5 A. (Witness Perla) What containment are
6 you talking about?

7 Q. No, I mean containment simply in
8 terms of the exterior structure of the building.
9 I'm not talking about a nuclear reactor
10 containment.

11 A. (Witness Perla) Would you restate
12 the question?

13 Q. Well, are you aware of some of the
14 fairly impressive massive structures that have
15 developed cracks or collapsed during a major
16 earthquake?

17 A. (Witness Perla) Sure.

18 Q. Would you give some examples of those?

19 A. (Witness Perla) Well, you described
20 some which I happen to have had the fortune or
21 misfortune to have seen. Those were the bridges.
22 Those were reinforced concrete structures, heavy
23 concrete columns, heavy concrete beams.

24 I have certainly -- this was the
25 San Fernando earthquake results.

1 I have seen numerous photographs over
2 the period of years of structures throughout the
3 world that have failed from earthquakes, and as
4 you may recall more recently, there were even
5 photographs in the newspaper of earthquake damage
6 in the Mid-Eastern areas. There had been in China.

7 So all throughout the world where
8 there has been a concentration of earthquakes,
9 frequently, there is a large evidence of failures,
10 again, depending on the type of structures.

11 Q. Just out of curiosity, do you recall
12 the church at Stanford University in the 1906
13 earthquake?

14 A. (Witness Perla) No.

15 Q. The earlier analysis that was done
16 prior to your letter that found that direct
17 seismic failure of the containment was possible,
18 who had performed that analysis?

19 A. (Witness Perla) Structural Mechanics
20 Associates.

21 Q. And when did they perform it?

22 A. (Witness Perla) I guess it would have
23 been late 1980.

24 Q. When did you first review that work?

25 A. (Witness Perla) I would say late 1980.

1 Q. So you reviewed it prior to the
2 publication of IPPSS?

3 A. (Witness Perla) Yes.

4 Q. Did you express any opinion as to the
5 competence of that work prior to the publications
6 of IPPSS?

7 A. (Witness Perla) To whom?

8 Q. Well, to anyone.

9 A. (Witness Perla) Can't recall having
10 discussed it in those terms with anybody. I'm
11 certain that the result of my review was a
12 discussion with SMA, probably with regard to
13 coverage, content and certainly subsequent to the
14 publication had an opportunity of reviewing their
15 methods, their approach with the reviewers, in
16 essence, the NRC reviewers.

17 Q. Who authored the pertinent portions
18 of IPPSS in which the initial study was included
19 or the results of the initial study?

20 A. (Witness Perla) I did.

21 Q. I see. So after doing your review,
22 you decided to go ahead and author that section of
23 IPPSS the way it was?

24 A. (Witness Perla) Yes.

25 Q. Returning to the question of other

1 nuclear plants, assuming, for the next series of
2 questions that your letter is right, that is
3 direct seismic failure of the containment at
4 Indian Point is impossible, would this be true of
5 large, dry containments of PWR reactors generally?

6 A. (Witness Perla) We have essentially
7 had such a limited number of such analyses, I
8 don't think I could answer that question.

9 Q. Well, how many different plants have
10 you analyzed?

11 A. (Witness Perla) SMA has analyzed for
12 us, perhaps, five or six, something like that.

13 DR. WESLEY: We have done something
14 like 10.

15 A. (Witness Perla) SMA informs me they
16 have analyzed, perhaps, 10 or so.

17 Q. Now, of those 10, can you identify
18 any of them where direct seismic failure of the
19 containment is possible, in your opinion?

20 A. (Witness Perla) Well, I think that to
21 deal with that, one must deal also with the
22 seismicity associated with the particular site.

23 Q. Well, I'm sorry. Let me just save us
24 time. Let me break the question up into two parts.

25 The first part of the question is

1 assuming a very large earthquake, very powerful,
2 on the order of 8 or more on the Richter Scale,
3 and then the second part of the question would be
4 for the projected reasonably likely earthquakes in
5 that region, and you can answer separately for
6 each of the 10.

7 A. (Witness Perla) The question really
8 is an unclear question, because it does not
9 consider the implication of a range of capacity of
10 the structure, and a range of earthquakes that
11 could affect a particular site.

12 One cannot associate a given
13 containment with all sites.

14 The case in point here being we have
15 a containment here that is indicated as having a
16 median acceleration capacity of 2.7g. I suspect
17 that there are other containments that have
18 capacities less than and greater than 2.7g, but
19 those are those containments and not this
20 containment.

21 Q. Well, let me put the question in your
22 terms, then. Which of the containments that have
23 the capacity greater than 2.7g?

24 A. (Witness Daum) Maybe I can answer
25 that question. Of the 10 or so containments that

1 we at SMA have tried to determine ultimate seismic
2 capacities for, I'm aware of only one containment
3 that has a higher capacity than the two Indian
4 Point containments.

5 Q. Which one is that?

6 A. (Witness Daum) That happens to be
7 Seabrook.

8 Q. Now, of the other nine, could you
9 tell me how much lower their capacities are,
10 beginning with the ones closest to Indian Point
11 and going down to the worst?

12 A. (Witness Daum) I don't have those
13 numbers in front of me, and the type of failure
14 mode varies from containment to containment, but I
15 recall there are median seismic capacities, say,
16 as low as in the order of three quarters of a g,
17 for instance, is my recollection.

18 Q. So that would be the very lowest?

19 A. (Witness Daum) That's as low as I can
20 recall, without those numbers in front of me, yes,
21 sir.

22 Q. Do you know which plants would have
23 that three quarters of a g?

24 A. (Witness Daum) Which plants?

25 Q. Yes.

1 A. (Witness Wesley) I believe Zion, for
2 instance, was in that order of magnitude. I was
3 told that maybe that was higher -- that may be too
4 low. I don't have that number in front of me, but
5 I would estimate that of the containments, we have
6 looked at that that would be a lower bound,
7 somewhere in that range.

8 Whether that's true for Zion or not,
9 I cannot say with certainty.

10 Q. Now, are most of the 10 fairly close
11 to Indian Point, or are there lots that are down
12 near three quarters of a g?

13 A. (Witness Daum) Again, without the
14 numbers in front of me, I can't say. My
15 recollection is that they are spread relatively
16 normally from Indian Point on down to the lower
17 bound.

18 Q. Now, what I'd like to know is, Mr.
19 Perla stated earlier that Indian Point, with its
20 1.27 capacity, was strong enough that it was
21 effectively impossible to have direct seismic
22 failure of the containment.

23 What I'd like to know is whether
24 that's true for all 10 of those plants or for five
25 of them or whether, you know, it's true for eight

1 and you don't know for two or whether you could
2 give some perspective on that?

3 A. (Witness Perla) Excuse me. I had
4 stated or we had stated that the capacity of the
5 containment was 2.7. I believe you have just said
6 it was 1.17.

7 Q. I'm sorry. Excuse me. I misspoke.

8 A. (Witness Wesley) Could you repeat the
9 question, then, please.

10 Q. Well, we have heard testimony that
11 Indian Point with its capacity of 2.7 is
12 impossible to have direct seismic failure of the
13 containment.

14 Now, what I'm asking is for these
15 other 10 plants, is that also true for -- are
16 there a number of them where we would say, no, it
17 is credible that there could be direct seismic
18 failure of the containment.

19 A. (Witness Wesley) I can't really
20 answer that question, because I'm not a
21 seismologist, and I don't know the relative risk
22 of the seismic hazard with these other plants.

23 A. (Witness Perla) If I could interject
24 something, I recall on the Zion analysis, as an
25 example, that the capacity of a containment was

1 lower than at Indian Point, but the reason it was
2 lower was because its close proximity to the
3 auxillary building which under earthquake
4 excitation impacted with the containment building
5 possible puncturing it but certainly not
6 collapsing it.

7 It's also important, I think, to
8 appreciate that each of these structures is
9 designed for its particular site, and each site
10 has its own set of seismicity.

11 So in one location where the
12 seismicity is predicted to be extremely low, say,
13 lower than at Indian Point, one might find a
14 dissassociation of a logic that would get you to
15 say that, therefore, the containment has less
16 seismic capacity.

17 I think one must also recognize that
18 the containments are not designed soley for
19 earthquakes but are designed for large internal
20 pressures as well.

21 Q. Thank you. Let me just, to wrap up
22 so maybe we can go onto another area.

23 It's the testimony of the three of
24 you that you believe direct seismic failure of the
25 Indian Point containment is impossible and that

1 for the other 10 containments you have studied or
2 you are aware of people having studied, you do not
3 know one way or the other whether direct seismic
4 failure is possible; is that the testimony?

5 A. (Witness Perla) That's not correct.

6 Q. Please correct it directly.

7 A. (Witness Perla) The first part of
8 your statement is correct. We believe that for
9 the seismicity at Indian Point site, neither
10 containment will fail from earthquakes.

11 With regard to other locations, there
12 are conditions where some containments are
13 projected to have a chance of failure, but, there
14 again, it's because the seismicity at those
15 particular sites is higher and, perhaps, also
16 because the capacity of the containment is lower.

17 Q. Which sites are those, please.

18 A. (Witness Perla) I cannot say with a
19 certainty, but I believe that certainly the Zion
20 one which we talked about is one.

21 JUDGE GLEASON: If you don't recall,
22 just say you don't recall.

23 A. (Witness Perla) I can't recall
24 specifically others.

25 Q. What was the Mercalli intensity that

1 corresponds to the 2.7g in the Indian Point
2 containments?

3 A. Well, I guess the question -- you
4 can't directly relate them. The intensity of the
5 earthquake is at a location that could be at some
6 distance from the plant, and one has to calculate
7 the attenuation before one can make a judgment of
8 the acceleration at the plant.

9 So, generally, when you deal with
10 earthquakes, you deal with their magnitude or
11 their intensity, and, then, mathematically look at
12 the attenuation from the potential source point to
13 the plant and calculate the acceleration at the
14 plant.

15 The only time one could have the two
16 with some consonance would be if the earthquake
17 were, of course, directly underneath the plant.

18 JUDGE SHON: Excuse me, Mr. Perla.
19 It is true, however, that this sort of process has
20 gone through with at the Indian Point plants, was
21 it not?

22 MR. PERLA: Yes.

23 JUDGE SHON: And some epicenter was
24 assumed and some magnitude and intensity was
25 assumed, also, is that not correct?

1 MR. PERLA: Yes, the whole range.

2 JUDGE SHON: So wouldn't you be able
3 to assume in answer to Mr. Blum's question by
4 working backwards and saying you have this
5 acceleration, now, let's assume the same epicenter,
6 for example, and the same attenuation factors and
7 everything else, could you not get something like
8 that out of it?

9 MR. PERLA: That's true, but we do
10 have the final answer when we say that the
11 capacity of the structure is 2.7 for all
12 earthquakes, for all earthquakes in their
13 potential locations that have been analyzed for
14 the site.

15 There is no chance of getting 2.7gs
16 at the site. That analysis has been made, and the
17 conclusion was that one could not get more than a
18 .8 or 8/10g acceleration at the site from all
19 earthquakes that could affect the site wherever
20 they might be.

21 JUDGE SHON: Yes, I recognize that.
22 You said that earlier on, but you said it very
23 positively but I was just hoping you might be able
24 to give Mr. Blum an answer to his question,
25 however irrelevant you may deem it to your

1 calculations.

2 He wanted to know what intensity
3 earthquake, where, or what magnitude earthquake
4 and where or something like that that would give
5 the kind of accelerations that you calculate the
6 plant can ultimately stand.

7 It may not be the kind of thing you'd
8 normally calculate. I can understand that you
9 might not do so, but it seems it might be
10 calculable or at least estimateable; and if it's
11 not, just say so.

12 MR. PERLA: I can't associate the
13 maximum accelerations with the maximum size
14 earthquakes, because there was a whole family of
15 them in various locations, and I just can't
16 associate on a one-to-one basis.

17 Q. Gentlemen, you have in front of you
18 copies of IPPSS Amendment 1?

19 A. (Witness Bley) We do.

20 Q. You also have the cover letter from
21 John Beal and Jay P. Vaughn to Mr. Denton dated
22 January 21, 1983?

23 A. (Witness Bley) We do.

24 Q. Okay. On the very bottom line of
25 that letter is a statement, "This transmittal

1 supersedes information provided in our December 6,
2 1982 letter."

3 Is any of the three of you familiar
4 with the December 6, 1982 letter?

5 A. (Witness Bley) I'm not.

6 MR. PERLA: I don't recall it. It's
7 possible I'm familiar with it. I'd have to be
8 refresehd.

9 Q. Prior to December 6, 1982, is any of
10 you aware that prior to December 6, 1982, the
11 authors of IPPSS Amendment 1 may have transmitted
12 a considerable amount of the information which is
13 subsequently used in IPPSS Amendment 1 to the
14 Licensees?

15 A. (Witness Bley) Certainly.

16 JUDGE GLEASON: Excuse me, Mr. Blum.
17 What was the date of IPPSS again?

18 MR. BLEY: IPPSS was submitted in, I
19 believe, March of 1982.

20 JUDGE GLEASON: March of 1982. Okay.
21 Thank you. Go ahead, Mr. Blum.

22 Q. Was this type of information first
23 given to the Licensees?

24 A. (Witness Bley) Well, I think we have
25 discussed that some before, but from the time

1 IPPSS was completed, we, all of the contractors
2 involved in the IPPSS and the Licensees themselves,
3 worked through the results, examined dominant
4 contributors and began examining what possibly
5 might be done about those dominant contributors.

6 So from the time IPPSS was formally
7 submitted, maybe even predating that a little bit,
8 some of the aspects of things that have shown up
9 in Amendment 1 were on the table in one form or
10 another either as part of what one might call
11 shopping lists of possible changes; two, as to
12 preliminary analyses; and as that work progressed,
13 it was shared with the Licensees.

14 Q. Now, IPPSS was formally submitted on
15 March 5, 1982; is that correct?

16 A. (Witness Bley) I don't know the exact
17 date, but approximately March, 1982.

18 Q. What was the earliest at which you
19 saw things in writing that contained substantial
20 amounts of information later published in IPPSS
21 Amendment 1?

22 A. (Witness Bley) I can't answer that
23 directly. If by "substantial amounts" one means
24 fairly the bulk of the work, at least large pieces
25 in each of the areas that shows up here, it would

1 have been very late in 1982.

2 If by that one means, perhaps, short
3 memos saying, "We might look at ideas to improve
4 the seismic capability," for example, at Indian
5 Point 2 or the fire resistance at either of the
6 units, that could have been in very early 1982.

7 Q. By "very late," you mean something
8 like October or November, 1982?

9 A. (Witness Bley) No sooner than that
10 and for much of the material, even into December.
11 There was a -- yes, that's true.

12 Q. Are you aware of any transmittal of
13 information to the NRC Staff during 1982 regarding
14 IPPSS Amendment 1?

15 A. (Witness Bley) Transmittal of
16 information in one form or another regarding work
17 that eventually ended up in Amendment 1, the
18 answer is yes.

19 Q. Could you describe that information
20 transmitted?

21 A. (Witness Bley) I can. I think we
22 have talked about this earlier.

23 Immediately after the IPPSS was
24 published, the NRC commissioned Sandia to do a
25 detailed review.

1 During that review, there were visits
2 and telephone calls with requests from Sandia to
3 provide additional information to help them in
4 their review process.

5 The earliest sort of formal
6 presentation of Amendment 1 or where parts of
7 Amendment 1 would probably lead came at a meeting
8 in Albuquerque in late 1982, I think, around
9 October, at which time we presented and answered
10 questions about some of these changes and what
11 their effects would be.

12 Prior to that meeting, my
13 recollection is that some of the things we were
14 considering and the numerical effects of those
15 items were discussed with a few people at Sandia
16 and the Staff, either by telephone call or in
17 meetings discussing the Sandia review.

18 We need to remember that much of the
19 work that shows up in the amendment, especially
20 with respect to the changes at Indian Point at the
21 two units was not really firm until rather late in
22 the year, and my memory is even into the December,
23 the Licensees were looking at various options for
24 change at the plant, various different schemes for
25 improving the fire resistance, and my memory is

1 that a firm decision of which option they'd follow
2 was probably not made until the December time
3 frame.

4 The analysis was being pushed quite
5 hard. We were being pushed to complete it, and at
6 every stage there'd be review; there'd then
7 questions and looking at the various options.

8 So pieces of the information of the
9 stuff that ended up in Amendment 1 were discussed
10 before that meeting in October, and were presented
11 at the meeting, and some of it was not seen until
12 the whole amendment was completed and filed.

13 Q. But for most of it, December 6, 1982,
14 seems like a plausible date when it could have
15 first come together in fairly firm form.

16 A. (Witness Bley) My memory is that
17 there were some pieces of this that weren't ready
18 at that time, that weren't ready and hadn't even
19 been reviewed by the Licensees until much later in
20 December.

21 There were parts of it, certainly, by
22 that time.

23 Like I say, I don't think until later
24 in December was the exact decision of which option
25 they'd be installing for the fire fixes even

1 decided upon.

2 Q. Do you recall any conversations
3 between you and the Licensees as to whom
4 information should be distributed to?

5 A. (Witness Bley) No. We dealt strictly
6 with the Licensees with the single exception that
7 when the Sandia review was going on, the Licensees
8 had given us the opportunity to deal directly with
9 Sandia in answering some of their questions, but
10 essentially, all of the formal transmittal
11 information was handled by the Licensees
12 themselves.

13 Q. So the Licensees authorized you to
14 give information directly to Sandia but not to any
15 other hearing --

16 A. Sandia was reviewing the report and
17 had questions about the items in the report, and
18 we were working with them in answering their
19 questions.

20 No one else approached us with
21 questions. If they had, we would have sent those
22 requests to the Licensees just like we did with
23 the Sandia request.

24 We dealt with the Licensees. The
25 Licensees have the license and know to whom they

1 need to provide other information. That's not
2 really our function, and we don't follow that as
3 part of regulation.

4 Q. All right. Turning to some of the
5 specifics of IPPSS Amendment 1, the IPPSS
6 Amendment 1 for the first time has some analysis
7 about the Unit 3 control room ceiling; is that
8 correct?

9 A. (Witness Perla) That's correct --
10 well, that's correct to the extent that there's
11 documentation, but we, if analysis, can include
12 the thinking process, we had thought about it
13 previously.

14 Q. But as far as entering into final
15 risk calculations, is it fair to say that what
16 Amendment 1 did here was to discover a problem
17 that previously hadn't been formally considered in
18 the risk assessment in IPPSS?

19 A. (Witness Perla) That's not true. It
20 was for the purpose of documenting the magnitude
21 of that analytical portion which was judged
22 earlier to be unimportant.

23 Q. I see. So the effect on risk, the
24 bottom line risk calculations, was none at all?
25 It was simply better documentation for an earlier

1 potential fixes for ATWS.

2 Q. Do you recall the ones that the
3 director had ordered, but the Licensees had not
4 yet done that Con Edison was at this time refusing
5 to do and PASNY was offering to do sometime within
6 the next five years?

7 A. (Witness Bley) I'm sorry. You have
8 put more caveats on that question than I can
9 answer. I'm not sure which utility was refusing
10 to do or which was proposing to do what.

11 Q. I'm referring to the directives by
12 Harold Denton.

13 A. (Witness Bley) I'm familiar with the
14 director's order.

15 Q. July 27, 1980 I believe.

16 A. (Witness Bley) I'm not familiar with
17 one in July. I think it was much earlier in the
18 year.

19 JUDGE GLEASON: I believe it was
20 January, wasn't it?

21 MR. BLUM: January of 1981.

22 Q. January of 1981?

23 A. (Witness Bley) Yes, I'm familiar with
24 that order.

25 Q. You are familiar with what was

1 discussed with regard to anticipated transient
2 without scram in that order?

3 A. (Witness Bley) I know it was
4 discussed. I believe the "fix" for ATWS that was
5 discussed is the one that's been called the AMSIC
6 or some such thing, which the Licensees had
7 originally intended to install. I don't remember
8 the exact wording of the order for that measure.

9 Q. Would that have any effect upon risk?

10 A. (Witness Bley) That measure would
11 have no effect on risk at Indian Point.

12 Q. Is there a portion in IPPSS which
13 documents the reasons why that would be?

14 A. (Witness Bley) I believe the
15 amendment will document it. The amendment
16 calculates the risk from ATWS without such a fix
17 installed. That contribution is negligible with
18 respect to risk, so reducing that contribution,
19 even further, which this fix would do, would have
20 no effect on risk.

21 Q. So the reason is that ATWS just is
22 not a significant problem in terms of overall risk,
23 in your opinion?

24 A. (Witness Bley) That's a fair
25 statement at Indian Point.

1 Q. But that's different from plants
2 generally?

3 A. (Witness Bley) I have analyzed Indian
4 Point, and I haven't analyzed all plants with
5 regard to this issue. So I'd be, I think, lying
6 in trying to answer it for all plants.

7 Q. You are aware that over the years,
8 different people within the NRC have felt somewhat
9 differently about this issue?

10 A. (Witness Bley) I'm not aware that
11 anyone who has done detailed problemistic risk
12 assessment to assess the total risk of the plant
13 is convinced that this issue for plants like
14 Indian Point is a major contributor to risk.

15 Q. Well, you are aware that aside from
16 having personally done the detailed PRA, there are
17 various officials and regularities who have been
18 concerned about ATWS?

19 MR. COLARULLI: Your Honor, I object
20 to this line of questioning. It appears to be
21 irrelevant to the Amendment 1.

