

ORIGINAL

OFFICIAL TRANSCRIPT PROCEEDINGS BEFORE

NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

DKT/CASE NO. 50-382

TITLE LOUISIANA POWER AND LIGHT COMPANY
(Waterford Steam Electric Station, Unit 3)

PLACE New Orleans, Louisiana

DATE February 10, 1983

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

4 In the Matter of:)
5 LOUISIANA POWER AND LIGHT COMPANY) Docket No. 50-382
6 (Waterford Steam Electric Station,)
7 Unit 3))

8 Room 265, West Courtroom
9 Court of Appeals Building
10 600 Camp Street
11 New Orleans, Louisiana

12 Thursday,
13 February 10, 1983

14 The above-entitled matter came on for further
15 hearing, pursuant to adjournment, at 9:00 a.m.

16 BEFORE:

17 SHELDON J. WOLFE, Chairman
18 Administrative Judge
19 Atomic Safety and Licensing Board
20 U. S. Nuclear Regulatory Commission
21 Washington, D. C. 20555

22 DR. HARRY FOREMAN
23 Administrative Judge
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I N D E X

<u>WITNESSES</u>	<u>DIRECT</u>	<u>VOIR</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD</u>
						<u>EXAM.</u>
Saundra MacD.						
Hunter						
(Resumed)						
By Mr. Churchill			4521			
By Mr. Turk			4539			
By Mr. Cassidy			4540			
Albert L. Lookabaugh						
By Mr. Cassidy	4558					
By Mr. Groesch	4559					
By Mr. Churchill			4571			
By Mr. Groesch			4572			
By Mr. Turk			4585			
By Judge Jordan						4586
By Judge Wolfe						4590
By Mr. Turk			4592			
By Mr. Cassidy				4593		
Donald Joseph Perrotti						
By Mr. Turk	4597					
By Mr. Groesch			4600			
By Mr. Cassidy			4612			
By Mr. Turk				4613		
By Judge Jordan						4615
By Mr. Groesch					4624	
By Mr. Cassidy					4627	
By Mr. Turk				4628		
By Judge Wolfe						4631
Saundra MacD. Hunter						
(Resumed)						
By Mr. Groesch				4632		
By Judge Foreman						4637
By Judge Wolfe						4644
By Mr. Churchill					4645	
By Mr. Turk					4646	

I N D E X (Continued)

<u>WITNESSES</u>	<u>DIRECT</u>	<u>VOIR DIRE</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD EXAM.</u>
Dennis S. Mileti						
By Mr. Churchill	4654					
By Mr. Turk		4663				
By Mr. Cassidy		4665				
By Mr. Groesch		4667				
By Mr. Churchill	4694					
By Mr. Turk			4720			
By Mr. Cassidy			4722			

- - -

P R O C E E D I N G S

JUDGE WOLFE: All right.

Whereupon,

DR. SAUNDRA MacDONALD HUNTER,
the witness on the stand at the time of adjournment,
resumed the stand and, having been previously duly sworn,
was examined and testified further as follows:

JUDGE WOLFE: We have heard argument on the
first part of Mr. Turk's motion to strike portions of
Dr. Hunter's testimony.

We'll proceed to the second aspect of your
motion to strike, Mr. Turk.

MR. TURK: Judge Wolfe, what I would do now
is move to the next sentence.

JUDGE WOLFE: Yes.

MR. TURK: Actually, it's a series of
sentences, also on the fourth consecutive page. The line
in the third full paragraph, which begins, "The most
effective messages," I would move to strike from those
words --

JUDGE WOLFE: I don't see that, please.

MR. TURK: Okay. The paragraph begins, "When
considering the message." It's the same paragraph that
contains the sentence I spoke of yesterday.

JUDGE WOLFE: Yes, all right.

1 MR. CHURCHILL: Excuse me, I'm sorry. Could
2 you start over with the directions.

3 MR. TURK: Yes. This is the fourth consecutive
4 page, the third full paragraph, which begins, "When
5 considering the message...."