22 JUDGE GLEASON: I think it's kind of
23 irrelevant myself.

24 MR. BLUM: Well, it seems to be in
25 Amendment 1, they are taking the position that

1 Amendment 1 has documented that ATWS is not a
2 significant problem at all.

3 JUDGE GLEASON: He has said that's a
4 fair conclusion. He agrees with that.

5 MR. BLUM: Yes, but it would seem
6 that one should be able to call that conclusion
7 into question rather than simply take it on faith
8 since it's somewhat different from what has been
9 said.

10 JUDGE GLEASON: I don't mind your
11 doing that, but in what way are you attempting to
12 do that?

13 MR. BLUM: By bringing out that this
14 is at least inconsistent with some other prior
15 opinions of respected people.

16 JUDGE GLEASON: Well, he's already
17 answered that question that he knows of no
18 experience or any opinion within NRC as it relates
19 to this kind of an issue.

20 MR. BLUM: No, I'm sorry. What he
21 answered was that no one had done a detailed PRA
22 on the basis of that.

23 JUDGE GLEASON: That's right.

24 MR. BLUM: But I'm asking for others
25 who didn't do a detailed PRA who felt differently.

1 JUDGE GLEASON: Without arguing the
2 thing ad nasuseam, if you have to respond to this
3 question, how knowledgeable are you about what's
4 going on in the NRC, you are allowed to answer.

5 A. (Witness Bley) Yes, your Honor. I
6 know there is concern at the NRC about ATWS, and
7 there's been a lot of analysis. Much of that has
8 been outside the scope of knowing the real
9 contribution of ATWS to risk.

10 Q. So far, going through the specifics
11 of IPPSS Amendment 1, we are yet to find anything
12 at least in ones I have asked about that
13 significantly reduces risk other than the rubber
14 pads between the Unit 2 control building and the
15 Unit 1 building?

16 A. (Witness Bley) The fire fixes within
17 the amendment were very substantial improvements
18 in risk.

19 Q. Yes, I know that. I just hadn't
20 mentioned those yet. I was going to get to that
21 next.

22 Now, the fire improvements, would you
23 describe generally what these are very briefly?

24 A. (Witness Bley) Yes. In general, in
25 both units, they involve providing additional

1 electric cabling to key equipment that does not
2 pass through the common areas where fire risk had
3 been a problem in the IPPSS itself.

4 They amount to bypassing the troubled
5 areas to provide additional power to key equipment.

6 Q. By "trouble areas," you mean
7 specifically what?

8 A. (Witness Bley) I have to glance
9 through the report to pick them out, but at Indian
10 Point and, I think, in both plants, they are the
11 switch gear areas and the cable tunnel areas.
12 There may be one more specific area where cables
13 come together where we have a problem. I'd have
14 to look back now to refresh my memory rather than
15 saying a problem. It's the areas where the
16 dominant contribution was occurring.

17 Q. How much does this reduce the risk of
18 fire?

19 A. (Witness Bley) My memory is that we
20 reduced the core melt frequency by approximately a
21 factor of 10, and we have reduced the contribution
22 to release category 2RW, the latent effects by
23 approximately a factor of 10 where fire -- that
24 is the contribution due to fire.

25 At Indian Point 3, that was the

1 dominant contribution, so we get some substantial
2 improvements in release category 2RW.

3 However, coremelt changed by maybe a
4 factor of two because other events were
5 contributing.

6 At Indian Point 2, the combination of
7 the seismic fix and the fire fix have resulted in
8 substantial improvements in release category 2RW
9 and in coremelt.

10 Q. Now, this principally involves a
11 rerouting of cables; is that correct?

12 A. (Witness Bley) An additional run of
13 cables with the ability to switch from one set to
14 another. It is spelled out. The fix is described
15 in the amendment.

16 Q. Yes, I'm aware of that. You believe
17 that that reduces the risk of fire by a factor of
18 10. It is now 10 percent of what it was?

19 A. (Witness Bley) It reduces not the
20 risk of fire but --

21 Q. I'm sorry, the risk attributable --

22 A. (Witness Bley: The health risks
23 attributable to fire. We could still have the
24 same fires, but now their effects wouldn't be as
25 severe because we have alternate ways to power the

1 equipment.

2 Q. Now, these requirements, to some
3 extent derive from a generic program that's really
4 a nationwide kind of a requirement, do they not?

5 A. (Witness Bley) These are not
6 requirements, and they don't really and I should
7 clarify that.

8 At Indian Point, the requirements, I
9 believe you are speaking to are the Appendix R
10 requirements.

11 At Indian Point 2, other things that
12 had been done at the plant were deemed to meet the
13 Appendix R requirements. The changes that are
14 described in the amendment are beyond those, and
15 specifically, to reduce the risk due to fire that
16 was described in the IPPSS.

17 At Indian Point 3, such a change had
18 not already been proposed. So the program ended
19 up being a joint one of seeking to meet the
20 generic requirements of Appendix R and at the same
21 time gain the maximum benefit in terms of
22 improving risk, to try to do that with a single
23 program so that the fix at Indian Point 3 is
24 described as one that meets the Appendix R
25 requirements.

1 So in that sense, one of the units,
2 it was part of the generic program, but the other
3 was not.

4 The generic program changes may not
5 have looked the same had it not been for the IPPSS
6 at Indian Point 3.

7 Q. All right. Now, the largest
8 reduction of risk comes from the rubber pads
9 between the Unit 2 control building and the Unit 1
10 Super Heater Building; is that correct?

11 A. (Witness Bley) If you did that alone
12 at Indian Point 2, you wouldn't see nearly the
13 gain that you see when you do that coordinated
14 with the fire fix, so the whole program operates
15 as a whole.

16 Q. I'm aware of that. I have calculated
17 closer to 20 as the risk reduction factor.

18 A. (Witness Bley) I can't speak for your
19 calculations, but if you did the bumper fix by
20 itself, I'm sure one wouldn't get even a factor of
21 15 improvement in risk.

22 Q. No. I'm sorry. With regard to the
23 seismic risks specifically.

24 A. (Witness Bley) Well, I can't speak to
25 your calculations. Mr. Perla said he believes

1 it's a factor of 15, and it's substantial in any
2 case for seismic risk alone at Indian Point 2.

3 Q. Now, the risk that that was dealing
4 with was a sort of special site specific
5 characteristics of the Indian Point plants;
6 was it not?

7 A. (Witness Bley) Much of what's
8 described in the entire IPPSS is due to site
9 specific characteristics of the Indian Point
10 plants, but, yes, that's true.

11 Q. Now, with would it be fair to say
12 that what the problem is here is there's part of
13 an older nuclear plant, Unit 1, that no longer
14 operates that's located very close to Unit 2, Unit
15 2's control room?

16 A. (Witness Bley) No. I think this
17 plant met all its requirements. It was discovered
18 in the IPPSS that there was a contribution due to
19 seismic events beyond the design basis of seismic
20 events that was worth addressing. It has been
21 addressed. It's no longer a contributor.

22 The building of the old Unit 1
23 building is still in place. The contribution is
24 no longer there, so I don't think your statement
25 was at all a proper one.

1 Q. Some of my questions are simply
2 uncontroversial things to move us along, and if
3 with those, if you could just answer more briefly.

4 MR. COLARULLI: I object to that.
5 Dr. Bley is giving a full reasonable answer. He
6 should be entitled and permitted to do that.

7 MR. BLUM: It's plainly obvious to
8 anyone who has looked through Amendment 1 that the
9 problem is that the Unit 1 Super Heater Building
10 is right next to Unit 2's control building, and it
11 poses a unique seismic risk. I don't think we
12 need a large lecture on that.

13 JUDGE GLEASON: Do you want to
14 respond to that?

15 MR. BLEY: It's not plainly obvious
16 to me. There is no problem any longer at Indian
17 Point 2.

18 Q. Would you please turn to figure 4.2
19 of IPPSS.

20 MR. BLUM: Do the Licensees have a
21 copy of this to show to the Board?

22 JUDGE GLEASON: Do you have 4.2 in
23 IPPSS back there somewhere?

24 MR. COLARULLI: 4.2 in the original
25 IPPSS?

1 MR. BLUM: No, IPPSS Amendment 1.

2 MR. BLEY: Could you give us a page
3 reference, please.

4 MR. BLUM: 4.7.

5 MR. BLEY: Page 4.7?

6 Q. Yes, 4-7.

7 A. (Witness Perla) Do you mean 7?
8 There are discussions on seismic in section 7.
9 The references ought to be 7-point-something.

10 Q. Well, there are two places where
11 they are: One of them is on page 4-7, and then
12 there's one on 7.2-50A-1.

13 A. (Witness Bley) I'm sorry. We found
14 it. That's in the --

15 MR. PERLA: In the SMA record that's
16 appended, yes.

17 Q. Now, for comparison, why don't you
18 also get out 7.2-50A-1.

19 MR. COLARULLI: Repeat that page
20 number, please.

21 MR. BLUM: 7.2-50A-1, and it's figure
22 7.210A-1.

23 MR. PERLA: And the earlier one was?

24 MR. BLUM: Page 4.7.

25 MR. PERLA: All right. We have that.

1 Q. Now, generally the problem that's
2 being addressed with these rubber pads is that
3 prior to the rubber pads being installed, there
4 was a portion of unit No. 1, it's Super Heater
5 Building, that was one and a half inches from the
6 Unit 2 control building; is that correct?

7 A. (Witness Perla) That's correct, at
8 the roof line of the control building.

9 Q. And the existence of those two
10 buildings right next to one another posed a
11 unique seismic risk; is that correct?

12 A. (Witness Perla) That was the basis
13 for it, yes.

14 Q. Are you aware of any other nuclear
15 plants in the United States which have an
16 analogous kind of risk?

17 A. (Witness Perla) In a sense, what we
18 referenced earlier with regard to designing a
19 plant was similar. The auxillary building was
20 very closely located to the containment building,
21 and under those conditions of seismic excitation,
22 the gap between those two buildings closed and
23 potentially fractures the containment structure.

24 That is simply a case of two
25 buildings being close to each other and would be

1 possibly effecting the other. That's similar in
2 some respects to the case we have here.

3 Q. Are there any other plants other than
4 Zion where you are aware of this kind of risk
5 exists?

6 A. (Witness Perla) Offhand, I don't know.
7 I can't think of any. There may be some.

8 Q. But you would be confident that the
9 vast majority of plants would not have it?

10 A. (Witness Perla) I couldn't answer
11 that. I haven't looked -- that's a very site
12 specific analysis that's required to respond
13 positively to that. We have not had the
14 opportunity of looking at all of the plants.

15 I cited two where each have a
16 situation, and, of course, the consequence in
17 either case there is different.

18 Q. Now, the proportion of seismic risk
19 attributable to this particular event of the
20 buildings crashing into one another is, I believe,
21 just to settle the figures, could be calculated by
22 dividing 140 by 7.9; could it not? I believe
23 that's in IPPSS Amendment 1?

24 A. (Witness Perla) I guess basically
25 that's correct. You are talking about the

1 reduction?

2 Q. Yes.

3 A. (Witness Perla) Yes, I think that's
4 correct.

5 Q. So that would come out something
6 fairly close to 18; would it not?

7 A. (Witness Perla) I haven't calculated
8 it, but it's in that vicinity.

9 Q. So using the figure 18, I mean the
10 exact figure doesn't matter, I just want a figure
11 to work with, it would be true that for the Unit 2
12 seismic risk, the particular fix that's being
13 added here eliminates 17/18 of the risk; is that
14 correct?

15 A. (Witness Perla) I guess roughly, but,
16 again, we are talking about the seismic input.

17 MR. BLEY: I'd like to add --

18 Q. Yes, the seismic risk.

19 MR. BLEY: This is on a mean value
20 basis. You are just calculating mean values, and
21 that's all it means.

22 Q. Very good.

23 Now, in order to eliminate that risk,
24 two things have to be true, that some very large
25 component of the risk is attributable to this one

1 event of the two buildings crashing into one
2 another, and the fix has to solve the problem of
3 two buildings crashing into one another; is that
4 correct?

5 A. (Witness Perla) Roughly, yes that's
6 so.

7 Q. Now, I'm wondering how you get your
8 17/18 reduction? Is it the case that 17/18 of
9 risk is attributable to this one event, and you
10 are completely confident at a factor of one that
11 the fix will take care of the problem, or is it
12 that you are less confident about the fix but a
13 very, very high proportion of the risk comes from
14 this one event?

15 A. (Witness Perla) We have the same
16 phenomena presumably available, that is potential
17 failure of the type that was designed to be
18 reduced. It's simply postulated to occur at a
19 much higher acceleration, and as Dr. Bley pointed
20 out, these numbers that you speak of are only mean
21 values that we have assessed for even the higher
22 capacity of the control building with the fix a
23 variability to that, and we have considered that
24 in the final calculations.

25 With the variability in the capacity

1 of the structure and the variability that already
2 exists in the seismicity for the site, we
3 calculated a new distribution for the seismic
4 input, the mean of that of which are these
5 proportions you are speaking of.

6 MR. BLUM: Could I have the question
7 read back, please

8 (Question was read back.)

9 Q. Could you answer this question more
10 directly, please.

11 A. (Witness Perla) I thought I did.

12 JUDGE GLEASON: Mr. Blum, I think one
13 of the problems we have is that your questions get
14 to be a little bit compound. If you could
15 simplify them a lot more, it would be a lot easier.

16 MR. BLUM: Okay. The purpose of the
17 fix is to prevent a certain event from occurring,
18 and that event is the two buildings crashing into
19 one another; is that correct?

20 A. (Witness Perla) That's not correct.
21 The purpose of the fix was to reduce that
22 possibility, and the fix did do that.

23 Q. What I'd like to know is in what
24 proportion of the times when you see that
25 possibility occurring, the fix will work to

1 prevent. I'd like you to quantify how much it
2 reduces that possibility.

3 A. (Witness Perla) That question is not
4 one that can be answered readily. Certainly we
5 have not done that calculation.

6 You are attempting -- in order to
7 answer that, one has to isolate the earlier
8 contribution in numerical terms of this particular
9 component, of all the components that contribute
10 to the seismic risk, and do the same calculation
11 for the after, and we have not performed that
12 calculation.

13 It's not one that has any meaning
14 because it's -- one must consider all of the
15 components which make up the difference, and I
16 think to attempt to put it in simplistic terms of
17 17/18 is inappropriate for the point of discussion
18 here, the point of discussion being how about just
19 that building.

20 We know what the impact of mixing
21 that building was, but I don't think we can
22 address the fractions you are talking about
23 without doing whole sets of calculations that I
24 don't think are very meaningful.

25 Q. When you chose this fix, rather than

1 -- there were some other other fixes considered;
2 were there not?

3 A. (Witness Perla) The answer to that is
4 generally they were quite similar, and these fixes
5 were essentially suggested by SMA through their
6 analysis.

7 Q. If you'd like to look to the
8 introduction of IPPSS Amendment 1, if you don't
9 recall this, but isn't it true that there was
10 consideration given to the more substantial
11 alterations that would involve structural
12 alterations of the structures and of the buildings
13 and were thus more expensive and rejected on that
14 basis?

15 A. (Witness Perla) I think that's
16 correct.

17 MR. BLEY: Well, not on that basis.

18 A. (Witness Perla) The basis for really
19 making this selection is that this gives us the
20 same results for less money than the other options,
21 and that was the basis for setting aside the
22 others, basically.

23 Q. Now, when you say "the same results,"
24 by that, you mean that this will work to prevent
25 this particular event of the buildings crashing

1 into one another as well as the other more
2 expensive alterations; is that correct?

3 A. (Witness Perla) We are talking about
4 reducing the likelihood of its occurrence, again,
5 not eliminating it.

6 MR. BLEY: And reducing it so that
7 it's no longer an important contributor to the
8 seismic risk.

9 Q. Now, you are aware that Unit 1 is no
10 longer in operation; are you not?

11 A. (Witness Perla) You mean the Super
12 Heater Building? Is that what you are referring
13 to?

14 Q. Well, the whole Unit 1 is not an
15 operating nuclear reactor?

16 A. (Witness Perla) The Unit 1 reactor is
17 not in operation, but there are parts of Unit 1
18 which, I think, are in use by the utility
19 companies for various purposes.

20 Q. What is the Super Heater Building
21 used for?

22 A. (Witness Perla) At the present time?

23 Q. Yes.

24 A. (Witness Perla) There was
25 modification going on to be able to use space

1 within the Super Heater Building for offices.

2 For example, they had stripped out
3 some of the heavy original equipment from that
4 building, and the idea was to do that for the
5 purpose of working it into onsite office space.

6 Q. But other than simply being an office
7 building, which any number of structures could do,
8 it doesn't have any particular use?

9 A. (Witness Bley) I think I'd have to go
10 to the Licensees to get that directly. There are
11 some service equipment that's used, and I'm not
12 sure exactly what part of the old Unit 1 facility
13 they are located in. I don't recall exactly.
14 There's some air compressors, some other service
15 equipment that's useful at the site. So I don't
16 think we are able to speak to this in detail.

17 MR. PERLA: In fact, part of the Unit
18 2 control room is a portion of the original Super
19 Heater 1 Building, so some of it is being used.

20 Q. All right. Now, in terms of reducing
21 the risk of this particular event, the buildings
22 crashing into one another, the most effective
23 measure purely for reducing that risk would be to
24 tear down Unit 1 Super Heater Building; would it
25 not?

1 A. (Witness Perla) I suppose to carry
2 these to an extreme, that could be another way of
3 reducing, but I think from our analysis, there
4 basically would be no further reduction of any
5 discernable value.

6 MR. BLEY: You could not tell the
7 difference in the risk curves after you did it for
8 having torn down the building and if you looked
9 for them the way it is currently built.

10 Q. Very good. That anticipates my next
11 question, so if we assign a risk, a seismic risk
12 reduction value of one to the event of tearing
13 down the Super Heater Building, then it's your
14 position that the mitigative measure which you
15 installed also has a seismic risk reduction value
16 of one?

17 A. (Witness Perla) That's an unclear
18 statement.

19 MR. BLEY: It's also not true. We
20 have said we don't completely eliminate the chance
21 of buildings bumping, but what I said is the
22 effect is negligible with respect to the residual
23 seismic risk, and you could not tell the
24 difference looking at the risks curves.

25 Q. Okay. So maybe we won't say it's a

1 one, but it's at least larger than .99; is it not?

2 A. (Witness Bley) I think we have to
3 stand on the testimony we have given. What it is,
4 the calculation is there for everyone to see.

5 JUDGE GLEASON: With this difference
6 in decimal points, could we take a recess please.

7 MR. BLUM: Certainly.

8 JUDGE GLEASON: Thank you.

9 (Short recess was taken).

10 JUDGE GLEASON: All right, Mr. Blum.

11 Q. Just to put ourselves on the same
12 waive length, we have been talking about a certain
13 unique seismic risk that existed, and allegedly no
14 longer exists at Indian Point, which is that the
15 Super Heater Building and control building, the
16 Unit 2 control room could crash together during an
17 earthquake at an earthquake lower than other
18 things happening to disable the plant with a
19 result that, I gather, the ceiling of the control
20 room building falls in and disables operators and
21 causes the plant to go to core melt and breach of
22 containment.

23 Is that a fair summary of the general
24 thing about which we are talking?

25 A. (Witness Perla) Up to the end. The

1 consequence of a serious impact between the two
2 buildings were postulated by us in the model to be
3 the roof structure coming down into the control
4 room.

5 Q. All right. Thank you. Now, you
6 stated that comparing the two different ways of
7 alleviating this problem, one being to simply
8 eliminate the Super Heater Building, and the other
9 being the mitigative measure that you settled on.

10 Then of those two, the difference
11 would not show up in the risk curves; is that
12 correct?

13 A. (Witness Perla) That's correct.

14 Q. And I'm trying to simply get some
15 quantitative sense on what we mean by "not show up
16 in the risk curves," and the way I'm trying to do
17 this is to say if we assign a risk reduction value
18 of one to eliminating the Super Heater Building,
19 would we not have something that was at least
20 .99 for the mitigative measure that was installed?

21 A. (Witness Bley) The reason I don't
22 like that characterization is, one, I haven't
23 quantitatively defined this risk reduction factor
24 and I'm not sure you have.

25 Two, the risk is coming from here to

1 here because this element of the seismic risk is
2 being reduced to the new value which is the new
3 risk.

4 The risk is being lowered below the
5 risk coming from other failures due to the seismic
6 event.

7 So we are falling from where we were
8 down to the point where this failure is much less
9 likely than other failures at the site.

10 Q. Very good. Could you tell me what
11 those other failures are?

12 A. (Witness Bley) There's a large list
13 of them.

14 Q. Just mention a couple of the main
15 ones.

16 A. (Witness Perla) Some of the tanks.
17 The RWST, the condensate storage tank, the
18 pressurizers, the battery racks, a whole
19 conglomeration.

20 Q. Good. Now, the metric we are
21 interested in is taking this unusually high risk
22 and lowering it below the baseline level where the
23 other failures take over. Okay? And it's pretty
24 clear that eliminating the Super Heater Building
25 will do that completely, will it not?

1 A. (Witness Perla) No longer. We have
2 already made the correction to the control
3 building so that this --

4 Q. I know you believe it's already been
5 completely eliminated, but going back to the point
6 in time before your current mitigative measure,
7 you would be able -- you would have been able to
8 eliminate it completely by simply removing the
9 Super Heater Building; correct?

10 A. (Witness Perla) Assuming that there
11 was no secondary effect by having removed it, I
12 suppose that's right.

13 Q. Do you believe there would be a
14 secondary effect increasing risk?

15 A. (Witness Perla) Well, as I said
16 earlier, part of that building is in use as a
17 control room for Unit 2 operation.

18 Once you take that building away, one
19 has to do something in its place to close in the
20 control room again. So it's not that cut and dry.

21 Q. But hopefully they wouldn't choose
22 something that created a unique seismic
23 vulnerability?

24 A. (Witness Perla) Hopefully.

25 Q. Now, returning to the concept of

1 "would not show up in the risk curves," what you
2 mean by that is that for lowering this risk to
3 below the base threshold level where other seismic
4 risks take over and become dominant, your measure
5 is as good as removing the Super Heater Building;
6 is that correct?

7 A. (Witness Perla) I think that's a
8 fair statement.

9 Q. Okay. Now, by "as good," you mean to
10 get a little more precise than as good. If it
11 were only 70 percent as good, the difference would
12 still show up in the risk curves; would it not,
13 somewhat?

14 A. (Witness Perla) We have not done a
15 calculation, but I think it's reasonable to state
16 that you would not see any difference in the risk
17 curves from what we have now calculated and what
18 we now have.

19 Q. Well, if the risk reduction value in
20 terms of moving to this base level were half,
21 would I see that difference in the risk curves? I
22 have good eyesight.

23 A. (Witness Perla) Half of what?

24 Q. Half of the risk reduction down to
25 the base level, as we have defined it which we are

1 also equating with the risk reduction due to
2 removing the Super Heater Building altogether?

3 A. (Witness Perla) Okay.

4 Q. So I would see that, if it were half
5 as good?

6 A. (Witness Bley) If you remained above
7 the base level.

8 Q. That's how we are defining it. "as
9 good" means when you drop all the way to the base
10 level. The metric we are interested in is moving
11 from the unusual risk to the base level?

12 A. (Witness Bley) We have dropped
13 something like a factor of 15. If you went
14 halfway, a factor of 7, you could certainly see
15 the difference between what the risk curve is and
16 something seven times as big. You certainly could
17 see that.

18 Q. Okay. Now when you say "cannot be
19 seen," what kind of figure do you mean at which
20 point you can no longer see this in the risk curve?
21 Is it 90 percent of the ways above the threshold
22 or 99 percent?

23 A. (Witness Bley) With respect to the
24 threshold, if you get within 10 percent of it or
25 tied within that, I think it becomes very

1 difficult, and recall that you are talking about
2 single point values, mean values; and we have
3 uncertainties in all of these calculations, and
4 the final risk curves have included that
5 uncertainty, so it is gets very fuzzy here but,
6 sure, if you are within something like 10 percent
7 across the Board, across the whole uncertainty
8 range, it begins to be very difficult to see it.

9 If you are within one percent, then
10 you are, in your opinion, essentially there.

11 The point here is we are below so
12 that there are other things contributing more than
13 this structural failure.

14 Q. You are saying already below the base
15 threshold?

16 A. (Witness Perla) That's what we have
17 said, yes.

18 Q. So we really do -- by the metric we
19 are using, the difference between the initial high
20 risk and the base level where it's no longer
21 significant, we really go 100 percent of the way
22 with the mitigative measures?

23 A. (Witness Perla) We certainly go a
24 long way. It's now one of an cluster of
25 components in the plant that contribute to risk

1 instead of being the dominant one, going any
2 further in reduction of that one would not
3 significantly change final answers.

4 Q. When you say "it's one of a cluster,"
5 is it insignificant compared to the others or is
6 it equally significant with the others?

7 A. (Witness Perla) I would think that
8 some of them are more significant, but they are
9 all in the same order.

10 If one were to look at the capacity
11 of some of the key components that are now of
12 interest, within 1 or 2/10g, we'd find, perhaps,
13 eight or ten components. That would be enough so
14 that if you did anything to further reduce anyone
15 of them, you'd essentially not impact on the
16 overall.

17 Q. Well, at any rate, at least we are
18 now fixed somewhere between 90 and 100 percent;
19 are we not?

20 A. (Witness Bley) With respect to the
21 current level of risk, not with respect to having
22 eliminated -- not with respect to this one
23 single element and having eliminated it totally
24 with respect to where we used to be and where we
25 are now, yes, your current metric.

1 Q. Right. Now, I'd like you -- well,
2 Okay.

3 Now, the existing mitigative measure
4 that's been installed which does the job, so to
5 speak, that consists essentially of two things,
6 does it not? It widens the distance between two
7 buildings and it inserts some number of rubber
8 pads; is that correct?

9 A. (Witness Perla) Excuse me and it also
10 implies some welding to transfer loads.

11 Q. Could you tell me how many rubber
12 pads are inserted?

13 A. (Witness Perla) I don't know of a
14 specific count, but it was a spacing. Perhaps Dr.
15 Wesley recalls.

16 DR. WESLEY: I don't recall the exact
17 number. Our recommendations were with a range of
18 pads to give a given spacing. Obviously, I did
19 not stand and count the pads as they were
20 installed and I don't even remember exactly the
21 number that we have recommended.

22 There's a fairly wide latitude in
23 numbers of pads versus individual pads, spring
24 rates that could be used to give you the same
25 overall effect.

1 Q. Do you have a sense of the order of
2 magnitude of how many pads?

3 JUDGE PARIS: Maybe we could count
4 them in the field, Mr. Blum.

5 Q. Okay. Are these all up and down the
6 sides of the buildings or are they only at one
7 elevation in the building?

8 A. (Witness Daum) No, sir they are only
9 at the roof line elevation.

10 Q. And the additional -- let me first
11 ask about the welds. Did you calculate the risk
12 reduction that would occur if there were no rubber
13 pads installed, that you simply had the welding to
14 transfer loads?

15 A. (Witness Daum) No, we did not
16 calculate that.

17 Q. Do you have an opinion about the
18 importance of the rubber pads in separating the
19 spacing between the buildings?

20 A. (Witness Daum) I don't have a
21 relative order of magnitude of how much reduction,
22 because we looked at the overall effect of
23 widening the gap and inserting the pads at the
24 same time, not one or the other.

25 Q. Well, but those two together,

1 widening the gap and inserting the pads are
2 quite important, are they not?

3 A. (Witness Daum) Yes, sir. That's the
4 basis of the entire modification.

5 Q. So the welds are principally to
6 assist the risk reduction process of the pads and
7 the widening?

8 A. The welds primarily provide a load
9 transfer from the pads to some steel plate on the
10 roof through the roof decking to the structural
11 steel framing of the Unit 2 control building.

12 Q. Could you tell me the distance that
13 the two buildings were widened?

14 A. (Witness Daum) I remember it's in
15 the --

16 Q. The gap between the two buildings?

17 A. (Witness Daum) It's in the order of
18 three and a half inches compared to the original
19 one and a half inches.

20 Q. So it's a two-inch increase in the
21 distance between them?

22 A. (Witness Daum) That's my recollection,
23 yes.

24 Q. Now, you have noticed that I gave you
25 each a piece of Wrigley's Doublemint Gum. Do you

1 have that?

2 A. (Witness Bley) They are on the table.

3 Q. Good. Now, what I'd like to ask is
4 taking that piece of gum at its longest dimension,
5 is that longer or shorter than the longest
6 dimension of the rubber pads?

7 A. (Witness Daum) What was the question
8 again, please.

9 Q. Is the longest dimension of the piece
10 of gum longer or shorter than the longest
11 dimension of the rubber pads?

12 A. (Witness Daum) Well, first of all,
13 the dimension of the rubber pad that we are
14 interested in is the axial direction compared to,
15 say, the diameter of the pad which might be the
16 longest dimension.

17 Q. What is the axial dimension?

18 JUDGE GLEASON: Mr. Blum, are those
19 pieces of gum to be entered as exhibits? I don't
20 think we have the dimensions in the record.

21 Q. All right. Why don't you identify
22 the length of the piece of gum.

23 A. (Witness Wesley) Well, if I estimate
24 it, it's in the order of two and a half inches,
25 possibly.

1 Q. My estimate would be three inches,
2 but we'll split the difference.

3 Now, by "axial dimension," you mean
4 the length between two buildings of the rubber
5 pads?

6 A. (Witness Daum) That's correct.

7 Q. What is that dimension of those pads?

8 A. (Witness Daum) As I remember, that
9 was in the order of two inches.

10 Q. Thank you.

11 JUDGE PARIS: Could I ask a question
12 here Mr. Blum?

13 MR. BLUM: Certainly.

14 JUDGE PARIS: You said the axial
15 dimension of the bumper is about two inches.

16 DR. WESLEY: I look on the table here
17 in front of me, and the number reads 2.37 inches.

18 JUDGE PARIS: But you said the
19 buildings are not three and a half inches apart?

20 DR. WESLEY: Yes, sir.

21 JUDGE PARIS: What's holding them
22 apart?

23 DR. WESLEY: Their independent
24 structures which are separated by a gap. They
25 is nothing other than air in the gap.

1 JUDGE PARIS: Well, originally --

2 DR. WESLEY: Other than a light
3 roofing.

4 JUDGE PARIS: Originally, they were
5 one and a half inches apart?

6 DR. WESLEY: Yes, sir.

7 JUDGE PARIS: What did they do to get
8 them three and a half inches apart?

9 DR. WESLEY: They basically did not
10 change any of the structural framing. They merely
11 cut back some of the roof overhand on the concrete
12 decking.

13 JUDGE PARIS: Okay. Back to you.

14 JUDGE GLEASON: Back to you and the
15 gum, Mr. Blum.

16 Q. If some material other than rubber
17 had been used, would it have the same effect as
18 using the rubber pad, the two inch rubber pads?

19 A. (Witness Daum) You could use any
20 number of materials which would give you a spring
21 effect, a coil spring, for instance.

22 Q. Just out of curiosity, would gum work?

23 A. (Witness Daum) I would hate to use
24 gum, because I have never used it as a structural
25 material.

1 Q. But something like metal wouldn't
2 work?

3 A. (Witness Daum) Certainly a coil,
4 metal spring would work.

5 Q. Would work. Okay.

6 MR. BLUM: We have no further
7 questions.

8 JUDGE GLEASON: Thank you, Mr. Blum.
9 Any redirect -- or, let's see from the Staff.
10 I'm sorry.

11 MS. MOORE: Staff has no questions.

12 JUDGE GLEASON: Any redirect?

13 MR. COLARULLI: No redirect for the
14 Power Authority, your Honor.

15 MR. BRANDENBURG: None for Con Edison,
16 Mr. Chairman.

17 JUDGE PARIS: I have a question for
18 Dr. Wesley and Mr. Perla.

19 I think by implication, you have
20 given an answer to this question, but I'd like to
21 put it to you directly. If an earthquake of the
22 magnitude of the 1886 Charleston earthquake
23 occurred at the site, would the ground
24 acceleration exceed the capacity of the
25 containment buildings to withstand it?

1 MR. PERLA: I believe that the ground
2 acceleration for that earthquake would be on the
3 order of 6/6g if I'm not mistaken, 5/10 or 6/10g;
4 and on that basis, essentially the containment
5 would not be affected by that.

6 JUDGE PARIS: Thank you.

7 JUDGE SHON: I have a question which
8 in some sense really doesn't pertain to the
9 matters that you have been questioned upon today.
10 It was briefly touched on by Mr. Blum in one or
11 two of his questions, and he managed to remind me
12 of something that I wanted to ask someone.

13 I might say if any of the parties
14 would prefer that this be put some other way or
15 addressed at some other time, I might well
16 understand because it is that sort of thing. It's
17 really beyond the scope of either your direct or
18 the cross-examination.

19 You were asked about ATWS conditions,
20 that is anticipated transient without scram.

21 I wonder whether any of you, perhaps,
22 Dr. Bley, is aware of whether or not the
23 anticipated transient without scram phenomenon at
24 Indian Point could be initiated as it was at Salem
25 and at Sanofro by the failure of an undervoltage

1 relay and if so what probability has been assigned
2 to that and to the subsequent series of events
3 that might occur?

4 MR. BLEY: Yes, I can address that.

5 After Salem, we went back and looked
6 over our analysis to see just how it compared, and
7 in my opinion, it compares very favorably with
8 what happened at Salem.

9 The specific failure mode, the
10 breakers failing to open when the undervoltage
11 coil is de-energized is the dominant failure mode
12 for those breakers.

13 It was identified as the dominant
14 failure mode in our data analysis.

15 If one takes the generic failure rate
16 that we present for those breakers -- and I forget
17 the exact number -- use that in the full analysis
18 of failure to scram, that we used, that -- I'm
19 close on the numbers now. The number comes out
20 you'd expect one failure to scram for something
21 like 10,000 such events.

22 If you just do a real rough sort of
23 calculation at the number of trips that have
24 probably occurred at units in this country and
25 assume approximately ten per year, the total

1 number is something on the order of 10,000, and we
2 have had one of these events.

3 JUDGE SHON: In fact you have had
4 several, have you not?

5 MR. BLEY: Salem had two, but in my
6 opinion that's event is one. That's like going to
7 see your tire was flat yesterday and you go out
8 the next morning and it's still flat. It's really
9 only one event. You observed it twice.

10 JUDGE SHON: There was a similar
11 occurrence at Sanofro, wasn't there?

12 MR. BLEY: I'm not familiar with the
13 Sanofro event.

14 JUDGE SHON: Because I understand
15 that many of these have failed, many of these
16 other voltage relays have failed, but the reactor
17 did not fail to scram because of the redundant
18 systems.

19 MR. BLEY: That's very true. What I
20 was saying is taking the number that have failed
21 and we identified that as the dominate failure
22 mode for the breakers, one would come up with the
23 numbers for total failure that I used. So they
24 are in the ballpark.

25 One of the plants we analyzed had a

1 number approximately like that and had observed
2 failures of this sort individually at the plant.
3 Neither Indian Point unit has such failures ever
4 occurred. We have never had a single breaker fail
5 because of this problem.

6 So the plant specific calculation
7 shows a better failure rate once we have done that
8 update than the generic and the total chance of
9 failure to scram at Indian Point was something on
10 the order of two times ten to the minus five
11 rather than one times ten to the minus four that
12 we saw generically.

13 That's also consistent in our ATWS
14 sequence analysis that shows up in the amendment.
15 The scenario of events following the ATWS event
16 asks if the operator pushes the reactor trip
17 button which does indeed energize the trip coil. .

18 If so, there's a fairly good chance
19 that he'll get a reactor trip. If that fails
20 there are other things in our scenario and indeed
21 the one that occurred at Salem followed this --
22 in fact, both that occurred at Salem followed this
23 path very quickly after the trip signalled the
24 operator pushed the reactor trip button and the
25 breakers did indeed open.

1 My memory is that so far in the
2 industry, we have no records of failures of the
3 breakers given energizing of the trip coil but our
4 analysis allows for that possibility, that
5 possible failure and continues looking for others,
6 so I think our results are reasonably consistent
7 -- I know they are consistent with the data on
8 individual breaker failures and I think the
9 results would be consistent for the event that
10 happened at Salem.

11 In fact, as I said, numbers on the
12 order that are roughly estimated and if there was
13 another one at Sanofro, that would change things
14 by a factor of two which given a certainty balance
15 I think is fairly close.

16 So I think we are consistent.

17 JUDGE SHON: Thank you.

18 JUDGE GLEASON: Dr. Bley, in
19 re-examination the areas of cross-examination and any
20 other areas referred to in both your letter, does
21 that cover all of the matters included in
22 Amendment 1 or the matters in Amendment 1 which
23 have not been subject to interrogation today?

24 MR. BLEY: I believe that we went
25 through the whole list of every item in Amendment

1 1, at least briefly, and I was asked whether it
2 made a difference or not. I don't think I'm wrong.
3 I think we covered each one briefly.

4 JUDGE GLEASON: Okay. Thank you.
5 You are excused, gentlemen.

6 In light of that, Mr. Blum, are you
7 satisfied with respect to your opportunity to
8 cross-examine on this issue?

9 MR. BLUM: Well, unfortunately, no,
10 because although I did what I could without any
11 expert help, as you can probably tell during some
12 portions of the cross-examination, there were some
13 limits imposed by virtue of not having anyone to
14 consult with.

15 JUDGE GLEASON: But you have your
16 expert in all areas sitting right next to you. I
17 don't understand this.

18 MR. SCHALLA: You turn straight away,
19 and I know very little about seismic structural
20 engineering.

21 JUDGE GLEASON: Not very many people
22 do anyway. Well, I think the Board would feel
23 that there's been an adequate opportunity.
24 Therefore, we deny the motion for whatever parts
25 of it we may.

1 Gentlemen, you are excused.

2 MR. COLARULLI: Your Honor, two
3 matters.

4 First Dr. Bley has a short piece of
5 testimony. We distributed this morning a document
6 dated October 22, 1982, and it concerns the Sandia
7 meeting that Mrs. Moore was making reference to
8 yesterday. This document is a document that she
9 was referencing and there's a summary of the
10 meeting in Albuquerque. It was sent -- it is on
11 the second page.

12 You can see that this was copied to
13 Jean Hold of NYPIRG and Ellyn Weiss, Union
14 Scientist.

15 In fact, apparently there was two copies in
16 this summary which, as I say, is also available in
17 the public document room, this document in this
18 summary. Mrs. Moore made reference to this
19 yesterday, the so-called fixes, fire fixes and
20 multiple bolt fixes are discussed in the summary,
21 and we believe that this goes to that question of
22 notice of the Intervenors as to what was happening
23 regarding the fixes in Amendment 1.

24 JUDGE GLEASON: How do you want this
25 document handled?

1 MR. BLUM: Excuse me.

2 JUDGE GLEASON: I just asked him how
3 he wants it handled, Mr. Blum.

4 MR. COLARULLI: Your Honor, it's
5 publicly available in the PDR, and I think you can
6 simply take notice of it and note of what's in it.

7 JUDGE GLEASON: Do you want it to be
8 admitted into the record?

9 MR. COLARULLI: I think it would be
10 helpful to have it marked as an exhibit.

11 JUDGE GLEASON: All right. Let's
12 mark it as Power Authority Exhibit --

13 MR. COLARULLI: Your Honor, we
14 believe it's 44.

15 JUDGE GLEASON: We have 47. So we'll
16 mark it 47, unless you change it with Mr. Lewis
17 later. All right.

18 It's been moved and it has been
19 marked and moved to be admitted into evidence as
20 Power Exhibit 47.

21 (Power Authority Exhibit No. 47 was
22 marked for identification.)

23 Mr. Blum?

24 MR. BLUM: I will not oppose the
25 admission of it, but I do wish to make clear its

1 relevance or lack of relevance to the issue of
2 notice. What it did was to describe the results
3 of a technical meeting at which more extensive
4 supporting information and technical analysis was
5 made available, but the description occurs after
6 the meeting rather than before it. There was not
7 an analogous thing saying this kind of stuff could
8 be available at this meeting sent out prior to the
9 meeting.

10 JUDGE GLEASON: All right. Fine.
11 With those comments in the record why we'll have
12 the exhibit will be admitted into the record as
13 exhibit 47.

14 JUDGE GLEASON: Do we have something
15 wells Dr. Bley?

16 MR. COLARULLI: Yes the other two
17 witnesses can leave the stand. We just need Dr.
18 Bley remaining.

19 MR. BLUM: While we have a minute,
20 could we --

21 JUDGE GLEASON: We don't have a
22 minute. Dr. Bley is going to answer something
23 here.

24 REDIRECT EXAMINATION

25 BY MR. COLARULLI:

1 Q. Dr. Bley, do you have in front of you
2 a copy of testimony entitled Licensees
3 supplemental testimony of Dennis Dennis C. Bley on
4 contention 2.2A?

5 A. I do.

6 Q. Was this document prepared either by
7 you or on your direct supervision?

8 A. It was.

9 Q. And do you have any additions or
10 correction to say this testimony?

11 A. No.

12 Q. Is this testimony true and accurate
13 to the best of your knowledge, information and
14 belief?

15 A. It is.

16 MR. COLARULLI: Your Honor, the Power
17 Authority would move that Licensees' supplemental
18 testimony of Dennis C. Bley on contention 2.2A be
19 admitted into evidence and incorporated in the
20 record as if read.

21 JUDGE GLEASON: All right. Do we
22 have a transcript reference for where this was
23 referred to or the original testimony and that
24 correction was admitted?

25 MR. COLARULLI: We could -- yes.

1 It's not a transcript reference, your Honor. I
2 have a reference on the first page of the
3 supplemental testimony. There's a reference to
4 the original testimony that it's correcting. It's
5 correcting page 2 of Dr. Bley's original testimony.

6 JUDGE GLEASON: I know that but his
7 original testimony -- we want the date -- what
8 date did you appear? Do you recall that?

9 MR. COLARULLI: We can check, your
10 Honor, and give it to you. He appeared so many
11 times.

12 JUDGE GLEASON: I want it in the
13 record. All right. You have no objection to this,
14 Mr. Blum, I presume?

15 MR. BLUM: No.

16 JUDGE GLEASON: Without objection,
17 the supplemental testimony of Dr. Bley on
18 contention 2.2A will be received into evidence and
19 bound into the record as if read:

20 (The bound testimony is as follows:)

21

22

23

24

25

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
James P. Gleason, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

In the Matter of)

CONSOLIDATED EDISON COMPANY OF)
NEW YORK, INC.)
(Indian Point, Unit No. 2))

POWER AUTHORITY OF THE STATE OF)
NEW YORK)
(Indian Point, Unit No. 3))

) Docket Nos.
) 50-247 SP
) 50-286 SP

) March 31, 1983
)
)

LICENSEES' SUPPLEMENTAL TESTIMONY
OF DENNIS C. BLEY
ON CONTENTION 2.2(a)

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SUPPLEMENTAL TESTIMONY ON CONTENTION 2.2(a)

My name is Dennis C. Bley. I am a consultant in reliability, risk, and decision analysis for electrical generating plants at Pickard, Lowe and Garrick, Inc. I was a principal investigator on the Indian Point Probabilistic Safety Study. A statement of my professional qualifications is attached.