6 If you go seven lines into that paragraph at
7 the left-hand margin, the words appear, "The most
8 effective messages."

9 I move to strike from those words, "The
10 most effective messages," all the way through the end of
11 that paragraph on the grounds that the sentences in
12 question raise the issue of practice evacuation or
13 hands-on experience, which is beyond the scope of this
14 proceeding.

15 JUDGE WOLFE: All right. Mr. Groesch.

16 MR. GROESCH: Your Honor, we didn't do argument
17 on the first one, the one that said, "Separate brochures
18 should be required." Is that correct? I've forgotten.

19 JUDGE WOLFE: Yes, we had completed your
20 argument last night.

21 MR. GROESCH: Okay, so that we are talking now
22 about the second one?

23 JUDGE WOLFE: Yes, right.

24 MR. GROESCH: Your Honor, what we have here is
25 a very, very complex communication process that we are

-3
1 dealing with here, and that is why I have brought Dr. Hunter
2 before this Board, in order to give you the latest
3 information on this very complex process.

4 I believe that there is an idea that designing
5 a steam generator is more difficult than designing a
6 brochure that will elicit the type of behavior that would
7 save people's lives.

8 This sentence to me is simply the result of
9 that information that Dr. Hunter is going to be giving.

10 If expert witnesses cannot tell this Board how
11 to make this brochure a more effective brochure, it seems
12 to me that we are wasting our time here.

13 I believe that the Joint Interveners would like
14 to make it a more effective brochure, that we would like
15 to make the whole communications process a more effective
16 process; and therefore, I believe that this sentence is
17 quite in line with this proceeding.

18 It is quite in line with the brochure, and it
19 speaks to the heart of the communications process.

20 JUDGE WOLFE: In other words, what, as I
21 understand it, Dr. Hunter is recommending is that
22 there be some sort of what she calls hands-on practice
23 session.

24 She is suggesting that there be emergency
25 preparedness exercises and testing out how people during

-4
1 the course of these emergency preparedness exercises, how
2 they react and follow the information in the revised
3 brochure; is that correct?

4 MR. GROESCH: Yes. Now this particular sentence
5 simply makes a factual statement that can be challenged by
6 opposing Counsel, if they so choose.

7 It says, "The most effective messages are those
8 which have 'hands on' practice sessions."

9 Now, further in Dr. Hunter's testimony, which
10 I'm -- she does recommend that practice evacuations be
11 held.

12 Now, I think that if the Board would choose
13 to keep this one in and simply -- if opposing Counsel takes
14 this factual statement and finds that it has no basis or
15 it is not supported by research, then that's fine; but I
16 think that this particular statement does not necessarily
17 recommend that hands-on practice sessions be held.

18 This statement says that the most effective
19 messages are those which have hands-on practice sessions;
20 and, therefore, it is not necessarily a recommendation.

21 The recommendation does follow, however, but
22 this particular statement I don't think necessarily needs
23 to be stricken out.

24 I think it is fair game for opposing Counsel
25 to find out whether or not it has any basis.

1 MR. TURK: Judge Wolfe, there's some
2 misunderstanding here. I hoped I was clear when I made
3 my motion to strike on this passage.

4 It's not just this first sentence which I
5 moved to strike. It's that sentence, plus the remaining
6 three sentences in the paragraph.

7 What I had thought I said, and perhaps I am
8 wrong, was beginning with that sentence through the end
9 of the paragraph.

10 JUDGE WOLFE: Yes. You are moving to strike
11 four sentences.

12 MR. TURK: That's correct.

13 JUDGE WOLFE: All right.

14 MR. TURK: And in brief reply to Mr. Groesch,
15 my reason for including the first sentence with the
16 remaining three sentences is that they appear to me to
17 be one point.

18 They are all tied up together, as I read it.
19 I don't see how you can leave the introductory sentence of
20 the four in the testimony and let it stand by itself with
21 no point being made actually.