The purpose of this Supplemental Testimony is to correct a misstatement in my testimony as filed on January 12, 1983, and in the Indian Point Probabilistic Safety Study (IPPSS), upon which my testimony was based.

The correction pertains to the statement that the flooding event at Unit 2 on October 17, 1980, led to

numerous hardware and administrative changes for both units . . . including for both units:

- o Revised technical specifications regarding limiting conditions for operation of the various leakage detection systems and operating leakage limits.

Licensees' Testimony of Dennis C. Bley on Contention 2.2(a) at 2 (Jan. 12, 1983); IPPSS § 7.4.2.2.5.

This statement is in error regarding Unit 3 because Unit 3's Technical Specifications in existence prior to the flooding event at Unit 2 already addressed the subject of fan cooler leakage. See Amendment No. 31; Technical Specifications for Indian Point Unit No. 3 at 4.4-10. The

testimony of the Nuclear Regulatory Commission Staff on this subject is accurate: "Technical specifications at Unit 3 already existed that required testing of the air cooler system that limited the leak rate to 0.36 gallons per minute, this leakage limit includes all valves, coils and pipes, not just the isolation valves." NRC Staff Testimony of William T. LeFave, Frank Rowsome and Bernard Turovlin on Contention 2.2.a at 14 (Jan. 12, 1983) (emphasis added).

NAME

DENNIS C. BLEY

EDUCATION

Ph.D., Nuclear Reactor Engineering, Massachusetts Institute of Technology, 1979.

Courses in nuclear engineering and computer science, Cornell University, 1972-1974.

U.S. Navy Nuclear Power School, 1968.

University of Cincinnati, B.S.E.E., 1967.

Courses in Mathematics and Physics, Centre College of Kentucky, 1961-1963.

PROFESSIONAL EXPERIENCE

General Summary

A consultant at Pickard, Lowe & Garrick, Inc., 1979-present. Technical analysis of power plant availability and risk. Cost-benefit analysis of power plant system changes. Preparation of technical reports, expert testimony, and proposals. Supervision of the technical quality of PLG reports and direction of some PLG projects. Instructor at availability, risk, and decision analysis courses offered by PLG. Oyster Creek Probabilistic Risk Assessment (OPSA). Assisted in the completion and review of this complete risk assessment of an operating SWR performed for Jersey Central Power & Light. Work Order Scheduling System (WOSS). Assisted in developing the San Onofre 2 and 3 plant model for a computer based work order prioritizing, scheduling, and record keeping system for Southern California Edison Company. Steam Turbine Diagnostics Cost-Benefit Analysis. Developed and applied a procedure for evaluating diagnostic alternatives for EPRI. Reliability Analysis of Diablo Canyon Auxiliary Feedwater System for Pacific Gas & Electric. Midland Plant Auxiliary Feedwater System Reliability Analysis for Consumers Power. Technical Review of the "Office of Emergency Services Recommended Emergency Planning Zone Considerations..." for Southern California Edison. Prioritization of NRC Action Plan for NSAC. Development of a methodology and participation in an AIF workshop to apply it for EPRI/NSAC. Zion and Indian Point Probabilistic Safety Studies. Methods development, systems analysis, and plant modeling. Other PRAs--LaSalle, Browns Ferry, Midland, Pilgrim 1, and Oconee.

On USS Enterprise, Reactor Training Assistant, 5 months, 1971.

Responsible for technical training of approximately 400 nuclear trained officers and men prior to annual safeguards examination. Propulsion Plant Station Officer, 9 months, 1970-1971. Responsible for maintenance and operation of one propulsion plant (two reactors, eight steam generators, and associated equipment) during power range testing of new reactors and during deployment. Approximately 50 enlisted personnel were assigned to the plant. Shift Propulsion Plant Watch Officer, 15 months, 1969-1970. Supervised a crew of about 20 navy enlisted operators and many shipyard workers on 8-hour shift rotation conducting maintenance

and testing in one propulsion plant during refueling-overhaul. Shipboard qualifications: Propulsion Duty Officer, responsible for all propulsion equipment during absence of Reactor Officer and Engineer Officer. Engineering Officer of the Watch, operational watch in Central Control, responsible for all propulsion and engineering equipment and watch standers. Propulsion Plant Watch Officer, operational watch in one propulsion plant, directed and responsible for all operations in the plant.

At Cincinnati Bell, Plant staff assistant, 4 months, 1967. Worked in central office and transmission group supplying technical assistance to the line organization. Cooperative trainee, 3 years, 1964-1967, work-study program with alternate three month periods at the University of Cincinnati.

Chronological Summary

1979-Present	Consultant, Pickard, Lowe and Garrick, Inc.
1974-1979	Massachusetts Institute of Technology. Research assistant for Department of Energy LWR Assessment Project. Teaching assistant in engineering of nuclear reactors.
Summer 1976	Northeast Utilities. Engineer: economy studies, plant startup, analysis of physics tests.
1967-1974	U.S. Naval Reserve, active duty. Instructor of naval science, Cornell University, 1971-1974; Reactor Department of USS Enterprise, deployment and refueling-overhaul, 1969-1971; Nuclear Power training program and Officer Candidate School, 1967-1969.
1964-1967	Cincinnati Bell. Plant staff assistant and work-study program trainee.

MEMBERSHIPS, LICENSES, AND HONORS

The Society for Risk Assessment.
Institute of Electrical and Electronics Engineers.
American Nuclear Society.
American Association for the Advancement of Science.
The New York Academy of Sciences.
U.S. Naval Reserve, Commander.
Registered Nuclear Engineer, State of California.

Sigma Xi (national science honors society), 1976.
Sherman R. Knapp Fellowship (Northeast Utilities), 1975-1976.
Sloan Research Traineeship, 1974-1975.
Eta Kappa Nu (national electrical engineering honors society), 1967.

REPORTS AND PUBLICATIONS

"Seabrook Probabilistic Safety Assessment," Public Service Company of New Hampshire, to be published in 1983.

Pickard, Lowe and Garrick, Inc., "Midland Probabilistic Risk Assessment," Consumers Power Company, to be published in 1982.

Oconee Probabilistic Risk Assessment," a joint effort of the Nuclear Safety Analysis Center, Duke Power, and other participating utilities, to be published in 1982.

Tennessee Valley Authority and Pickard, Lowe and Garrick, Inc., "Browns Ferry Probabilistic Risk Assessment," to be published in 1982.

Apostolakis, G., M. Kazarians, and D. C. Bley, "A Methodology for Assessing the Risk from Cable Fires," accepted for publication in Nuclear Safety, 1982.

Kaplan, S., H. F. Perla, and D. C. Bley, "A Methodology for Seismic Safety Analysis of Nuclear Power Plants," proposed presentation at the International Meeting on Thermal Nuclear Reactor Safety, Chicago, Illinois, August 29-September 2, 1982.

Bley, D. C., S. Kaplan, and B. J. Garrick, "Assembling and Decomposing PRA Results: A Matrix Formalism," proposed presentation at the International Meeting on Thermal Nuclear Reactor Safety, Chicago, Illinois, August 29-September 2, 1982.

Garrick, B. J., S. Kaplan, and D. C. Bley, "Recent Advances in Probabilistic Risk Assessment," prepared for the MIL Nuclear Power Reactor Safety Course, Cambridge, Massachusetts, July 19, 1982.

Fleming, K. N., S. Kaplan, and B. J. Garrick, "Seabrook Probabilistic Safety Assessment Management Plan," PLG-0239, June 1982.

Garrick, B. J., "Lessons Learned From First Generation Nuclear Plant Probabilistic Risk Assessments," to be presented at the Workshop on Low-Probability/High-Consequence Risk Analysis, Arlington, Virginia, June 15-17, 1982.

Garrick, B. J., S. Kaplan, D. C. Iden, E. B. Cleveland, H. F. Perla, D. C. Bley, D. W. Stillwell, H. V. Schneider, and G. Apostolakis, "Power Plant Availability Engineering: Methods of Analysis, Program Planning, and Applications," EPRI NP-2168, PLG-0165, May 1982.

Bley, D. C., and R. J. Mulvihill, "Comments on Evaluation of Availability Improvement Options for Moss Landing Units 6 and 7," PLG-0226, March 1982.

Stillwell, D. W., G. Apostolakis, D. C. Bley, P. H. Raabe, R. J. Mulvihill, S. Kaplan, and B. J. Garrick, "EEI Availability Handbook," PLG-0218, January 1982.

Bley, D. C., L. G. H. Sarmanian, and D. W. Stillwell, "Reliability Analysis of Safety Injection System Modification, San Onofre Nuclear Generating Station - Unit 1," PLG-0206, October 1981.

"Zion Probabilistic Safety Study," Commonwealth Edison Company, September 1981.

Buttner, D. R., "Analysis of Postulated Accidents During Low Power Testing at the San Onofre Nuclear Generating Station--Unit 2," PLG-0199, September 1981.

Bley, D. C., D. W. Stillwell, and R. R. Fray, "Reliability Analysis of Diablo Canyon Auxiliary Feedwater System," presented at the Tenth Biennial Topical Conference on Reactor Operating Experience, Cleveland, Ohio, August 17-19, 1981.

Garrick, B. J., and D. C. Bley, "Lessons Learned from Current PRAs," presented to the ACRS Subcommittee on Reliability and Probabilistic Risk Assessment, Los Angeles, California, July 28, 1981.

Kaplan, S., G. Apostolakis, B. J. Garrick, D. C. Bley, and K. Woodard, "Methodology for Probabilistic Risk Assessment of Nuclear Power Plants," draft version of a book in preparation, PLG-0209, June 1981.

Perla, H. F., "Project Plan: Probabilistic Risk Assessment, Midland Nuclear Power Plant," PLG-0150, May 1981.

Bley, D. C., C. L. Cate, D. W. Stillwell, and B. J. Garrick, "Midland Plant Auxiliary Feedwater System Reliability Analysis Synopsis," PLG-0166, March 1981.

Pickard, Lowe and Garrick, Inc., "A Methodology to Quantify Uncertainty of Cost of Electricity for Alternate Designs of (Combustion) Turbine Combined Cycle Plants," PLG-0162, March 1981.

Garrick, B. J., S. Ahmed, and D. C. Bley, "A Methodology for Evaluating the Costs and Benefits of Power Plant Diagnostic Techniques," submitted for presentation at the Ninth Turbomachinery Symposium, Houston, Texas, December 9-11, 1980.

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Garrick, B. J., S. Kaplan, D. C. Iden, E. B. Cleveland, H. F. Perla, D. C. Bley, and D. W. Stillwell, "Power Plant Availability Engineering, Methods of Analysis - Program Planning - Applications," 2 Vols., PLG-0148. October 1980.

Bley, D. C., C. L. Cate, D. W. Stillwell, and B. J. Garrick, "Midland Plant Auxiliary Feedwater System Reliability Analysis," PLG-0147, October 1980.

Bley, D. C., D. M. Wheeler, C. L. Cate, D. W. Stillwell, and B. J. Garrick, "Reliability Analysis of Diablo Canyon Auxiliary Feedwater System," PLG-0140, September 1980.

Garrick, B. J., et al, "Project Plan: Oconee Probabilistic Risk Assessment," PLG-0138, August 1980.

Garrick, B. J., D. M. Wheeler, E. B. Cleveland, D. C. Bley, L. H. Reichers, and C. B. Morrison, "Operating Experience of Large U.S. Steam Turbine-Generators; Volume 1 - Data, Volume 2 - Utility Directory," PLG-0134, June 1980.

Garrick, B. J., S. Kaplan, and D. C. Bley, "Seminar: Power Plant Probabilistic Risk Assessment and Reliability," PLG-0127, May 1980.

Garrick, B. J., and S. Kaplan, "Oyster Creek Probabilistic Safety Analysis (OPSA)," presented at the ANS-ENS Topical Meeting on Thermal Reactor Safety, Knoxville, Tennessee, April 8-11, 1980.

Garrick, B. J., S. Kaplan, G. E. Apostolakis, D. C. Bley, and T. E. Potter, "Seminar: Probabilistic Risk Assessment as Applied to Nuclear Power Plants," PLG-0124, March 1980.

Garrick, B. J., S. Ahmed, and D. C. Bley, "A Methodology for Evaluating the Costs and Benefits of Power Plant Diagnostic Techniques," PLG-0118, January 1980.

Kaplan, S., B. J. Garrick, and D. C. Bley, "Notes on Risk, Probability, and Decision," PLG-0113, November 1979.

Bley, D. C., C. L. Cate, D. C. Iden, B. J. Garrick, and J. M. Hudson, "Seismic Safety Margins Research Program (Phase I), Project VII - Systems Analysis," PLG-0110, September 1979.

Cate, C. L., and B. J. Garrick, "W-501 Combustion Turbine Starting Reliability Analysis," PLG-0103, June 1979.

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Pickard, Lowe and Garrick, Inc., "Work Order Scheduling System, Design Specification," March 1979.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
James P. Gleason, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

In the Matter of)	
)	
CONSOLIDATED EDISON COMPANY OF)	Docket Nos.
NEW YORK, INC.)	50-247 SP
(Indian Point, Unit No. 2))	50-286 SP
)	
POWER AUTHORITY OF THE STATE OF)	March 31, 1983
NEW YORK)	
(Indian Point, Unit No. 3))	
)	

CERTIFICATE OF SERVICE

I hereby certify that on the 31st day of March, 1983, I caused a copy of Licensees' Supplemental Testimony of Dennis C. Bley on Contention 2.2(a) to be served by first class mail, postage prepaid on all parties:

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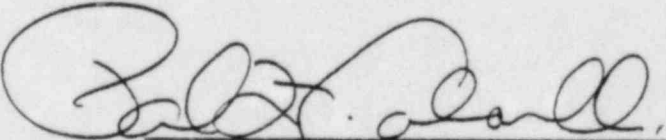
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Paul F. Solarulli



5160 Birch Street, Newport Beach, Calif. 92660 (714) 833-7552

December 30, 1982

Mr. H. F. Perla
Pickard, Lowe and Garrick, Inc.
17840 Skypark Boulevard
Irvine, California 92714

Dear Hal:

At your request, we have reevaluated the capacity of the Indian Point Unit 2 containment building to withstand seismic excitation. Capacities have been developed assuming no retaining wall exists between the soil backfill on the east side of the structure and also assuming a retaining wall is in-place so that no soil loads occur on the containment. The evaluation of the new seismic capacities was based on several new items of design information which were not available for the original investigation. These include:

1. Westinghouse dynamic analysis results showing frequencies, mode shapes, and floor response spectra.
2. UE&C containment design calculations.
3. Structural drawings showing wall meridional and hoop reinforcing steel, dome reinforcing steel, additional seismic reinforcement (partial height only), base mat reinforcing steel, and backfill and grading plan.

These items of information indicate significant conservatism exists in several areas which was not apparent from the initial review of available design reports and subsequent conversations with UE&C personnel.

One area of conservatism exists in the determination of the seismic design loads. The original design calculations were based on a modified Rayleighs method to estimate the fundamental mode shape and frequency. The spectral acceleration was based on the 2% damped Housner spectrum. However, the base shear was calculated by factoring the total structure mass by spectral acceleration rather than the modal mass. The design base shear was then distributed to the model nodes in proportion to the ratio of the product of the nodal mass and the height above the base to the sum of this product at all nodes. Higher modes were not considered. In order to evaluate the effect of the above assumption, a simple lumped-mass model of the containment was developed using the model properties from the original UE&C design analysis, and a response spectrum analysis was conducted. This analysis indicates that approximately 30% less base shear is expected compared with the original design assumption or, in other words, a factor of safety of 1.4 exists for modeling.

Mr. H. F. Perla
Pickard, Lowe and Garrick, Inc.
December 30, 1982
Page two

An increase in the factor of safety due to the strength of the reinforcing steel was also indicated from a review of the structural drawings. It is not clear how the effective steel area of the inclined steel as reported in the containment design report was originally developed, but it appears to be quite conservative. Shear failure is currently expected to initiate at Elevation 48'-0".

The treatment of the soil loading on the containment structure also appears to have been developed in a conservative manner. A maximum backfill height above the top of the base mat of approximately 52 feet occurs at the service road. The backfill at the wall drops off rapidly to the local plant grade elevation of 17'-6" over approximately 90% of arc towards the north. The effective backfill is reduced even more rapidly towards the south due to the presence of the fuel storage and fan house buildings. The top of Unit 2 Containment base slab is at Elevation 43'-0" so that only backfill loads above that elevation are of concern. Based on this configuration, approximate dynamic lateral earth pressures were developed using the limit equilibrium method.

Inclusion of the soil loads results in a slight decrease in the strength capacity due to the nonseismic shear loads due to the backfill in addition to the dynamic loads. The overall effect of inclusion of the soil loads on the seismic capacity of the containment building is a net reduction in the median effective ground acceleration of approximately 14%. Median factors of safety and expected variabilities associated with failure of the Unit 2 containment building with and without the presence of a retaining wall are shown in Tables A and B, respectively.

The seismic design loads in the Unit 3 containment building are the same as for the Unit 2 structure without the backfill loads. Shear failure is expected to initiate at Elevation 43'-0". Table C reflects the modeling factor of safety of 1.4 and other minor revisions in order to maintain consistency between the Units 2 and 3 capacities.

I hope this provides the information you requested. If you have any questions, or if you require any further details, please do not hesitate to call either Phil Hashimoto or myself.

Very truly yours,

STRUCTURAL MECHANICS ASSOCIATES, INC.

Phil Hashimoto

for
Donald A. Wesley
Vice President

DAW:r1f
Attachments

TABLE A

SHEAR FAILURE OF UNIT 2 CONTAINMENT W/O BACKFILL LOADS (REVISED)

Item	Median F.S.	β_R	β_U	β_C
Strength	5.3	0.11	0.20	0.23
Inelastic Energy Absorption	2.2	0.16	0.21	0.26
Spectral Shape	1.4	0.19	0.06	0.20
Damping	1.0	0.10	0.10	0.14
Modeling	1.4	0	0.10	0.10
Modal Combination	1.0	0.09	0	0.09
Combination of Earthquake Components	0.93	0.14	0	0.14
Soil-Structure Interaction	1.0	0	0.05	0.05
Total	21	0.33	0.33	0.47

Median Acceleration Capacity = 21 (0.15g)*
= 3.1g

* Where 0.15g is the design SSE peak ground acceleration

TABLE B

SHEAR FAILURE OF UNIT 2 CONTAINMENT W/BACKFILL LOADS (REVISED)

Item	Median F.S.	β_R	β_U	β_C
Strength	5.0	0.11	0.21	0.24
Inelastic Energy Absorption	2.2	0.16	0.21	0.26
Spectral Shape	1.4	0.19	0.06	0.20
Damping	1.0	0.10	0.10	0.14
Modeling	1.4	0	0.10	0.10
Modal Combination	1.0	0.09	0	0.09
Combination of Earthquake Components	0.93	0.14	0	0.14
Soil-Structure Interaction	1.0	0	0.05	0.05
Backfill	0.89	0.09	0.17	0.19
Total	18	0.35	0.38	0.52

Median Acceleration Capacity = 18 (0.15g)*
= 2.9g

* Where 0.15g is the design SSE peak ground acceleration

TABLE C

SHEAR FAILURE OF UNIT 3 CONTAINMENT (REVISED)

Item	Median F.S.	β_R	β_U	β_C
Strength	6.0	0.13	0.20	0.24
Inelastic Energy Absorption	2.2	0.16	0.21	0.26
Spectral Shape	1.4	0.19	0.06	0.20
Damping	1.0	0.10	0.10	0.14
Modeling	1.4	0	0.10	0.10
Modal Combination	1.0	0.09	0	0.09
Combination of Earthquake Components	0.93	0.14	0	0.14
Soil-Structure Interaction	1.0	0	0.05	0.05
Total	24	0.34	0.33	0.47

Median Acceleration Capacity = 24 (0.10g)*
= 2.4g

* For the Unit 3 containment building, the factors of safety were based on the OBE since the OBE governed the design for this building.