22 The point of the sentence follows in the
23 remaining three sentences.

24 JUDGE WOLFE: All right. Any other comment?

25 Mr. Groesch, did you have that understanding

1-6 1 that --

2 MR. GROESCH: I had assumed that we were only
3 talking about the first sentence, and for some reason I
4 had missed that we were taking the entire paragraph.

5 JUDGE WOLFE: Not the entire paragraph.

6 MR. GROESCH: Just the paragraph starting
7 from, "The most effective messages," to the end.

8 JUDGE WOLFE: Right.

9 MR. GROESCH: Your Honor, I believe that it
10 is essential that this Board have an understanding of the
11 communications process as something that is a very, very
12 complex issue.

13 It is an issue that speaks to the heart of
14 this matter, the communications issue.

15 I am bringing to this Board the latest
16 information that is available by experts who are experts
17 in the process of coping with stressful situations,
18 among other things, and I believe that to take their
19 recommendations and not deal with them will be -- will
20 make these hearings simply a waste of time.

21 Certainly, if the sentences that lead to
22 the conclusion, if the conclusion is that a practice
23 evacuation should be held, and it is based on sentences
24 such as, "The most effective messages are those which
25 have 'hands on' practice sessions," if that sentence is

-7
1 found by opposing Counsel to have no basis at all, then the
2 Board can simply reject that practice evacuations should be
3 held.

4 But I don't see why the conclusion should be
5 withdrawn if the basis for that conclusion has not; and,
6 therefore, I would like to see this paragraph remain
7 whole.

8 JUDGE WOLFE: Any other comments?

9 MR. CHURCHILL: Your Honor.

10 JUDGE WOLFF: Yes.

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1 MR. CHURCHILL: Is the Applicant supposed to
2 be responding to these individual passages at this time,
3 because we did not have an opportunity to respond to the
4 first part.

5 It was my understanding that -- I'm not sure
6 what my understanding was. I thought that we were going
7 all the way through before we responded.

8 I will probably have a response to each one of
9 Mr. Turk's suggested passages.

10 JUDGE WOLFE: Well, let's start afresh. I
11 would like for Mr. Turk to present his argument in support
12 of his motion to strike.

13 If there are any comments by Mr. Cassidy or
14 by you, Mr. Churchill, to follow up, and then Mr. Groesch,
15 and back to Mr. Turk.

16 Both you and Mr. Cassidy were silent. Maybe
17 it was my fault in jumping immediately and asking for
18 Mr. Groesch's argument.

19 Do you, Mr. Cassidy, have any argument on the
20 first sentence there?

21 MR. CASSIDY: No, Your Honor, and I do believe
22 that you did ask me if I had any comments at the end of
23 the afternoon yesterday, and I indicated that I did not.

24 JUDGE WOLFE: And did I ask you, Mr. Churchill?

25 MR. CHURCHILL: No, sir. I do have a brief

comment on the first one. I also have comments on the second one, which I think it isn't my turn yet.

Your Honor, on the first one, the sentence that says, "Additionally, separate brochures should be required," et cetera, I agree with Mr. Turk and I support his motion.

The basis for this was the expertise of Dr. Hunter. In Mr. Groesch's response, he said that the basis for her making this statement was the assumption she made that there were varying fear levels within the EPZ.

There is absolutely no basis in any of her training and experience listings to assume that she has any expertise whatsoever to make such an assumption.

She has absolutely no expertise in any area of emergency planning. She has no expertise in any area of nuclear emergency response or any other kind of response, or any perception of fear level.

She is just saying, "I assume there are varying fear levels; therefore, we should have separate brochures."

So you see, the conclusion that she's making, as well as the assumption on which she bases her conclusion, as totally unsupported by any degree of expertise.

So for that reason I support Mr. Turk's, the

-10
1 NRC Staff's motion on the first passage.

2 JUDGE WOLFE: Well, I think both you and,
3 certainly, Mr. Turk, should address Mr. Groesch's argument
4 that he concedes that Dr. Hunter assumes that the fear
5 level would be highest in and about the plant and would
6 diminish the farther one goes away from the plant.