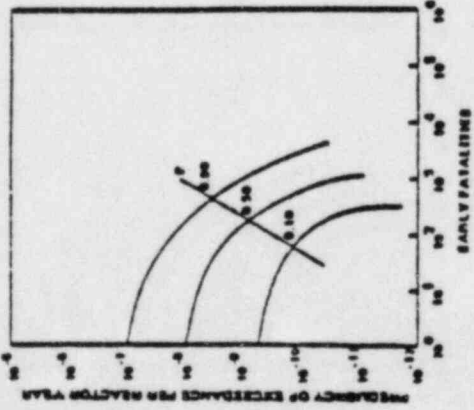


Figure III-1a

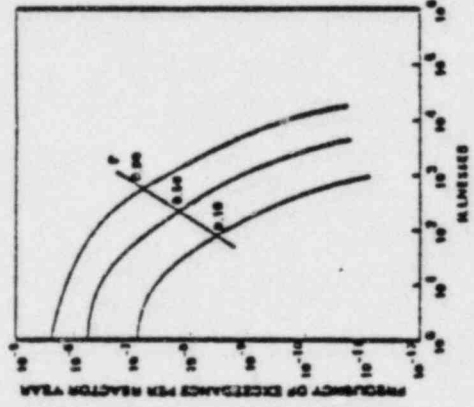


Figure III-1b

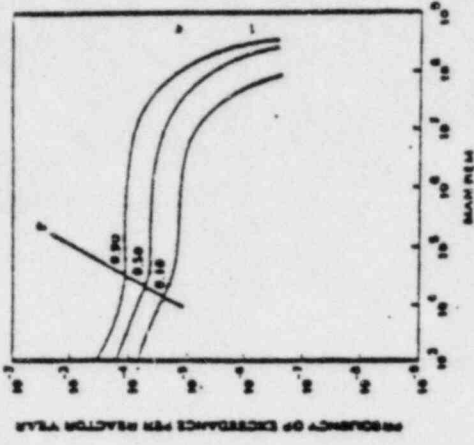


Figure III-1c

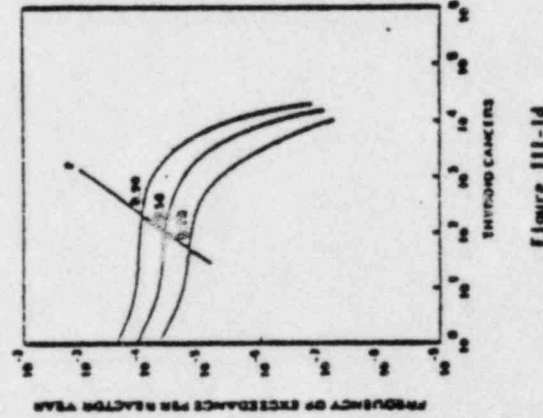


Figure III-1d

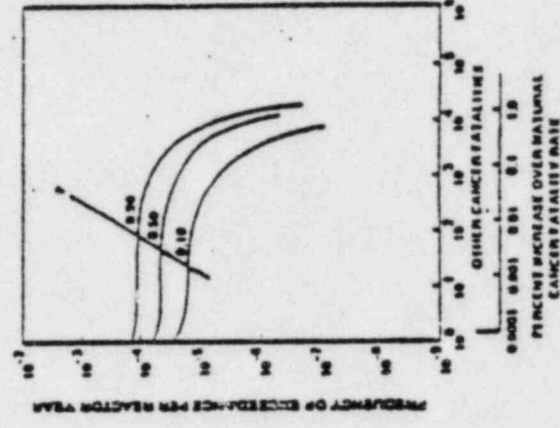


Figure III-1e

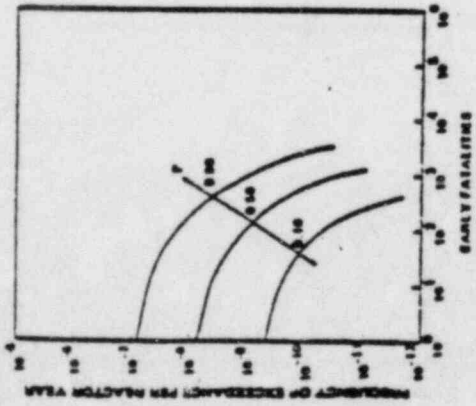


Figure III-2a

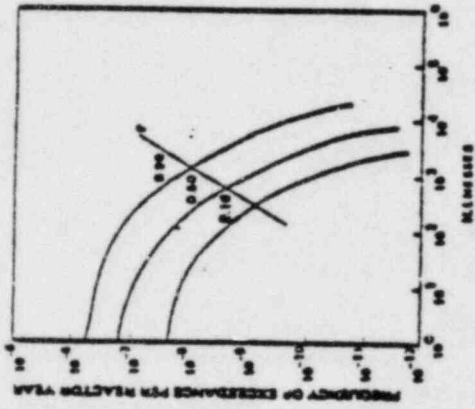


Figure III-2b

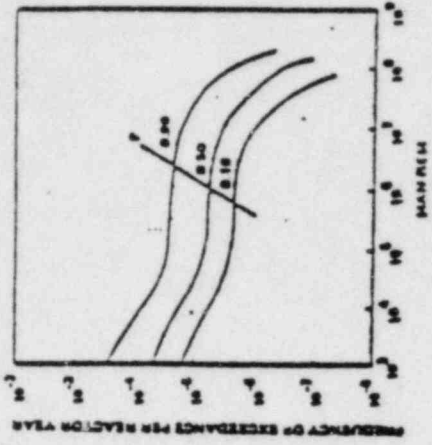


Figure III-2c

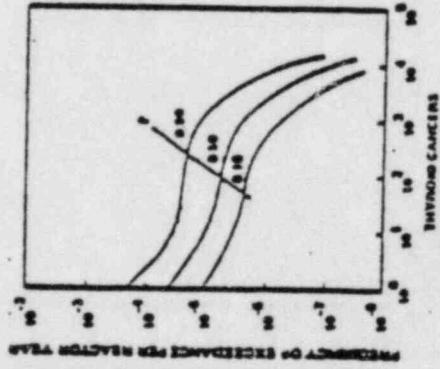


Figure III-2d

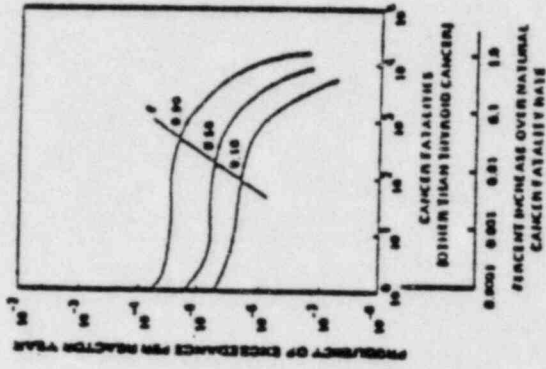


Figure III-2e

DONALD A. WESLEY - Vice President

EDUCATION

B.S. - Mechanical Engineering, University of Colorado
M.S. - Mechanical Engineering, University of Colorado
Ph.D. - Engineering Science, Arizona State University

REGISTRATION

Mechanical Engineer, California

PROFESSIONAL EXPERIENCE

Dr. Wesley has over twenty years experience in a wide variety of areas of structural mechanics. He has had responsibility for stress and structural dynamics analysis of both nuclear power plant structures and equipment as well as conventional facilities. Much of this experience has been directed towards ultimate seismic capacity evaluations based in large part on nonlinear response techniques and includes both deterministic and probabilistic methods. He has developed seismic fragility levels for nuclear power plant structures including variabilities expected in the dynamic characteristics. Included have been concrete and steel frame buildings including containment structures for both PWR AND BWR plants. He has been responsible for computer program development and modification of general purpose codes. Included were specific analysis programs for concrete cracking, high temperature elastic-plastic creep problems, and in the development of a number of seismic response programs including soil-structure interaction effects with frequency independent and frequency dependent compliance functions, through-soil coupling of adjacent structures, generation of in-structure response spectra, nonlinear response of structures by means of a force-correction method, and specialized seismic response programs to compute the dynamic response characteristics of an HIGR core.

He has developed nuclear power plant design criteria including interfaces with utilities, architect-engineering firms, and nuclear regulatory bodies. He was responsible for seismic response and stress analyses of nuclear fuel handling and heat exchange equipment as well as piping, tanks, and electrical cabinets and equipment. Included is ASME Section VIII and Section III experience as well as high temperature code cases. He has supervised shake table test programs of scale modal nuclear reactor core systems and a wide range of electrical equipment for seismic excitation. Design responsibilities have included refueling floor

structures and piping. He has also been responsible for independent review of Seismic Category I and ASME Section III structures, vessels, and components of HIGR, GCFR, FFTF, and other nuclear systems.

His non-nuclear experience has included dynamic response analyses of structures and equipment subjected to seismic and nuclear blast excitation. This experience also includes high temperature analyses and the dynamic response of tube and shell heat exchangers resulting from tube rupture. Space structures of plate and shell construction as well as composite materials have been analyzed under shock and sinusoidal and random vibration loading conditions.

He has conducted stress and vibration analyses of critically stressed components in various types of turbomachinery. This included critical speed and bearing load analysis of high speed rotors as well as centrifugal and thermal stress analysis and vibration analysis of turbine and compressor blades. He developed computer programs to determine the elastic-plastic-creep stress distribution in rotating disks and the effects of non-synchronous precession on the critical speeds of multi-disk rotors.

He has been active in a number of industry code committees in the area of site evaluation and seismic response of nuclear power plants.

Honorary Societies

Sigma Xi
Tau Beta Pi
Pi Tau Sigma
Sigma Tau

Additional Education

- 1969 - Seismic Design of Nuclear Power Plants
Massachusetts Institute of Technology, Cambridge
- 1973 - Finite Element Methods
University of Southern California, Los Angeles

Additional Education (Continued)

- 1976 - Earthquake Resistant Design of Engineering Structures
University of California, Berkeley
- 1978 - Problem Analysis and Decision Making for Managers
Kepner Tregoe, San Diego

Professional Societies

ASME

1 MR. COLARULLI: Your Honor the
2 witness is ready for cross-examination.

3 JUDGE GLEASON: I don't think there's
4 any cross on that, just a correction of testimony,
5 is there, Mr. Blum?

6 MR. BLUM: No, there's no
7 cross-examination.

8 JUDGE GLEASON: Now, we can excuse
9 you. Thank you.

10 Mr. Blum, you have an item you want
11 to take up?

12 MR. BLUM: Yes, a brief matter on
13 Question 6 scheduling. Do you wish the parties to
14 set this up or --

15 JUDGE GLEASON: I do. I'd like to
16 take a minute to have the parties do that and
17 would like to hear whether you have done it yet.

18 MR. COLARULLI: I'm sorry, your Honor.

19 JUDGE GLEASON: The schedule on
20 Question 6.

21 MR. LEVIN: It's not scheduled yet,
22 your Honor.

23 MR. BLUM: My guess it would be
24 uncontroversial because I believe the Intervenor
25 wishes to go early in the week. One of the them

1 would like to be the first witness on Tuesday.

2 JUDGE GLEASON: What I'd like to
3 suggest, Mr. Blum, maybe sincer we are going to be
4 recessing a little bit earlier today, maybe during
5 that period, you might get together and work out
6 what the schedule is. We would like to get it on
7 the record this afternoon. We do have --

8 MR. LEVIN: Your Honor, if I might, I
9 don't believe that we are going to be able to do
10 that before we break today, but if we could get in
11 touch with the Board after we have had an
12 opportunity to -- perhaps, tomorrow or Monday and
13 inform you what's going to happen.

14 JUDGE GLEASON: All right. We do
15 have, in connection with that, we do have an
16 outstanding moticn which I presume is still being
17 pressed by the Licensees on sanctions.

18 MR. LEVIN: Yes, sir, that's correct
19 and we expect that document to be filed today or
20 -- in other words, our post-deposition papers
21 will be filed today barring any last-minute
22 difficulty.

23 JUDGE GLEASON: All right. Okay. So
24 in light of, you know, the eminence of Question 6,
25 we are going to be back up here Tuesday and

1 Wednesday to tour which should get it hopefully
2 -- well, by Monday at the latest, I suppose.

3 MR. LEVIN: We will certainly have it
4 by then.

5 MR. BLUM: I would request that the
6 Licensees provide a complete copy of the
7 transcript of the deposition of Dean Corren and
8 Rich Rosen with regard to that sanctions motion to
9 the Board.

10 MR. LEVIN: Your Honor, the Licensees,
11 Power Authority, will provide copies of whatever
12 the Board wishes but only at the direction of the
13 Board. We don't intend to attach the entire
14 deposition to the papers.

15 MR. BLUM: I would now move that the
16 Board instruct the Licensees that they must
17 provide a complete copy of it. Dean Corren was
18 not able to afford to purchase this deposition.
19 Three fourths of the deposition is irrelevant.
20 The last fourth gets right to the heart of the
21 issue, explains exactly what happens in terms that
22 would be completely clear, and the Board, I think,
23 is obligated to see that deposition and read those
24 parts before deciding on that motion.

25 MR. LEVIN: Then, your Honor, why are

1 we being asked to provide the entire deposition if
2 only the last fourth was relevant?

3 MR. BLUM: I want to make sure that
4 whole last corridor is there and not selected
5 pages.

6 MR. LEVIN: We promise not to cheat,
7 your Honor. If the Board wants that entire
8 deposition --

9 JUDGE GLEASON: Whatever argument is
10 being made next to the deposition, then it will
11 have to be a complete transcript of the deposition,
12 but I don't see any reason to do it at this time,
13 unless there's some reason that you weren't
14 present during the deposition.

15 MR. BLUM: I was present during the
16 deposition and I can argue the motion now if you
17 want to argue.

18 There's a problem with waiting until
19 the witnesses will already be here to decide a
20 motion like that.

21 Also, the Board still does have
22 pending our motion for a deposition on the
23 Question 10 with regard to IPPSS Amendment 1, so
24 those two would be decided together.

25 MR. LEVIN: Your Honor, Mr. Blum has

1 his Tuesdays mixed up. I understood you wanted to
2 make sure you had everything in hand before this
3 coming Tuesday, not the Tuesday on which Mr.
4 Corren is to be here.

5 JUDGE GLEASON: That's right.

6 MR. BLUM: I'm just trying to clarify
7 that everything will be in that entire transcript
8 or at least all the relevant parts of it and not a
9 single page pulled out of context.

10 MR. LEVIN: Your Honor, Mr. Blum and
11 Mr. Corren can provide the Board with the full
12 deposition if they wish. We object.

13 MR. BLUM: Mr. Corren refuses to
14 shell out a lot of money for that to purchase a
15 deposition on what was clearly a frivolous
16 deposition to begin with.

17 JUDGE GLEASON: Well, it may have
18 been frivolous but the Board ordered it to be held,
19 Mr. Blum.

20 MR. BLUM: That's correct and the
21 Board should see the whole transcript without Mr.
22 Corren paying hundreds of dollars.

23 JUDGE GLEASON: The Board will make
24 sure that -- you know, it can only judge on the
25 basis of what's before it. If it has any

1 questions, it will ask for more information, so as
2 of now, we are not going to direct anything to be
3 done.

4 With respect to your other comment,
5 we intend this afternoon to -- what was the
6 other outstanding issue that you referred to?

7 MR. BLUM: The motion which contained
8 two alternatives to strike IPPSS Amendment 1 or,
9 as the Board is more likely to consider, to order
10 a deposition on the issue of intent in failing to
11 provide IPPSS Amendment 1.

12 JUDGE GLEASON: I thought I just
13 ruled on that motion. I thought I had just denied
14 this motion a few minutes ago.

15 MR. BLUM: You addressed specifically
16 to further cross-examine on Amendment 1.

17 JUDGE GLEASON: I thought I denied
18 all parts of it, but if not, I'll look at it again
19 over the recess and come back.

20 There's one other item I want to get
21 to before we recess for lunch, that is I see Miss
22 Posner here. Are you ready to argue the New York
23 State motion on not supplying information under
24 emergency planning that you requested?

25 MS. FLEISHER: I think Mrs. Posner is

1 doing that.

2 JUDGE GLEASON: I asked Miss Posner.

3 MS. FLEISHER: Your Honor, I was a
4 little late this morning. Was it announced what
5 the order of the witnesses will be on not the next
6 week but the following week when the FEMA people
7 will be in?

8 JUDGE GLEASON: We are trying to work
9 that out. Generally -- I would like everybody's
10 attention to this. Mr. Lewis can handle it more
11 directly, but it appears to me, at least from
12 where I sit, that the first day of that
13 proceeding -- and we have some room arrangements
14 to work out this afternoon which I hope to
15 announce before we conclude here, because we can't
16 use that room -- this room, I gather, for the
17 first day, which is the 26th, but generally
18 speaking, I think we are talking about the
19 consolidated Intervenors' witnesses on the first
20 day.

21 On the second day, picking up some
22 things left over, like, Mr. Seisenwine -- was
23 that his name? If you have not worked out
24 arrangements with respect to Dr. Cohen, we could
25 have him on that second day, and, also, the

1 witnesses from Westchester and Rockland County on
2 that day.

3 Then the third and fourth days will
4 be the FEMA witnesses.

5 Now, I have been advised inch
6 formally that the Staff might have a witness with
7 respect to this information that they have to
8 provide, but they are not ready, I gather, at the
9 present moment to advise us is that right, Miss
10 Moore?

11 MS. MOORE: What?

12 JUDGE GLEASON: I have been advice
13 that had there was a possibility that in
14 connection with your summary of the onsite aspects
15 of information that may be given to the
16 Intervenors that you might want to have a witness
17 from the Staff during that week.

18 MS. MOORE: I am aware of that. I
19 don't believe the final discussion on that has
20 been made.

21 JUDGE GLEASON: That's exactly what I
22 said.

23 MS. MOORE: I can find out at the
24 recess, if you would like.

25 JUDGE GLEASON: I assume the

1 Licensees will not have witnesses during that
2 period? This is the last week.

3 MR. LEVIN: Other than Dr. Cohen.

4 JUDGE GLEASON: Other than Dr. Cohen,
5 yes. So anyway, that's where I stand right now,
6 Miss Fleisher, but one has to keep in mind that
7 outside of those two witnesses, we are not going
8 to be hearing other witnesses on emergency
9 planning, and the witnesses that are going to have
10 to testify are going to be testifying completely
11 on the matters that relate to the exercise.

12 So this is not an open, you know,
13 open door, to pick up testimony that should have
14 been delivered in the previous days that have been
15 allocated for that purpose.

16 All right.

17 MR. LEVIN: One point, your Honor.
18 The next two witnesses of Licensees will probably
19 go rather quickly. It's unlikely that there's
20 going to be much cross-examination.

21 Mr. Schmer is --

22 JUDGE GLEASON: I'm sorry. Go ahead.

23 MR. LEVIN: -- is present in the
24 court room and I was going to suggest if the Board
25 has no objection that we attempt to go ahead and

1 push through and finish up before lunch. I think
2 we can do it.

3 JUDGE GLEASON: How about Dr. Lee?

4 MR. BRANDENBURG: Dr. Lee is -- my
5 mic is dead.

6 JUDGE GLEASON: I'm sorry. We are
7 really getting ourselves out of sequence here.
8 How about Mr. Meyer?

9 MR. COLARULLI: Yes. Dr. Lee from
10 Con Edison and Dr. Meyer are both here.

11 MR. BLUM: I support Mr. Levin's
12 motion.

13 JUDGE GLEASON: Okay. Let us argue
14 this one motion here.

15 Go ahead Miss Posner.

16 MR. POSNER: Well, there's been a lot
17 of valuable information on emergency planning,
18 including the emergency planning exercise that's
19 not been put on the record.

20 Therefore, the record is incomplete,
21 and the Board and the commission needs this
22 information to make an independent assessment of
23 the FEMA evaluations of emergency plans.

24 The FEMA position, I think, is
25 rebuttable. In an investigation such as this,

1 material shouldn't be excluded from scrutiny just
2 because one side or one party doesn't want them to
3 be provided.

4 Under the New York State freedom of
5 information law, article six of the public officer's
6 law, New York State has articulated a very strong
7 policy of disclosure of government material I'd
8 like to read. The last two paragraphs of section
9 84 of Article 6: "The peoples right to know the
10 process of governmental decision making and to
11 review the documents and statistics leading to
12 determinations is basic to our society.

13 "Access to such information should
14 not be thwarted by shrouding it with a cloak of
15 secrecy or confidentiality.

16 "The legislature, therefore, declares
17 that government is the public's business and that
18 the public individually and collectively and
19 represented by a free press should have access to
20 the records of government in accordance with the
21 provisions of this article.

22 "Although there is a provision that
23 interagency and intraagency material may be exempt,
24 the government agencies who claim this privilege
25 in New York have a heavy burden to prove it and

1 not just to assert it."

2 Our experience with the Radiological
3 Emergency Preparedness Group has been that it made
4 its decision early on that the radiological
5 emergency preparedness plans were satisfactory and
6 that that agency forwarded the plans to FEMA for
7 review in spite of the fact that they have not
8 been approved by the four counties affected and
9 the REPG would have made no additions or
10 correction to these plans if they had not been
11 forced to do so by the deficiencies found in the
12 FEMA reports and by the constant pressure of
13 scrutiny by the Intervenors representing the
14 public interest.

15 So we feel for that reason that the
16 REPG decision-making process should be subjected
17 to even closer scrutiny than some others.

18 I'm sorry. I left my book over here.
19 I'm looking for a copy -- of Executive Law
20 Section 29(c) and (d) which refers to the
21 radiological emergency function of the Executive
22 Department.

23 Section 29(d) requires the Disaster
24 Preparedness Commission to make recommendations to
25 the legislature, and Section 2 says, "Any such

1 recommendation shall be developed in consultation
2 with all concerned public and private parties and
3 shall take into account proven safety
4 effectiveness; (b) outline any proposed costs and
5 the means for meeting such costs; (c) consider
6 related activities of the US Nuclear Regulatory
7 Commissions; and (d) when appropriate, discuss
8 alternatives and various implementations stages."

9 So the requirement that
10 recommendations be developed in consultation with
11 all concerned public and private parties indicates
12 a policy that the public should be included in
13 these sorts of evaluations and discussions.

14 JUDGE GLEASON: Miss Posner, we are
15 not talking here about recommendations of New York
16 to the legislature. We are talking about many
17 reports that they have made in connection with the
18 drill that was held recently, and what
19 specifically I have to find out from you and what
20 I should find out is what is it specifically that
21 you are requesting from New York State in
22 connection with that exercise?

23 MS. POSNER: Well, I think that Mr.
24 Feinberg described it adequately in his reply to
25 us. We are asking for the individual report forms.

1 Since the REPG is not required to and
2 is not planning to make any reports or
3 compilations of these documents, there's nothing
4 to compromise on, and so all we would have is the
5 -- we need the raw material, basic material.

6 At least with FEMA we are going to
7 get the team leaders excretes which will be a
8 compilation or a summary of the individual
9 excretes; but if there's no such thing from the
10 State, then there's nothing that we can ask for
11 instead.