7 Would you address that argument, or would you
8 address what I'm saying now. Is it a requirement that
9 one have expertise in this area? Wouldn't this be
10 something that anybody could well assume, that the closer
11 one is to the plant, the higher the fear level would be,
12 and the farther away from the plant, there would be
13 diminution?

14 MR. CHURCHILL: Your Honor, I don't think that
15 we can make that assumption as laymen at all. I think
16 that it is not at all obvious that people closer to the
17 plant would require a lower fear motivation versus people
18 farther away, particularly within a ten-mile radius.

19 There are many other considerations. There
20 are all sorts of varying perceptions of people no matter
21 where they live.

22 Dr. Hunter is stating that there should be --
23 it's a conclusion, that there should be different brochures
24 within this same small area with fear levels that reflect
25 higher fear appeals farther away from Waterford 3.

-11 1 She has no basis at all for offering such an
2 opinion, and we have no basis for being able to accept
3 such an opinion as the opinion of an expert.

4 She simply is totally devoid of any credentials
5 in this area at all.

6 JUDGE WOLFE: Anything more, Mr. Groesch, on
7 this, on Mr. Churchill's argument?

8 MR. GROESCH: I think it is clear that
9 Dr. Hunter is an expert in assessing fear levels. She
10 has in fact -- Her expertise is in the physiological
11 consequences of stress, and her expertise is in coping
12 behavior.

13 Her expertise is in the behavioral responses
14 to stress. She has a large number of publications in
15 this area.

16 She has designed pamphlets that measure stress
17 levels for thousands of people in the Bogalusa area; and
18 although she is not an expert in evacuation, she is not an
19 expert in nuclear power, she is assuming as an expert on
20 stress that people who live closest to a facility that
21 could do them harm would have higher levels of fear.

22 I believe that this is a commonsensical thing,
23 and I think that coming more from commonsense than from
24 anything else. But when it comes from a person who is
25 an expert in the physiological consequences of stress and

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1 the behavioral responses to stress, I believe it becomes
2 almost a rebuttable presumption.

3 And I believe that it is incumbent upon the
4 Applicant who is doing this action, building this powerplant
5 in this community, to show in fact that this is not the
6 case.

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1 MR. GROESCH: And they have had close to 13
2 years now in order to assess these different levels. They
3 have felt that it was not important. There have been no
4 studies in this area, and Dr. Hunter is calling for
5 studies in order to let's see if in fact her feelings as
6 an expert are in fact correct.

7 And until those studies are done, I believe
8 that it is a rebuttable presumption on the person who is
9 an expert to be able to say things of this nature.

10 JUDGE WOLFE: All right. We've now completed
11 the argument the first aspect of the motion to strike.
12 We now go to the second portion of the motion to strike.
13 Do you have anything to say, Mr. Cassidy?

14 MR. CASSIDY: Your Honor, as to Mr. Turk's
15 objection to the second paragraph -- the second passage
16 that he indicated, I would join him in his motion that
17 the statements there are beyond the scope of the hearing.
18 The issue of a practice evacuation was raised in the
19 earlier contentions, and it was discussed at some length
20 at the previous hearing and the Board did rule on that
21 aspect of the planning process in the earlier proceeding.

22 JUDGE WOLFE: Anything, Mr. Churchill?

23 MR. CHURCHILL: Your Honor, I agree with the
24 comments of Mr. Cassidy and Mr. Turk. This issue was
25 considered at the earlier portions of this hearing, and it

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1 was definitively ruled on by the Board in its partial
2 initial decision of November 3, 1982 at Pages 20 and 21,
3 where the Board ruled that "The Applicant has, therefore,
4 demonstrated compliance with the regulations; and this
5 fact is uncontroverted by Joint Intervenors. Moreover,
6 we believe that 10 CFR Part 50, Appendix E, Section F-1,
7 expressly precludes our requiring public evacuation during
8 an exercise."