12 Furthermore, Mr. Feinberg mentions in
13 his reply that by inadvertence, some of those
14 individual evaluation forms have been released and
15 apparently with no adverse effects on the REPG's
16 ability to evaluate this year's exercise.

17 They were submitted as Exhibit 1 to
18 Mr. Jerkowski's testimony from the Department of
19 Transportation.

20 There's a footnote on page 6. Mr.
21 Feinberg made no indication in his response that
22 the state employees or the contractors who serve
23 as observers were promised confidentiality in
24 preparing their evaluations and observations.

25 JUDGE GLEASON: Excuse me. Would you

1 say that again, Miss Posner?

2 MS. POSNER: Mr. Feinberg did not
3 indicate that the people who were hired or
4 assigned to observe the exercise were promised
5 confidentiality in that office.

6 Since some of them have been released
7 but were released last year but they still
8 observed this year and they have still made
9 extensive revisions to the plan, have been, mostly
10 based on the FEMA critique and not necessarily on
11 their own observations.

12 JUDGE GLEASON: Does anyone else want
13 to get in this?

14 Hearing none, I assume none do.

15 All right. Well -- Mr. Blum?

16 MR. BLUM: Are you asking for
17 comments from other parties?

18 JUDGE GLEASON: Yes, Mr. Blum, I
19 thought maybe you'd be exhausted by this time.
20 Please comment.

21 MR. BLUM: Simply to support what
22 Miss Posner says.

23 JUDGE GLEASON: Thank you. All right.
24 Well, we'll give the decision here
25 today sometime when we discuss it.

1 Let us go ahead with your witnesses
2 now.

3 MR. BRANDENBURG: Mr. Chairman, Con
4 Edison calls to the stand Min L. Lee.

5 DIRECT EXAMINATION

6 BY MR. BRANDENBURG:

7 Q. Mr. Lee, will you state your name and
8 bid address for the record please.

9 A. My name is Min L. Lee. My address is
10 Consolidated Edison, New York.

11 Q. Dr. Lee, do you have before you a
12 copy of a document entitled "Con Edison's
13 Testimony of Min L. Lee on Low Leakage Loading
14 Pattern," together with a replacement cover page
15 that is dated April 1, 1983?

16 A. I do.

17 Q. Was this document prepared by you or
18 under your direct supervision?

19 A. It was prepared under my direct
20 supervision.

21 Q. Do you have any changes or additions
22 to make to this testimony at this time?

23 A. I find one typo error, namely the
24 first sentence of my testimony, the third word
25 "if" should be "is." And I don't have any other

1 corrections.

2 Q. With this change, Dr. Lee, is this
3 testimony true and accurate to the best of your
4 knowledge, information and belief?

5 A. Yes.

6 Q. And do you adopt it as your testimony
7 in this proceeding?

8 A. Yes.

9 JUDGE GLEASON: Excuse me. Has Mr.
10 Lee been sworn in?

11 MR. BRANDENBURG: Dr. Lee has not
12 been sworn yet.

13 JUDGE GLEASON: Let's take care of
14 that.

15 Would you please stand, please and
16 raise your right hand.

17 Whereupon,

18 MIN L. LEE

19 was sworn in by the Administrative Law Judge and
20 testified as follows:

21 Q. Dr. Lee, is this testimony true and
22 accurate to the best of your knowledge,
23 information and belief?

24 A. Yes.

25 Q. And do you adopt it as your testimony

1 in this proceeding?

2 A. Yes.

3 MR. BRANDENBURG: Mr. Chairman, I
4 move the admission of this testimony in this
5 proceeding and ask that it be bound into the
6 record as if read.

7 JUDGE GLEASON: Another connecting
8 question here, Mr. Brandenburg. How does this
9 testimony tie in with --

10 MR. BRANDENBURG: Well, Mr. Chairman,
11 when the Licensees' panel on the vessel were
12 before the Board, the question was before the
13 Board, I believe, Judge Shon in particular had
14 expressed an interest in the subject of the low
15 leakage fuel loading pattern.

16 Both Licensees agreed to respond with
17 specifics with respect to that matter and it is
18 for this reason that each of the Licensees have
19 witnesses appearing today to address that topic.

20 JUDGE GLEASON: Do you have a
21 transcript reference to that?

22 MR. COLARULLI: Your Honor, if I
23 could, page 8748 and continuing to 8749 is where
24 you, in effect, request us to present witnesses on
25 this issue.

1 JUDGE GLEASON: Thank you.

2 Is there objection?

3 Hearing none, the testimony of Dr.
4 Lee will be received into evidence and bound into
5 the record as if read.

6 (The bound testimony is as follows:)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD
Before Administrative Judges:
Louis J. Carter, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

-----x
In the Matter of) Docket Nos.
CONSOLIDATED EDISON COMPANY OF NEW YORK,) 50-247 SP
INC. (INDIAN Point, Unit No. 2) 50-286 SP
POWER AUTHORITY OF THE STATE OF NEW YORK
(Indian Point, Unit No. 3))
-----x April 1, 1983

CON EDISON'S TESTIMONY OF
MIN L. LEE ON LOW LEAKAGE LOADING PATTERN

ATTORNEY FILING THIS DOCUMENT:

Brent L. Brandenburg
CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.
4 Irving Place
New York, New York 10003
(212) 460-4600

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD
Before Administrative Judges:
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(Indian Point, Unit No. 3))
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CON EDISON'S TESTIMONY OF
MIN L. LEE ON LOW LEAKAGE LOADING PATTERN

ATTORNEY FILING THIS DOCUMENT:

Brent L. Brandenburg
CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.
4 Irving Place
New York, New York 10003
(212) 460-4600

My name is Min L. Lee. Since 1978 I have been the Chief Nuclear Engineer at Consolidated Edison Company. A statement of my professional qualifications is attached.

The purpose of my testimony is to address the low leakage fuel loading pattern (LLLP) that is in place at Indian Point Unit No. 2 (IP2). This design mitigates conditions that might contribute to an increased likelihood of pressurized thermal shock (PTS). The concern over PTS derives from the fact that the reactor vessel materials lose some of their initial ductility due to neutron irradiation occurring during normal unit operation. The LLLP reduces neutron irradiation of vessel materials, and thus the likelihood of occurrence of PTS.

Indian Point Unit No. 2 started operation in May 1973 and is currently in its sixth fuel cycle of operation. During the first five fuel cycles, it was operated with a standard fuel loading pattern. The standard fuel loading pattern consisted of placing only new fuel assemblies at the core periphery during each refueling.

The LLLP program utilizes a fuel loading pattern which instead strategically places some irradiated (and therefore less reactive) fuel assemblies at the core periphery. This reduces the number of neutrons emitted from the core

periphery achieving lower neutron irradiation of the reactor vessel wall.

During 1979, a scoping study under the supervision of Professor D. R. Harris of Rensselaer Polytechnic Institute in Troy, New York, was initiated to evaluate various fuel cycle optimization configurations for IP2. Among the configurations found to be feasible was the low leakage arrangement described above. Subsequently, specific designs prepared by Westinghouse, the IP2 fuel supplier, were analyzed and conclusions reached favoring the LLLP. In July 1981, Con Edisor directed Westinghouse to incorporate the LLLP into the core design for Cycle 6. Cycle 6 commenced operation in January, 1983. Present Company plans are to continue LLLP throughout the remaining service life of the plant, employing even more advanced programs when they are proven effective.

Based on an IP2 specific analysis performed by Westinghouse, the LLLP design as incorporated in Cycle 6 will reduce fast neutron flux at the point of peak vessel wall exposure by 44% compared to a standard fuel loading pattern. The LLLP design is projected to give approximately the same peak vessel wall exposure at the end of 32 Effective Full Power Years (EFPYs) of operation as

the standard loading design at the end of 20 EFPYs. Actual neutron flux measurements made at the beginning of Cycle 6 operation with the neutron detectors located outside the vessel wall were found consistent with the above analysis.

The reduction in vessel wall neutron fluence will result in a slower rate of increase of RT_{NDT} , the "reference temperature, nil-ductility transition." Using the NRC's prescribed method of calculating RT_{NDT} , Westinghouse calculated that the RT_{NDT} values at 32 EFPYs, for the IP2 LLLP design, will be 274°F and 250°F for the circumferential and the axial flaws, respectively. The NRC screening criteria (Ref: NRC Report SECY-82-465, Nov. 23, 1982 "Pressurized Thermal Shock") are 300°F for the circumferential flaw and 270°F for the axial flaw. Therefore, the NRC screening criteria will not be exceeded for the life of the IP2 plant, assumed to be 32 EFPYs, or 40 calendar years at an 80% capacity factor. IP2 has accumulated 5.2 EFPYs as of January, 1983.

ATTACHMENT

MIN L. LEE

Chief Nuclear Engineer

SPECIAL QUALIFICATIONS:

Over twenty-five years in nuclear science and nuclear power fields, including reactor core analysis, nuclear fuel management, nuclear safety, radiological protection and related research.

EDUCATION:

Bachelor of Science (Electrical Engineering), Manhattan College, New York, 1952.
Master of Science (Electrical Engineering), University of Illinois, 1953.
Graduate, International School of Nuclear Science and Engineering, Argonne National Laboratory, 1958.
Graduate, Oak Ridge School of Reactor Technology, Oak Ridge National Laboratory 1959.
Master of Science (Nuclear Engineering), Massachusetts Institute of Technology, 1965.
Doctor of Philosophy (Nuclear Engineering), Massachusetts Institute of Technology, 1968.
Graduate, Executive Program of Business Administration, Columbia University, 1982.

EXPERIENCE

1978 - Present Chief Nuclear Engineer, Nuclear Engineering Department, Consolidated Edison Co. of New York, NY
Responsibilities include all engineering aspects of nuclear fuel, nuclear systems evaluation, nuclear licensing and nuclear safety.

1969 - 1978 Reactor Fuel Engineer, Nuclear and Mechanical Engineering Department, Consolidated Edison Co. of New York, NY
Responsibilities included fuel cycle analysis, reactor core engineering, fuel design safety evaluation, fuel performance evaluation and fuel cycle startup program.

1968 - 1969 Engineer, Mechanical Engineering Department, Consolidated Edison Co. of New York NY
Responsibilities included nuclear fuel management, nuclear fuel cycle engineering, reactor analysis and commercial aspects of nuclear fuel cycle.

- 1964 - 1968 Teaching and Research Assistant, Nuclear Engineering Department, Massachusetts Institute of Technology. Assistant to Professors I. Kaplan, R. Evans G. Brownell and E. Mason.
- 1959 - 1964 Associate Professor, Institute of Nuclear Science, National Tsing Hua University, Taiwan. Responsibilities included Head of Health Physics Section and lectures on reactor control and nuclear instrumentation.
- 1954 - 1957 Engineer, Office of Steam Power Project, Taiwan Power Co. Taiwan. Responsibilities included Subsection Head, Generator and Switchgear Subsection, Nanipu and Shen-ao Steam Power Projects.

PROFESSIONAL ACTIVITIES:

American Nuclear Society
EPRI - Safety and Analysis Task Force
EEI - Nuclear Fuels Committee
Chinese Institute of Engineers, USA
SIGMA XI, National Honorary Society
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PUBLICATIONS:

Experience with Neutron Dose on Shipment of High Burnup Fuel,
ANS Transactions, Volume 14, No. 1, June, 1971

Nuclear Engineering Education from a Utility Viewpoint,
ANS Transactions, Volume 14, No. 2 October 1971

Fuel Performance of Indian Point Unit No. 1,
ANS Transactions, Volume 16, June, 1973

Measurement and Analysis of Core Physics Parameters - A Utility Viewpoint,
ANS Transactions, Volume 17, November 1973

Performance of Indian Point Unit No. 2,
Utility Nuclear Fuel Performance Conference,
Atlanta, Georgia, October 1975

A Review of Physics Analysis of Indian Point Unit No. 2 Spent Fuel Storage Racks,
ANS Convention, Toronto, Canada, June 1976

An Overview of PWR Small Break LOCA Analysis and Its Application Since TMI -2,
Symposium on Nuclear Power, Chinese-American Engineering and Management Institute, October, 1980, New York, NY.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
James P. Gleason, Chairman
Dr. Oscar H. Paris
Frederick J. Shon

-----X
CONSOLIDATED EDISON COMPANY OF :
NEW YORK, INC. (Indian Point, : Docket Nos. 50-247-SP
Unit No. 2) : 50-286-SP
: :
POWER AUTHORITY OF THE STATE OF :
NEW YORK, (Indian Point, : April 1, 1983
Unit No. 3) : :
-----X

CERTIFICATE OF SERVICE

I certify that I have served copies of
Con Edison's Testimony of Min L. Lee on Low Leakage Loading
Patterns by deposit in the United States mail, first class,
postage prepaid this 1st day of April, 1983.

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Dated: April 1st, 1983
New York, New York

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Candida Carino

1 MR. BRANDENBURG: Mr. Chairman, Dr.
2 Lee docs have a very brief opening statement
3 summarizing his testimony, if you wish to receive
4 it.

5 JUDGE GLEASON: All right. His
6 testimony is only three pages, so I hope it's
7 brief.

8 Go ahead.

9 THE WITNESS: My testimony is on the
10 subject of a low leakage loading pattern that is
11 in place at Indian Point Unit No. 2.

12 This loading pattern will mitigate
13 the likelihood of pressurized thermal shock. The
14 concern of pressurized thermal shock derives from
15 the effect that the reactor vessels loses some of
16 the ductility due to neutron exposure in normal
17 plant operation.

18 This loading pattern reduces neutron
19 exposure of the reactor vessel material and
20 therefore reduces the likelihood of pressurized
21 thermal shock.

22 Up until September, 1982, Indian
23 Point Unit No. 2 was operated with a standard fuel
24 loading pattern. This new low leakage loading
25 pattern, unlike the standard pattern, places

1 irradiated fuel assemblies at the core peripheries.

2 Such a loading pattern reduces the
3 number of neutrons emitted from the core
4 peripheries and, therefore, results in reduced
5 neutron exposure of the reactor vessel wall.

6 Based on a detailed analysis, the low
7 leakage loading pattern, as now incorporated, will
8 reduce neutron flux by 44 percent compared to a
9 standard fuel loading pattern.

10 As a result, at the end of 32 full
11 power effective years of operation, the reactor
12 vessel will see the same neutron exposure as the
13 standard loading design at the end of 20 effective
14 full power years of operation. Actual neutron
15 flux measurements outside the reactor vessel
16 verified the detected flux reduction.

17 The reduction in vessel wall neutron
18 exposure will result in the slower rate of
19 increase of the so-called RT and DT.

20 Used at the NRC prescribed method
21 with the low leakage loading pattern in place, the
22 RT and DT value calculated at 32 effective full
23 power years are 274 degree and 250 degree for
24 circumference and the axial floors respectively.

25 The current NRC screening criterias

1 are 300 degree and 270 degree respectively.

2 Therefore, NRC screening criteria
3 will not be exceeded for the life of Indian Point
4 Unit No. 2.

5 JUDGE GLEASON: All right. Thank you,
6 Dr. Lee. We appreciate your coming before the
7 Board with that information. Thank you. You are
8 excused. The Board has no further questions.

9 MR. COLARULLI: Your Honor, the Power
10 Authority calls to the stand Mr. Ted Meyer.

11 JUDGE GLEASON: Mr. Meyer, have you
12 been sworn in? You haven't? Please stand, Mr.
13 Meyer.

14 Whereupon,

15 THEODORE MEYER

16 was sworn in by the Administrative Law Judge and
17 testified as follows:

18 DIRECT EXAMINATION

19 BY MR. COLARULLI:

20 Q. Mr. Meyer, could you please state
21 your full name and business address?

22 A. I am Theodore A. Meyer, and my
23 address is Westinghouse Electric Corporation,
24 Pittsburgh, Pennsylvania.

25 Q. What is your current position?

1 A. I am currently manager of Reactor
2 Vessel Integrity Programs Group at Westinghouse.

3 Q. Do you have before you a document
4 entitled "Power Authority's Testimony of Theodore
5 A. Meyer on Board Questions 1.4"?

6 A. Yes I do.

7 Q. Was this document prepared either by
8 you or under your direct supervision?

9 A. Yes.

10 Q. Do you have any changes or
11 corrections to it?

12 A. We have several corrections.

13 On the first page, beginning of the
14 second line, delete the words "division of".

15 On the second page, line 12, there is
16 a typographical error. The word currently is
17 misspelled. You should add an "r".

18 On the fourth page, second line of
19 the first full paragraph, the word "would" should
20 be changed to "could."

21 That's all there is.

22 Q. With those changes, Mr. Meyer, is
23 this testimony true and accurate to the best of
24 your knowledge, information and belief?

25 A. Yes, it is.

1 MR. COLARULLI: Your Honor, Power
2 Authority would move that Power Authority's
3 testimony of Theodore A. Meyer on Board Question
4 1.4 be admitted as evidence and incorporated into
5 the record as if read.

6 JUDGE GLEASON: Without hearing
7 objection, the testimony of Mr. Meyer will be
8 received into evidence and bound into the record
9 as if read.

10 (The bound testimony is as follows:)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD
Before Administrative Judges:
James P. Gleason, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

_____)	
In the Matter of)	
)	
CONSOLIDATED EDISON COMPANY OF)	Docket Nos.
NEW YORK, INC.)	50-247 SP
(Indian Point, Unit No. 2))	50-286 SP
)	
POWER AUTHORITY OF THE STATE OF)	April 1, 1983
NEW YORK)	
(Indian Point, Unit No. 3))	
_____)	

POWER AUTHORITY'S TESTIMONY OF THEODORE A. MEYER
ON BOARD QUESTION 1.4

ATTORNEYS FILING THIS DOCUMENT:

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My name is Theodore A. Meyer. I am Manager of the Division of Reactor Vessel Integrity Group of the Nuclear Technology Division of Westinghouse Electric Corporation. A statement of my professional qualifications is attached.

The purpose of this supplemental testimony is to address the current status of Indian Point Unit 3's fuel management program as it relates to Board Question 1.4.

In November, 1982, the Nuclear Regulatory Commission (NRC) issued a report entitled, "NRC Staff Evaluation of Pressurized Thermal Shock." This report discussed the NRC screening criteria of 270°F reference temperature, nil-ductility transition (RT_{NDT}) for longitudinal flaw orientations and 300°F RT_{NDT} for circumferential flaw orientations in the reactor pressure vessel. The screening criteria and the issue of pressurized thermal shock assumes that there are flaws either detected or undetected in the reactor pressure vessel.

During the service life of the reactor vessel, the RT_{NDT} increases above the initial value of RT_{NDT} because of neutron irradiation by an amount ΔRT_{NDT} which depends on fluence and materials properties. The initial RT_{NDT} is determined from materials tests made at the time the vessel is fabricated. The change, ΔRT_{NDT} , is determined from fluence measurements, calculations, and from trend curves, based on tests of irradiated specimens that measure the

effects of neutron irradiation. Analysis of a surveillance capsule which was removed from the Indian Point Unit 3 pressure vessel during this refueling outage supports the calculated fluence levels used in calculating delta RT_{NDT} . There are, however, a number of uncertainties in the estimation of both initial RT_{NDT} and delta RT_{NDT} . Therefore, the NRC Staff has established a prescribed, conservative method for calculating RT_{NDT} which would be compared to the screening criteria. The current total RT_{NDT} values calculated using these conservative methods for the longitudinal and circumferential flaw orientations for Unit 3 are both 218°F because a lower vessel shell plate is currently the most limiting location. Both circumferential and longitudinal flaws are postulated in vessel plates.

One important aspect of this issue of which the Board should be aware is the actual risk posed by pressurized thermal shock. The NRC Staff has calculated and stated in their testimony on this Board question that when the screening criteria are reached a reactor pressure vessel "would have a frequency of crack extension without arrest between 10^{-5} and 10^{-6} per reactor-year." The NRC Staff has also testified "that not all through wall cracks will result in core melt since some crack sizes and crack shapes and crack locations will not preclude ability of the emergency systems to keep the core cooled." Testimony of Dr. Hugh W. Woods and Raymond W. Klecker on Board Question 1.4 at 8.

The Licensees have testified that "[t]he Indian Point Probabilistic Safety Study (IPSS) evaluated the frequency of a reactor vessel rupture large enough to exceed the capability of the emergency core cooling systems. That evaluation used the same methodology and assumptions as the Reactor Safety Study . . . and yields a mean frequency of 3×10^{-7} per reactor year for all types of vessel failure, which included those failures induced by transients (pressurized thermal shock (PTS) chain of events) and spurious events." Licensees' Testimony of Dennis C. Richardson and Dennis C. Bley on Board Question 1.4 at 2. Given this mean frequency, the frequency of core melt resulting from PTS is less than 3×10^{-7} per reactor year.

Calculations performed by the Westinghouse Owners Group on Reactor Vessel Integrity using generic fluence values have shown that the Indian Point Unit 3 reactor pressure vessel, before modification to its present reload fuel core, would not reach the NRC screening criteria for approximately 16.5 effective full power years for the most limiting case.

The Power Authority is currently taking measures to reduce the neutron irradiation of the reactor pressure vessel. The current reload fuel core, cycle 4, is a modified low leakage core. This is accomplished by placing spent fuel assemblies at select locations around the periphery of the core. This modified core loading pattern will reduce the peak neutron flux on the limiting vessel shell plate by

a factor of 1.4. This modification alone will extend the time by which the pressure vessel will reach the NRC screening criteria to approximately 2005. The expiration of the plant license is 2009.

The Power Authority will be evaluating in the near future other fuel loading patterns which would preclude the Indian Point Unit 3 pressure vessel from ever reaching the NRC screening criteria.