9 Also, at Pages 51 through 58 are the Board's
10 findings of fact on that issue, which, in addition to the
11 point previously mentioned, that it is beyond the scope
12 of the requirements of the regulations, the Board did dis-
13 cuss the exercises that will be conducted, concluded that
14 they do comply with the regulations.

15 They went through the exercises substantively
16 and showed -- and made their findings and their con-
17 clusions on the adequacy of those exercises.

18 So the Board has clearly already ruled on this
19 issue because, among other things, the regulations pre-
20 clude -- Mr. Groesch stated that the -- Excuse me. I
21 won't get into Mr. Groesch's argument.

22 I should also add that I think as an additional
23 argument that Dr. Hunter does not have the expertise to
24 make or draw the conclusion that a practice evacuation
25 would be the appropriate action in this situation.

2-3

1 Dr. Hunter has no publications whatsoever in
2 the area of the public response to emergency situations.

3 JUDGE WOLFE: All right, Mr. Groesch, any
4 final word?

5 MR. GROESCH: Your Honor, I would just like to
6 reiterate that Dr. Hunter's assertion that fear levels are
7 highest closest to the Waterford plant --

8 JUDGE WOLFE: Well, we're not getting into
9 that now. We've finished argument on that. We're talking
10 now about the hands-on practice -- sentences that Mr.
11 Turk has moved to strike, beginning with striking "The
12 most effective messages."

13 MR. GROESCH: Your Honor, I believe that Dr.
14 Hunter's expertise in the communications process is un-
15 questioned. I believe for her to say -- the first sentence
16 which is "The most effective messages are those which have
17 hands-on practice sessions," represents a rebuttable pre-
18 sumption by an expert.

19 I believe that the other sentences in that
20 paragraph are conclusions that are drawn from that rebut-
21 table presumption; and I think it is incumbent upon op-
22 posing counsel to show that that rebuttable presumption has
23 no merit.

24 We are dealing here with a very complex pro-
25 cess: how to get people to behave correctly in a stressful

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1 situation and the expertise that Dr. Hunter is bringing
2 to these hearings I believe is a breath of fresh air to
3 show that the communications process is much more complex
4 than the Applicant or the Government, or I believe even
5 this Board believe that it is.

6 But I think that the latest research in this
7 area, which Dr. Hunter is giving this Board, I believe
8 will help you in assessing whether or not this brochure
9 which is the reason that this hearing is being held will
10 do what it's supposed to do.

11 And that's why we're here.

12 JUDGE WOLFE: All right, Mr. Turk.

13 MR. TURK: Judge Wolfe and Drs. Foreman and
14 Jordan, I want to keep this as brief as possible. Let
15 me do so and first indicate that the following four pas-
16 sages which I move to strike are for the same reasons --
17 or I move to strike them for the same reasons which I
18 moved to strike the prior passages.

19 That is, they either deal with the question of
20 fear levels in the vicinity of the plant, or they embrace
21 the issue of the need for a practice evacuation.

22 Now, I won't repeat my arguments, but I'll
23 follow Judge Wolfe's suggestion that I take them only one
24 at a time.

25 In the fourth full paragraph on this same

2-5
1 page, the paragraph beginning "Selective retention,"
2 seven lines into the paragraph where the line begins,
3 "target individual," further in the line I would move to
4 strike from the words "that is why unique brochures are
5 needed depending on the distance the target is from Water-
6 ford."

7 JUDGE WOLFE: What were the words again,
8 please, that are requested to be stricken?

9 MR. TURK: " ... that is why unique brochures
10 are needed depending on the distance the target is from
11 Waterford."

12 And for the sake of simplicity maybe I should
13 make my next -- mark my next passage now rather than come
14 back to the paragraph again later.

15 Two lines down from the ending of that sen-
16 tence where the line begins "crisis situation," beginning
17 in that line I would move to strike the following sentence:
18 "This further emphasizes the need for practice evacuations
19 giving individuals with low confidence an opportunity to
20 act."