EXPERIENCE: 11 years with Westinghouse and 3 years at Atomic Power Development Associates

WESTINGHOUSE ELECTRIC CORPORATION, NUCLEAR TECHNOLOGY DIVISION,
STRATEGIC OPERATIONS DIVISION AND PWRSD

1981 - Present: Manager of Reactor Vessel Integrity Programs Group - Responsible for identifying and implementing structural analysis required by utilities in the evaluation and resolution of reactor vessel integrity concerns relative to Pressurized Thermal Shock (PTS) and other structural integrity concerns. These responsibilities include the development of methods and the identification and utilization of appropriate technology to evaluate reactor vessel integrity including the identification and evaluation of benefits derived from modifications aimed at improving reactor vessel integrity. These activities include interfacing with the NRC, utilities and numerous other impacted W organizations.

Manage and direct structural integrity engineering analysis efforts performed by members of RVIP and coordination of these efforts with other disciplines and customer/NRC needs.

1975 - 1981: Senior and Principal Engineer responsible for identifying, developing and implementing structural analyses programs and their associated thermal/hydraulic inputs relative to addressing reactor vessel integrity concerns. These programs included evaluations of Large LOCA, Large Steam Line Break and Small LOCA to determine their impact on vessel integrity as well as test programs to develop appropriate boundary conditions (e.g. heat transfer coefficients). Additional major responsibilities included the design, fabrication, testing and operation of capsules for the purpose of irradiating vessel material specimens in test reactors.

1972 - 1975: Engineer responsible for thermal/hydraulic evaluation of reactor internals including evaluation of the reactor vessel for emergency and faulted conditions. Responsibilities included the development of analysis methods, development of required computer programs, as well as evaluation and testing of various reactor internals components. The test program responsibilities included the development of the test program and objectives, design and fabrication of required hardware and test facilities, performance of the required tests and the obtaining of data and reduction of that data into useful engineering evaluations.

ATOMIC POWER DEVELOPMENT ASSOCIATES

1969 - 1972: Co-operative education student engineer and Engineer at Atomic Power Development Associates which was responsible for the design of the Enrico Fermi Breeder Reactor. Responsibilities covered a wide range of thermal/hydraulic and structural analyses, hardware test programs, methods and computer program development activities as well as on-site operational testing associated with the recovery from a major plant accident testing and operation of the plant.

MILITARY:

1967 - 1969: ROTC U.S. Air Force

EDUCATION:

1967 - 1972: B.M.E., University of Detroit in Mechanical Engineering

1971 - 1972: Advanced Degree work in Mechanical Engineering at University of Detroit

1975 - 1979: Masters Degree in Engineering Management (MSIE) at University of Pittsburgh

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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(Indian Point, Unit No. 3))	
)	

CERTIFICATE OF SERVICE

I hereby certify that on the 1st day of April, 1983, I caused a copy of Power Authority's Testimony of Theodore A. Meyer on Board Question 1.4, to be served by United States Express Mail Service to Jeffrey Blum, Esquire, and by first class mail, postage prepaid on all others:

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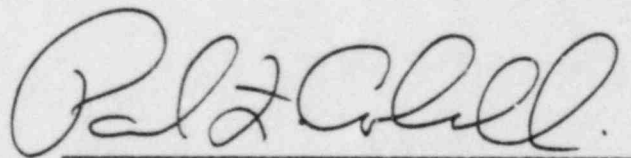
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Paul F. Colarulli

1 MR. COLARULLI: Your Honor, we have
2 no need, unless the Board feels a need, to have a
3 summary.

4 JUDGE SHON: Dr. Meyer, on page 4 of
5 your testimony, you mentioned that the pressure
6 vessel breached the NRC screening criteria in 2005
7 and the license is good to 2009.

8 Since in this case it looks as if you
9 are not quite going to extend through the entire
10 lifetime burning as you are now, can you give me
11 some idea of the kind of capacity factors and such
12 that that assumes?

13 MR. MEYER: The calculation of
14 acceptable lifetime, that is the lifetime of the
15 reactor vessels before it will reach the screening
16 criteria is based on a usage factor of 80 percent
17 and the assumption that the old leakage core that
18 be installed in cycle four is continued in the
19 same configuration for the balance of that time.

20 JUDGE SHON: Have you made any
21 measurements as Unit 2 said they had of of the
22 neutron flux outside the reactor vessel?

23 MR. MEYER: I didn't hear the first
24 part of your question.

25 JUDGE SHON: Have you made any

1 measurements of the neutron flux after the
2 modification? I just mention that Unit 3 said
3 they had made measurements of the neutron flux
4 outside the reactor vessel. I'm wondering if you
5 had also -- Unit 2. I misspoke.

6 MR. MEYER: We have not made any
7 independent measurements of the fluids outside the
8 reactor vessel for Unit 2, no.

9 JUDGE SHON: I see. I think you said
10 the wrong thing again. Have you at Unit 3 made
11 reactor flux measurements from which fluids could
12 be calculated directly?

13 MR. MEYER: Since the low leakage
14 core was installed or prior to that?

15 JUDGE SHON: Yes.

16 MR. MEYER: Well, the plant has not
17 operated since the low leakage core was installed.
18 That has been installed during this current outage,
19 so it will not be verifiable until after the plant
20 starts up again.

21 JUDGE SHON: I see. Thank you.

22 That's all.

23 JUDGE GLEASON: All right. Thank you,
24 Mr. Meyer. We appreciate your testimony into the
25 record.

1 The Board is now going to call Mr.
2 Schmer if he is here.

3 Excuse me. Where is our star
4 cross-examiner?

5 MR. BLUM: Since Miss Fleisher is
6 temporarily out of the room, I was wondering if
7 there were two things that could be quickly dealt
8 with in the interim. Mr. Schalla hopes to catch a
9 plane.

10 One of them is we have communicated
11 information to the Licensees which they will then
12 use to take the initiative in setting up a
13 schedule for Question 6.

14 The second thing I wish to address
15 for about two minutes is the motion with regard to
16 the Greater New York Council on Energy and the
17 additional deposition which I was forced to attend,
18 and it's a very simple matter and I want to get
19 one thing to make sure the Board knows it.

20 Then I won't have to worry about what the
21 Licensees do the with the transcript.

22 JUDGE GLEASON: I assume the use of
23 the word "force" is a term of art.

24 MR. BLUM: Yes.

25 MR. LEVIN: Mr. Blum was brought into

1 that deposition your Honor in chains. It was a
2 bit embarrassing.

3 MR. BLUM: I was persuaded to attend.
4 Forced is incorrect.

5 JUDGE GLEASON: All right. The
6 reporter will please note the humor.

7 MR. BLUM: I did, however, feel put
8 upon to have to be part of that.

9 JUDGE GLEASON: Why don't you go
10 ahead and let's take up the -- I understand.

11 Here is Mrs. Fleisher.

12 MR. BLUM: Okay. What happened is a
13 little peculiar but actually quite simple.

14 Mr. Corren had in his possession a
15 draft copy of the testimony which was also a draft
16 copy of the --

17 MR. LEVIN: Your Honor, I hate to
18 interrupt but are we arguing the motion now?

19 JUDGE GLEASON: He indicated that he
20 wanted to argue the motion to add some comments to
21 his previous comments. I was going to do it and
22 wait until after the witness --

23 MR. BLUM: I prefer to finish it now
24 for Mr. Schalla and I will be very brief.

25 JUDGE GLEASON: What does Mr. Schalla

1 have to do with this?

2 MR. BLUM: He's trying to catch a
3 plane.

4 JUDGE GLEASON: All right. Go ahead.

5 MR. BLUM: I have the car.

6 JUDGE GLEASON: Okay.

7 MR. BLUM: The point is quite simply
8 that what Mr. Corren had in his possession was
9 draft testimony.

10 At some point, a final version of the
11 testimony was prepared and the ESRG people did not
12 give it to Mr. Corren and did not let him know
13 about its existence for approximately two and a
14 half or three months.

15 During that interim, they actually
16 gave it out to someone else first, someone down in
17 South Carolina, I believe.

18 Mr. Corren, when he later learned
19 this in March was somewhat surprised and
20 chagrined that others should get the testimony
21 before him, but what he did do was to promptly
22 notify the Licensees of the fact that the final
23 report was ready. It was publicly released. They
24 were entitled it to and he, in fact, got a copy to
25 them within two or three days of when he himself

1 first acquired a copy.

2 So I don't think there's any
3 conceivable ground for throwing out the report on
4 the basis of any alledged bad faith of Mr. Corren.

5 I just want those fairly simple facts
6 before the Board.

7 JUDGE GLEASON: All right. While we
8 have those simple facts --

9 MR. LEVIN: I would like, your Honor,
10 if I might, to dispute one of those simple facts.

11 JUDGE GLEASON: Can't you do that in
12 your motion?

13 MR. LEVIN: Well, I'm hoping that
14 those papers are pretty much prepared.

15 The only point I wanted to make was
16 that Mr. Corren at no time informed either the
17 Power Authority or Con Edison that there had been
18 copies distributed down in South Carolina or to
19 the New York Times or to other people.

20 We learned of that purely
21 inadvertently and would not have known about it
22 had we relied upon either Mr. Cohen or Mr. Rosen
23 or Mr. Blum.

24 JUDGE GLEASON: Let me just, while
25 you are here, Mr. Blum, take advantage of your

1 being here to issue the Board's statement on one
2 matter.

3 With respect to your motions relating
4 to the IPPSS or the amendment to the IPPSS, the
5 Board denies those motions because it believes
6 that you have had adequate opportunity to
7 cross-examine with respect to whatever was in
8 Amendment 1.

9 The Board also wants to announce that
10 it doesn't intend to utilize the services of Mr.
11 Amico, that it does not believe the reasons put
12 forth on by Mr. Blum have any weight in changing
13 our opinion to utilize Mr. Blum in the manner in
14 which we have indicated many, many times.

15 We intend to use him with respect to
16 your comments that you would not object if he was
17 put on the stand as a witness subject to
18 cross-examination.

19 I am reminded of the fact that his
20 work is not the work of an evidentiary nature, so
21 it would be a little bit hard to cross-examine him
22 with respect to matters that are not evidentiary
23 in nature, and that he's only attending once again
24 to point out gaps in the record, if there are any,
25 to allow the Board time to put on additional

1 testimony.

2 So that's a statement of how we
3 intend to utilize his services.

4 Now, let us get onto Mr. Schmer.

5 MS. FLEISHER: Your Honor, I was out
6 of the room before, but I can't be both places.
7 Mr. Levin has been pressing me to call Mrs.
8 Kessler about the plan.

9 JUDGE GLEASON: Mrs. Fleisher, we are
10 not taking it out of your time, so I would suggest
11 that you proceed with your cross-examination.

12 Thank you for coming again Mr. Schmer.
13 We appreciate that.

14 CROSS-EXAMINATION

15 BY MISS FLEISHER:

16 Q. I want to show you this map. Can you
17 verify --

18 A. I was hoping by this time you'd be
19 organized.

20 Q. Can you verify --

21 JUDGE GLEASON: Now, listen, are you
22 speaking for the record?

23 MS. FLEISHER: Yes. I'm going to
24 show him.

25 JUDGE GLEASON: No one can hear you.

1 Would you like to sit down there next to him?

2 MS. FLEISHER: I'm showing Mr. Schmer
3 the map that we have been using all along, your
4 Honor to ask him -- I just want him to look at
5 the EPZ demarcation for Orange County.

6 MR. BRANDENBURG: The record should
7 reflect, Mr. Chairman, that Mrs. Fleisher has
8 shown Mr. Schmer Con Edison 3.

9 JUDGE GLEASON: All right. Fine.
10 What is the question now, Mrs.
11 Fleisher?

12 MS. FLEISHER: I'm planning to bring
13 you the map as soon as he's --

14 JUDGE GLEASON: What is the question?

15 MS. FLEISHER: I just want him to see
16 the map because I want to know if he agrees with
17 this EPZ line as shown on the map.

18 JUDGE GLEASON: All right. Fine. Is
19 that the question?

20 A. It's generally correct. It would be
21 really difficult to give an honest answer because
22 it's not a detailed map.

23 MS. FLEISHER: On this side, on this
24 other side, we have a road map. It isn't admitted
25 in evidence. It's a readily available road map,

1 and I'd like Mr. Schmer, just in his own mind, not
2 to use this map as any further reference but just
3 to refresh his mind whether or not certain places
4 are in the EPZ that we will ask him about.

5 MR. BRANDENBURG: Object to that
6 procedure, Mr. Chairman. The second map to which
7 Mrs. Fleisher is referring has had no testimony
8 here that suggested it accurately demarcates the
9 border of the EPZ.

10 MR. SCHMER: Again, your Honor, this
11 map is nowhere near the detail I would need to
12 answer these questions.

13 JUDGE GLEASON: Okay.

14 Q. Mr. Schmer, I just want to clear up
15 some of the things that were in the record from
16 before, and so I ask you to help us.

17 Is the town or Village of Tuxedo in
18 the ten-mile EPZ?

19 A. A portion of Tuxedo is in the EPZ.

20 Q. The inhabited part, which I don't
21 know whether to call a village or a city or what,
22 is that within the ten-mile EPZ?

23 A. Before I answer that question, I
24 think I may be falling into a trap here and I need
25 some clarification.

1 Q. Right. Is Central Valley --

2 A. One moment, please.

3 MR. SCHMER: I don't believe that
4 Miss Fleisher knows how to use an Emergency Plan
5 during the course of a disaster. If I answer as
6 an expert, sir, if I answer as an expert on one
7 portion of the plan, transportation, which I'm not,
8 would I then have to answer as an expert in the
9 health portion, which I'm not a doctor, or the
10 school portion, which I'm not the superintendent
11 of schools?

12 You see I'm not an expert in all
13 portions of this plan.

14 JUDGE GLEASON: Well, you just
15 respond. If there's areas that you cannot
16 respond to, just say that you cannot respond.

17 MR. SCHMER: Fine.

18 JUDGE GLEASON: There are other, you
19 know, lawyers that will object to certain kinds of
20 testimony here present.

21 Go ahead, Miss Fleisher.

22 Q. Mr. Schmer, the thing I was driving
23 at is if you look at the map, there is a great
24 proportion of the land that is in Bear Mountain
25 Park and in West Point. I'm not even attempting

1 A. Yes.

2 Q. Is that Lowell University in
3 Massachusetts, Lowell, Massachusetts?

4 A. I believe it is, yes.

5 Q. And I believe you said when you were
6 here last that some of your people had trained at
7 Lowell University; is that correct?

8 A. We took the Lowell University course
9 which was given in New York State.

10 Q. Where was that given?

11 A. It was given at one of the -- I
12 forget the name of the hotel in Westchester County.

13 Q. And who paid for it, the giving of
14 that; do you know?

15 A. I believe the state paid for that.
16 This was before 708 funds.

17 Q. I see. Then who paid you to go over
18 there?

19 A. I didn't receive any payment for that.
20 I just -- they just fed me and gave me a
21 comfortable room.

22 Q. You said the state paid that bill?

23 A. I believe the state paid it but it
24 may have been a contract between the state and the
25 federal government. I honestly don't know.

1 listing of the places we have put them out.

2 We have put them out in quite a few
3 locations in the EPZ; and as soon as we received
4 some more maps, we intend to post them in
5 additional locations.

6 I would say on the average of about
7 30 of them have been posted.

8 Q. And what's the holdup in getting more
9 of them?

10 A. I don't know. You'd have to speak to
11 the utility. I did request them.

12 Q. Would you expect to post them -- do
13 you have them on a backing of some kind?

14 A. No, ma'am.

15 Q. You just have this map on the little
16 paper that it's on and you expect to find a place
17 wherever you go to put it up, right?

18 A. They have been stapling them up on
19 bulletin boards in post offices, hotels, this type
20 of thing.

21 Q. Gas stations?

22 A. Some gas stations, police stations,
23 this type of thing.

24 Q. How many more do you think you need?

25 A. I don't know. I can go through the

1 data book in my county and determine how many type
2 businesses there are that would -- you know, where
3 the public would go into, and we can make a
4 determination on that.

5 I would say at least another 50. I'd
6 like to put out at least another 50.

7 Q. Are you aware that in 0654 requires
8 that posters be placed or that some notice be
9 placed inside buildings?

10 A. Yes.

11 Q. Why is it taking so long?

12 A. I wasn't under the impression it was
13 taking so long. Do you want to us put a poster
14 for the sake of putting up a poster or do you want
15 us to put up a poster that indicates the latest
16 information in our planning process?

17 Q. Sir, I'm afraid I don't understand.

18 A. How can you put up a poster if a plan
19 is being revised?

20 Q. On the subject of radio
21 communications, we also didn't make these real
22 clear.

23 You have a police department in
24 Highland Falls?

25 A. Yes.

1 Q. And for Montgomery?

2 A. Yes.

3 Q. Are there other police departments
4 within the EPZ?

5 A. There are a few, yes. If you are
6 going to ask me which ones are on which
7 communication system, I'm not going to be able to
8 answer that question.

9 I do know that some of the police
10 departments are on a radio net that operates out
11 of our sheriff's department and some are on a
12 radio net that's operated by the State Police.

13 Q. Have you applied for funds to unify
14 your position --

15 A. Yes, I did.

16 Q. Do you know what position you are on
17 the state's list?

18 A. Yes. In fact, I got a letter just
19 this morning indicating that as soon as I submit
20 my budget to the state, I would receive some
21 funding. So you can believe me I'm working very
22 much on that.

23 Q. Is that enough money to buy what you
24 need or is it only a part?

25 A. I cannot answer that question at this

1 time, because I have some input from the county
2 executive's' office on things he wants. We want
3 to make some changes in our EOC that will improve
4 that operation, so I don't at this time know what
5 my total budget will be, what my wish list will be.

6 Q. Well, that doesn't really tell us,
7 does it. What would you spend it on first if you
8 had it?

9 A. Well, I would spend it on a number of
10 things first.

11 I would spend it on communications,
12 on radiation equipment,. Those would be probably
13 my two primary thrusts.

14 JUDGE GLEASON: Excuse me, Miss
15 Fleisher? Can I just ask one real quick question?

16 MS. FLEISHER: Sure.

17 JUDGE GLEASON: I hadn't realized
18 that there was a county execute in Orange County.

19 MR. SCHMER: Yes, sir, there is.

20 JUDGE GLEASON: In Putnam County?

21 MR. SCHMER: Yes. Putnam County does
22 too. Rockland does not. They have a board of
23 supervisors.

24 JUDGE GLEASON: I knew that. All
25 right. Thank you.

1 MR. SCHMER: Right.

2 Q. Do you have somebody in the county in
3 charge of radiological surveillance or monitoring
4 of the ground and the air if any accident occurred?

5 A. Yes, ma'am.

6 Q. Does he have --

7 A. War and peace.

8 Q. What?

9 A. War and peace.

10 Q. Does he have substitutes that can be
11 called if --

12 A. Yes ma'am,.

13 Q. -- the other person is not there?

14 A. Yes, ma'am.

15 Q. And do they have beepers?

16 A. Yes, ma'am. One does; one is on
17 order, to answer you honestly.

18 Q. Who is going to pay for that beeper
19 that you are going to get on order?

20 A. State funds, 708 grant. That's part
21 of the communication system I was talking about.

22 Q. Yes.

23 A. If you'd like me to briefly elaborate
24 on some of that communications equipment, I will
25 for you. Some of the things we want -- we have

1 in Orange County a local government Civil Defense
2 radio network we feel is the finest in the state,
3 probably the country.

4 On this radio network, I have my Staff which
5 have mobiles in their cars, portables in their
6 homes in the event they lose telephones and key
7 people pages.

8 In addition, we have put five
9 hospitals and 28 ambulance calls on this net.
10 These people use this on a day-to-day basis.

11 Q. May I ask you a question about the
12 net?

13 A. Yes.

14 Q. That's the tone alert, is it, in the
15 hospital?

16 A. It's a repeater type, yes.

17 Q. The judges asked somebody one time
18 here -- if you know, perhaps, is there also a
19 weather station on that tone alert that we can
20 hear it? Does it tune into the weather?

21 A. No, ma'am. What we do on that --
22 that's my responsibility. We have NAWAs and
23 weather, other Weather Service communications, I
24 forget what the nomenclature is. If we get
25 weather warnings, then I got on the radio net and

1 transmit this to all -- you know, at that stage
2 who would need it?

3 If it goes down to the hospital level,
4 we would transmit hurricane warnings or whatever,
5 you know, to hospitals and other crisis management
6 people in the county, but the point I tried to get
7 to on this communications system is with some of
8 the monies that we received this past year, we
9 wanted to put base stations in the local
10 jurisdictions that are involved in this planning
11 process, and last year we had enough money to
12 order a base station for the town of Highlands
13 which is in the EPZ and the city of Newburg which
14 is one of the host areas.

15 Hopefully I'll get the money this
16 year to put base stations in the remainder of the
17 communities in the EPZ as well as the host area.

18 So everybody that's a prime mover in
19 this, a prime player will be on a communication
20 system.

21 Q. All right. Well, in other words, I
22 think the picture that we have gone, you and I, me
23 by asking the questions and your giving the
24 answers, is, would you agree, one where, due to
25 the topography and the lack of population, you are

1 able to affect a system better than if you had
2 greater density of population?

3 A. I don't understand your question.

4 Q. What I'm trying to suggest is that we
5 have a question to ask that has to do with the
6 density or population around Indian Point, and I
7 think that Orange County -- I'm asking if you
8 agree, it illustrates that where there isn't a
9 great density of population, the problems are
10 mitigated and the problems may be able to be
11 handled even though, indeed, you say it's taking
12 you awhile to do.