21 I would move to strike these passages on the
22 grounds that the witness does not have expertise to discuss
23 what may be different fear levels in the vicinity of the
24 plant, and that the need for practice evacuations is beyond
25 the scope of this hearing and has been expressly precluded

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1 by the Board's order.

2 JUDGE WOLFE: I thought you said you had four
3 passages.

4 MR. TURK: Yes. Those are two. Shall I
5 proceed now with the others?

6 JUDGE WOLFE: Yes.

7 MR. TURK: In the next passage -- the next
8 paragraph, three lines into the paragraph, the last word
9 there is "(there." I would move to strike that word
10 and the words on the following two lines.

11 For clarity let me read the passage which I
12 move to strike.

13 MR. GROESCH: Could you repeat that again?
14 I didn't follow that.

15 MR. TURK: Yes.

16 In the paragraph which begins "In conclusion,"
17 three lines into that paragraph I move to strike the
18 following passage, and it begins at the last word of the
19 third line in the paragraph: "(there are probably
20 different fear levels and awareness levels within the 10
21 mile radius)."

22 My last passage begins in the next paragraph
23 where the line begins "trustworthiness." I would insert
24 a period after "trustworthiness" and move to strike the
25 balance of that sentence and the remaining portion of the

2-7

1 testimony on Page 4 and on Page 5.

2 My grounds are again the same. They raise
3 the issue of fear levels for which the witness has not
4 been shown to have any expertise and the issue of
5 practice evacuations, which is beyond the scope of the
6 hearing.

7 That concludes my motion to strike.

8 JUDGE WOLFE: Mr. Cassidy.

9 These -- Excuse me. These portions -- four
10 passages that you're moving to strike on the ground of
11 lack of expertise; is that it?

12 - - -

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1 MR. TURK: No. Also because the issue of
2 practice evacuations is beyond the scope of the hearing.

3 JUDGE WOLFE: All right.

4 MR. GROESCH: Mr. Turk, where did you end the
5 last one?

6 MR. TURK: On the fourth consecutive page at
7 the bottom of the page there's a line which begins with
8 the number one. I would leave that line in, and then con-
9 clude after a portion of the sentence there.

10 So I would read what I would now propose to
11 be the last line of the witness' testimony. "1. A
12 community based assessment of communicator credibility
13 and trustworthiness." I would insert a period there and
14 move to strike the balance of the testimony.

15 JUDGE WOLFE: All right, Mr. Cassidy, any-
16 thing?

17 MR. CASSIDY: Your Honor, I would again con-
18 cur with the passages -- or the motion to strike with re-
19 gard to the passages that deal with practice evacuations
20 on the basis of being beyond the scope of the hearing, as
21 I previously argued.

22 JUDGE WOLFE: Mr. Churchill.

23 MR. CHURCHILL: Your Honor, I would agree with
24 the comments of Mr. Turk and the further completion of his
25 motion with respect to both types of material.

1 I do have -- I was going to make a motion
2 myself, Your Honor, particularly with respect to the
3 practice evacuation information. My motion would have and
4 will be the same as Mr. Turk's with respect to the practice
5 evacuation sessions.

6 But in the paragraph under the heading, "The
7 Target," on Page 4 where Mr. Turk has deleted two passages
8 from that, my motion would be and will to delete the
9 entire paragraph.

10 It might -- Perhaps it might be helpful to
11 give my arguments for the entire paragraph now. They are
12 simple.

13 My arguments basically on practice evacuation
14 I have already given and won't repeat. However, that en-
15 tire paragraph goes to the point of practice evacuations.

16 JUDGE WOLFE: That's the paragraph that begins
17 "Selective retention"?

18 MR. CHURCHILL: Yes, sir.

19 JUDGE WOLFE: All right.

20 MR. CHURCHILL: The very first sentence says
21 "Selective retention is a result of utility." This is the
22 lead-in sentence with discussion that you need the utility
23 of a practice evacuation for this selective retention.

24 The example given -- that the basis why she
25 says we need it is because women who have babies are more

2-10

1 likely to read toilet training material than women who
2 don't is an example that goes right to the heart of that
3 thesis.