13 A. Well, if you want to make a general
14 comment like that, I'd would have to disagree with
15 you.

16 Our planning process is based on what
17 is in Orange County in the form of citizens that
18 we have to protect and what resources are
19 available now. If we get more resources later on
20 in the form of men or equipment or whatever, then
21 this enhance he is our plan.

22 Q. You have only four schools; is that
23 right, to evacuate within the EPZ?

24 A. I believe that's right. I could be
25 wrong. I don't have my plan in front of me.

1 Q. Do you depend on the telephone for
2 communicating with people right now?

3 A. Yes and no. We use the telephone,
4 but all key people are on a radio system, the
5 system I just referred to.

6 Q. Yes, but that's only within, let's
7 say, to get started; but supposing those people
8 have to call on other people. How would old they
9 get out, let's say, to the bus people? Do you
10 have -- are your bus owners on alert system?

11 A. Yes.

12 Q. And do they --

13 A. Okay. You brought up a good point.
14 I'm glad you reminded me. Another base station
15 -- we wanted to put another base station in each
16 one of the bus companies that are involved in this.

17 Now, these bus companies do have
18 their own internal communications systems to the
19 buses.

20 Now, what we are doing now is we are
21 utilizing COVERS or you may know them as RACES.
22 These are ham operators. COVERS is County Of
23 Orange Volunteer Emergency Radio Communications or
24 Communications Service.

25 These people were placed at the bus

1 companies, the reception centers, the congregate
2 care centers, the monitoring centers and this was
3 another communication system to supplement the
4 telephone system.

5 Q. But even so, would not a bus operator
6 who owned, let's say, ten buses have to get ten
7 phone calls or more to get his charters?

8 A. Negative.

9 Q. How would he get his charters?

10 A. If we make a determination in our EOC
11 based on the intelligence that we use to make
12 these decisions that if we wanted to use a certain
13 evacuation route, we merely have to make one land
14 line or one radio communication to that bus
15 company.

16 He, in turn, can communicate to all
17 his buses.

18 Q. But he has to do that by telephone,
19 doesn't he?

20 A. No; by radio.

21 Q. All his buses have two-way radios?

22 A. Yes.

23 Q. What if the drivers aren't sitting in
24 the buses at the moment?

25 A. I'm not going to refer to Ralph Nader

1 "what-if" types of questions.

2 Q. In other words, he does depend on the
3 telephone if the drivers are not at work?

4 A. If the drivers are not at work, then
5 I would imagine that he would have to depend on
6 telephone unless he wants to give them a piece of
7 equipment similar to what we do at our ambulance
8 people and fire people, some tone alert type
9 system.

10 Q. And have you inquired of the phone
11 company whether or not it thinks that it is
12 capable of carrying the load of an emergency when
13 everybody has to start phoning?

14 A. Unfortunately, you are not in our EOC
15 or you haven't been to watch us operate. We have
16 a very close relationship with the telephone
17 company. In fact, they do have people standing by
18 in our EOC during any type of disaster in case we
19 run into problems.

20 Right now, they see no problem with
21 handling the telephone load, you know, for this
22 type of a scenario, although in the real world,
23 let's be honest about this, convergence of
24 communications and telephones is a very real
25 thing.

1 For instance, any type of a disaster,
2 involving a particular hospital, for instance, you
3 know that that switch board is going to be
4 inundated with telephone calls from concerned
5 people so they should have a plan in place to
6 overcome that, and we make many recommendations on
7 that.

8 So you would you will have a
9 convergence in the area and hopefully the
10 communications systems that we have will help to
11 overcome that.

12 Q. Now, that was going to be my next
13 question to you.

14 Let's just here from you how West
15 Point would manage. I believe you said there were
16 12,000 people in West Point.

17 A. You have 4,000 civilians; you have
18 4,000 cadets and you have 4,000 military people
19 and their dependents.

20 Q. All right.

21 A. These people primarily live in the
22 EPZ and in the Middletown and Newburg areas.

23 Q. Who was in charge of removing them if
24 necessary?

25 A. Post Commander.

1 Q. And what vehicles would they expect
2 you to help them provide?

3 A. At this point, nothing. We are in,
4 you know, the planning process with West Point
5 right now.

6 I'm not backing off but let me give
7 you a little bit of history on that.

8 Initially when this planning process
9 started, West Point wanted to do this on their own.
10 They wanted to be considered a separate entity,
11 which they are and they had that right.

12 Our argument was, "You are in Orange
13 County and if you are going to put some evacuation
14 plan into effect and use our roads, we should be
15 talking to each other, because, you know, we don't
16 want to have problems on these roads."

17 In the past year, they had a new
18 liason officer Air Force type and I believe he
19 realized, you know, what could happen in the real
20 world and West Point has taken a 180 degree about
21 face on this. We have been working together. We
22 have a long way to go. You know this planning
23 process is in place.

24 They do have a lot of vehicles at
25 West Point. I think they are trying to determine

1 right now if they have enough or if they will need
2 some from us. At this point, I don't know.

3 Q. That bus drivers contract that you
4 had evidently didn't include moving the people
5 from West Point?

6 A. No.

7 Q. Don't you concern yourselves about
8 leaving some of these things at loose ends.
9 Aren't you pressing West Point to get --

10 A. I thought I indicated to you that we
11 were very concerned about West Point. We tried to
12 give them the message that if they leave West
13 Point and they come on our roads, this is going to
14 be a problem there.

15 So we have been pressing them. I
16 think that this paid off. They are now working
17 with us.

18 Q. Do you foresee any problem getting
19 the people out, let us say, if West Point did
20 nothing on the roads, you can get them out; is
21 that right, your people from south of West Point?

22 A. We kind of hesitate to use some of
23 the roads around West Point, so realizing that
24 they intend to move their cadets to Stewart, for
25 instance, we would not use those roads.

1 So this is some of the, you know,
2 preplanning types of things that we have done.

3 So there are -- whenever you put a
4 plan together, there is problems, but I want to
5 keep them in the proper perspective.

6 Yes, they have some problems sitting
7 around the table trying to work this out but I
8 don't visualize us not being able to do it. I
9 think it will be done.

10 Q. Well, it's two years, is it not,
11 since you have been working on the Parsons,
12 Brinkerhoff final plan?

13 A. Yes. It's 20 years that Indian Point
14 is there.

15 Q. Doesn't it concern you? Aren't you
16 real worried that these people don't qualify --

17 A. Let me tell you what I'm really
18 worried about, the fact that I had to cancel a
19 meeting this morning for a dangerous situation
20 that I perceive as a greater threat to the
21 citizens of Orange County to come here, you know
22 for a radiological type thing.

23 We have a damn in Orange County -- we have
24 a number of dams and one in particular is being
25 changed from unsafe nonemergency to unsafe

1 emergency.

2 I perceive this as a great threat and
3 I had meetings today with the local officials in
4 that jurisdiction and the crisis management people
5 to try to get something together fast so if, God
6 forbid, something happened there, we could protect
7 the public; and here I am here, you know.

8 Q. Sorry, Mr. Schmer, but I didn't
9 sponsor your first visit here. We were not
10 prepared to discuss with you --

11 A. Well, I'm here so....

12 Q. Thank you for coming, but you do have
13 a responsibility, have you not, as chairman of
14 these services or at least as assistant to Mr.
15 Linebach to consider these emergencies equally
16 seriously? I mean it isn't up to you to decide
17 whether or not --

18 A. Well, you are then within the
19 guidelines put out by the federal and state
20 government on these things. I guess you should
21 read CCEM, Crisis Comprehensive Emergency
22 Managment.

23 One of the responsibilities of a
24 jurisdiction to do is to put things in their
25 proper priority. What you have to do is analyze

1 all of the types of disasters that could befall in
2 the jurisdiction and then place them in order of
3 priority, and you cannot address everything that
4 can happen in the jurisdiction at the same
5 priority because you would never get anything done.

6 Q. Well, I'm just thinking about the
7 chart that's in the plan here which shows your top
8 priority of Emergency Services.

9 A. If you are asking me at what level of
10 priority I would put a response to a radiation
11 accident at Indian Point --

12 Q. I didn't ask you at what level. I'm
13 suggesting to you -- I'm asking you what makes
14 you think you have the right or the position to
15 make that judgment.

16 A. I don't make that on my own. You
17 know, many people sit down and we discuss these
18 things. I think about the plan and I think that
19 the response evaluations by FEMA over our last two
20 drills will show you that we put a tremendous
21 amount of effort into this thing.

22 I think you, of all people, know that
23 Orange County put a tremendous amount of effort
24 into this program.

25 Q. Sir, I'm not saying you didn't. In

1 fact, it seems to me I have been doing nothing but
2 bringing it out what you have accomplished and how
3 you have accomplished it and why you have
4 accomplished it.

5 But what I'm suggesting to you is you
6 say you think there are other dangers that are
7 greater and I'm not sure that you perceive that
8 chart correctly. I'm asking you what makes you
9 think that it's possible?

10 A. Which chart?

11 Q. It's the organization chart that's in
12 the -- I thought I took it out of the plan --
13 which shows that the first person in charge is the
14 supervisor of your town is Mr. Linebach.

15 A. The last time you were in there, I
16 assumed that you knew what you were talking about.
17 When I realized you didn't, I got somewhat
18 confused.

19 Are we talking the organizational
20 chart, who's in charge by individual in the county
21 in form of government, or are we talking about
22 priority to specific types of disasters?

23 Q. No. We are talking about disaster at
24 Indian Point.

25 A. Right.

1 Q. And whether when such a disaster
2 would occur, what your duties would be. That's
3 what that chart is.

4 A. Well, yes. If you put it that way,
5 our position would be to utilize our plan to
6 protect the public.

7 JUDGE GLEASON: Miss Fleisher, you
8 have five more minutes

9 MS. FLEISHER: Thank you.

10 Q. I would like you to tell us a little
11 bit about the aid you have received from the
12 utilities.

13 Normally, we do not feel that that's
14 the kind of question a person can ask but
15 evidently it's fair game in these hearings.

16 Would you be able to tell us, for
17 instance, if you come here today, does Orange
18 County pay your expenses or does PASNY pay your
19 expenses?

20 A. Orange County pays my expenses.
21 \$1.50 toll. I'm utilizing a county car. If I go
22 after lunch, they'll reimburse me for lunch. This
23 is what we are talking about.

24 Q. Fine. All right. But there are no
25 inducements or are there?

1 A. No, there are not.

2 Q. That the utilities operate under?

3 A. No. The only inducement I have here
4 is to enlighten the Court as to what's going on in
5 this particular field of the nuclear reactors and
6 hopefully to put your mind at ease. That's the
7 only reason I'm here.

8 Q. Sir, I was just trying to clean up
9 the record. The record accounts, if you could
10 read it, I think you would agree with me that --
11 and if you remember, when you were here last, you
12 didn't know, for instance, the populations, and
13 Mr. Paris put that into the record from the plan,
14 and there were several things about the order and
15 then the procedures that you had not been prepared
16 to answer, and I believe you have to today --

17 A. I wasn't aware you were going to
18 touch on that again. I got some figures together
19 that I had submitted -- I gave these figures to
20 our planning department. They haven't gotten back
21 to me yet, you know, with accurate figures, but in
22 our ERPAs 24 which is West Point, we have 8,900
23 two people.

24 In our ERPAs 25, which is the
25 northern portion of the Town of Highlands, we have

1 888 people in.

2 ERPAs 26 which is includes the
3 Village of Highlands Falls and Fort Montgomery, we
4 have 5,729 people.

5 In ERPAs 27, which is a portion of
6 Central --

7 JUDGE GLEASON: Are you going to read
8 all the areas in your county?

9 MR. SCHMER: Just two more sir.

10 A. ERPAs 27, which is a portion of
11 Central Valley, has 1,415 and ERPAs 28, the town
12 of Woodbury, a very small portion, has 105.

13 With reference to your question on
14 the Bear Mountain Park before, very small portion
15 of Bear Mountain Park is in Orange County.

16 Q. You mean those people that are in the
17 summer camps then camps you --

18 A. We have people in summer camps in
19 Orange County, yes. We have approximately 24 such
20 camps.

21 Q. You would be responsible for moving
22 them out of the camps, would you?

23 A. Yes, ma'am.

24 Q. And what plans do you have, then, for
25 that?

1 A. We have put into place a notification
2 procedure. We have put into place a bus route,
3 you know, a continuous type of thing to pick up
4 all these people.

5 Q. Right. Just, if you will, tell us
6 how you expect to notify the people there?

7 A. A number of ways. We are putting
8 tone alerts out throughout the county which is
9 being paid for by the utility. In addition --

10 Q. Just a minute. Where would the tone
11 alert be placed in a child's camp? In the office
12 of --

13 A. I would imagine a good place would be
14 the administrative office, that type of thing.

15 Q. And --

16 A. As versus say, the bunk room.

17 Q. So do those ring all the time?
18 Supposing they put it in and everybody is outside?

19 A. Well, that's why we put these things
20 in places where they are monitored 24 hours a day
21 or at least during the workday if possible. We
22 can't cover every single one of these instances.

23 This coupled with police vehicles,
24 with bullhorns and their built-in PA systems, this
25 coupled with the State Police and their

1 helicopters and loud speakers and the Civil Air
2 Patrol, with their resources and loud speakers, we
3 feel that we can do, you know, a more than
4 adequate job.

5 Q. You have sirens, have you not?

6 A. Yes. Well, I took those for granted.
7 I know we all know about the sirens.

8 Q. Have you ever tested them by going
9 indoors to see if the sirens are working?

10 A. Yes, we have.

11 Q. Are they doing okay or have you had
12 to --

13 A. There's one area -- let me put it
14 this way. On one test that we conducted in Orange
15 County without any outside help such as the
16 utilities, we determined that there were three
17 sirens that perhaps should be moved and the
18 utilities consented to move them.

19 On the test on the exercise on the
20 ninth, we had some problems in the Village of Fort
21 Montgomery, and I believe that that is being
22 addressed by the utility. I believe that that is
23 being relocated or another one maybe put in. At
24 this point, I don't know which.

25 Q. When will you know?

1 A. I could make a call when I get back
2 to the office.

3 Q. No, I don't mean -- I'm just trying
4 to get a time table of what's going on.

5 JUDGE GLEASON: Your time is up, Mrs.
6 Fleisher.

7 MS. FLEISHER: Okay. Thank you.

8 MR. SCHMER: Sir, I would like to, if
9 I may -- I was in rather a high stress level the
10 last time I was here and I believe I responded
11 wrong or not completely to one question that was
12 put to me and it's important one.

13 JUDGE GLEASON: All right.

14 MR. SCHMER: I believe the Court
15 understands by the question and the answers that I
16 gave that everybody coming out of the emergency
17 planning zone will be monitored and that's not
18 true.

19 Based on dose assessment, based on
20 fixed-monitoring stations in the county and
21 outside the county and based on a mobile
22 monitoring of people, if we determine that the
23 wind direction, the wind speed and the type of
24 release would require an evacuation, the
25 evacuation is to be ordered before the plume hits

1 Orange County. Okay.

2 So people reporting to the reception
3 center would not have to be monitored. We have a
4 system in place whereby either at the level, the
5 time of plume is supposed to arrive or we actually
6 pick up a plume coming over, then the reception
7 centers are notified; and at that point, everybody
8 coming in is monitored.

9 At congregate care, people, anybody
10 reporting to congregate care though does not
11 have -- from the reception center is monitored,
12 after, you know, at this particular time.

13 MS. FLEISHER: I have to ask one
14 question, please.

15 Q. How old you make sure that the people
16 go to where you expect them to go in order to be
17 tested and monitored?

18 A. If a person does not go to reception
19 center and goes up to Oshkosh, we have no control
20 over that.

21 But anybody coming into a reception
22 center will be monitored if the plume has come
23 over Orange County.

24 Q. Wouldn't you post people along the
25 perimeter at least at important roads?

1 A. Yes, we do. We have --

2 Q. Stop people and ask --

3 A. Pardon?

4 Q. Stopping people and either test them
5 or ask them --

6 A. I think you will find that the State
7 Police and local police do this.

8 JUDGE GLEASON: All right. That's
9 the end. Any redirect?

10 MR. LEVIN: No redirect, your Honor.

11 MR. BRANDENBURG: No, Mr. Chairman.

12 JUDGE GLEASON: We appreciate your
13 coming to testify again. You are excused.

14 If the parties will bear with me a
15 minute, did you have something you wanted to --

16 MR. COLARULLI: I have just one
17 miscellaneous item.

18 You had asked on what date Dr. Bley
19 had earlier testified. It's January 20.

20 JUDGE GLEASON: January 20. Okay.
21 Thank you.

22 Hold up just a minute, please.

23 All right. I'd like to have your
24 attention Miss Posner. The Board is now ready to
25 rule with respect to the request by NYPIRG in the

1 state documents.

2 The difficulty the Board is having is
3 really determining the nature of the individual
4 documents, not the nature of those documents but
5 whether that represents the total of information
6 base that the New York State is relying on in
7 connection with their evaluation of the drill.

8 We think it is clear that the
9 individual reports of members reporting on aspects
10 of the drill which are furnished to the state does
11 come within this executive privilege except in the
12 areas that are covered generally, intragovernmental
13 opinions and deliberations that are accepted from
14 -- that received some kind of protection from
15 public disclosure.

16 However, so those things, we have to
17 rule, are not reachable by the motion of NYPIRG.

18 However, if those documents -- and
19 this just takes some further, I guess, pursuit on
20 your part -- are combined into a report which is
21 then prepared for the Disaster Preparedness
22 Commission or the other group, that is reachable,
23 and, so, we'll have to rule that we are really
24 leaving it up to you to find out whether those
25 individual components are put into a consolidated

1 type of a information base.

2 You understand that's the ruling?

3 Now, our only item that I have
4 remaining, are we up to date on the tour? Is that
5 working out?

6 MR. LEVIN: Well, we may or may not
7 have an agreement with Rockland County. Mrs.
8 Kessler is here we'll see what she has to propose.

9 MS. KESSLER: I believe we are not
10 that far off.

11 MR. LEVIN: So we hope to have the
12 road trip well in hand by this afternoon.

13 On the facility, we do need -- I do
14 not yet know who the Intervenor represented --
15 Intervenor or State representatives will be and I
16 don't know that anyone --

17 JUDGE GLEASON: It's Miss Posner, I
18 guess.

19 MS. FLEISHER: Mr. Thorsen requested
20 from Rockland and nobody else.

21 MR. LEVIN: I understand but as long
22 as everyone -- we have a 12-person limit and we
23 are asking that the Intervenors select and the
24 State select two representatives, a total of two
25 representatives to accompany the Board on the tour

1 of the plants.

2 JUDGE GLEASON: This is just the
3 plant tour you are talking about?

4 MS. FLEISHER: Sir, we felt that --
5 Mr. Fleisher and I have already been on this tour.
6 We felt we should let somebody else go. I believe
7 that's all we are going to have from Rockland. I
8 can't speak for anything else.

9 JUDGE GLEASON: The first day is
10 the --

11 MR. LEVIN: Facilities, your Honor.

12 JUDGE GLEASON: The first day is the
13 facilities and the second day is the -- well, I
14 hope that it gets straightened out before then.
15 If not, you'll just have to get ahold of the Board
16 and we'll have to decide something.

17 JUDGE PARIS: By "facilities," you
18 mean the site?

19 MR. LEVIN: Well, the site and the
20 EOF also and the EOF Educational Facility at the
21 site.

22 JUDGE PARIS: I see.

23 JUDGE GLEASON: Mr. Colarulli, did
24 you have something in addition that you wanted to
25 bring up?

1 MR. COLARULLI: I don't believe so.

2 MS. FLEISHER: Excuse me. We can't
3 understand --

4 JUDGE GLEASON: I just asked if Mr.
5 Colarulli had something else that was dangling
6 here.

7 MS. FLEISHER: Your Honor, but what
8 we didn't understand was did Mr. Levin say this
9 was not going to be a tour in the containment No.
10 3?

11 MR. LEVIN: The board has now
12 requested, what I'll refer to as the standard tour
13 of the containment building, and that will be
14 provided on the 12th.

15 JUDGE GLEASON: All right. Then we
16 shall see you at 9:30. Is that the time?

17 MR. LEVIN: On the 12th, your Honor,
18 we will have the bus available to Westchester
19 Marriott 9:30 and hopefully be at the plant by
20 10:00 and on the way.

21 On the next day, it will be earlier.

22 JUDGE GLEASON: 8:30. Okay. We
23 unfortunately will not have time to find out about
24 this problem we have in this building on the 26th,
25 but we will find out and let you know on the tour

1 as to what the resolution of it is.

2 JUDGE PARIS: Mr. Levin, so we can
3 make travel plans, what time will we finish up on
4 the second date?

5 MR. LEVIN: Late. It's going to be a
6 long day. We are estimating nine to ten hours
7 from the time we leave the hotel.

8 JUDGE PARIS: Okay. Thank you.

9 JUDGE GLEASON: Thank you all.

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1 NUCLEAR REGULATORY COMMISSION

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3 This is to certify that the attached proceedings
4 before

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THE ATOMIC SAFETY AND LICENSING BOARD

6

in the matter of: CONSOLIDATED EDISON COMPANY OF

7

NEW YORK (Indian Point Unit 2) -

8

POWER AUTHORITY OF THE STATE OF

9

NEW YORK (Indian Point Unit 3)

10

Date of Proceeding: March 23 1983

11

Docket Number: 50-247 SP and 50-286 SP

12

Place of Proceeding: White Plains, New York

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were held as herein appears, and that this is the

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original transcript thereof for the file of the

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Commission.

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RYTA RONCHER

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Official Reporter

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