4 Therefore, since the entire paragraph goes
5 to the subject and to the conclusion that a practice
6 evacuation is necessary, I would -- at the appropriate
7 time, which I wonder would be now -- move that that entire
8 paragraph be stricken for the reasons that I have given
9 with respect to practice evacuation.

10 JUDGE WOLFE: You move to strike because that
11 is precluded by the regulations; is that what you're
12 saying?

13 MR. CHURCHILL: Yes, sir.

14 JUDGE WOLFE: Well, for the sake of saving
15 time, I will consider that along with Mr. Turk's motion to
16 strike. Do you have anything to add? We'll go back to
17 you, Mr. Turk, in light of what Mr. Churchill has moved
18 to strike.

19 MR. TURK: No, I don't.

20 JUDGE WOLFE: Mr. Cassidy?

21 MR. CASSIDY: No, Your Honor.

22 JUDGE WOLFE: All right, Mr. Groesch, you may
23 address your arguments to, first, Mr. Turk's motion to
24 strike the four named passages and then proceed to discuss
25 and argue as to Mr. Churchill's motion to strike the entire

2-11
1 paragraph on Page 4 beginning with the words "Selective
2 retention."

3 All right.

4 MR. GROESCH: Yes, Your Honor. I would, first
5 of all, like to address the first reason for striking these
6 two, which is that Dr. Hunter does not have expertise in
7 assessing fear levels.

8 What I would like to do, which I think is not
9 clear from her curriculum vitae -- it's not absolutely
10 clear to those who would not be in the field that she would
11 not have an expertise in fear levels.

12 However, what I would like to have Dr. Hunter
13 do is explain in her own words to the Board the enormous
14 amounts of work that she has done in assessing fear
15 levels. I think that that would save the Board time, and
16 it would also be more clear than if I attempted to tell
17 the Board why she is an expert in fear levels.

18 And then we can address that, and then we can
19 go to the second point, which is the point about the
20 practice evacuations.

21 JUDGE WOLFE: Well, we're relying on your
22 argument. You tell us her experience and why she is com-
23 petent -- experienced enough to speak to fear levels.

24 MR. GROESCH: Dr. Hunter has -- her current
25 position which is the principal investigator in the

2-12

1 biobehavior section of the Specialized Research -- Center
2 of Research for Arteriosclerosis, period, the Bogalusa
3 Heart Study.

4 In this study they have made -- the Bogalusa
5 Heart Study has resulted in a large number of papers, many
6 of them authored or co-authored by Dr. Hunter.

7 These papers have -- In the course of doing
8 this study, the Bogalusa Heart Study, Dr. Hunter has had
9 to assess stress levels of the children in the Bogalusa
10 Heart Study.

11 She has done this by designing documents in
12 which the stress levels have been measured. There were
13 over 5000 people who participated in this study. Dr.
14 Hunter has reviewed documents that would have been given to
15 these children and others who participated in this study.
16 The fear levels and stress levels that were engendered
17 by these documents were assessed by Dr. Hunter.

18 As you can well imagine, anyone who is attempt-
19 ing to measure the effects on people who have arterio-
20 sclerosis or other problems, that materials that you would
21 give to them could not be stressful, and the -- if
22 materials that researchers would give them either in
23 questionnaires or other types of documents that the people
24 who were involved in these studies would read if it would
25 increase their stress levels, it would have an adverse

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2-13

1 effect on the results of the studies.

2 Therefore, it was very important for the
3 people in the Bogalusa Heart Study to very carefully
4 design and assess the fear levels and the stress levels
5 of the documents that were given to these children and
6 other people who were involved in this study, over 5000.

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MR. GROESCH: And I think that it was not only what they did in this study and in other studies that Dr. Hunter has participated in, she wanted to change behavior of individuals in order to make them give up smoking or other habits -- not make them, but (I've forgotten the word that she used here) motivate them.

I believe it was that they wanted them to be motivated to give up smoking or other bad habits, and the materials that were designed by Dr. Hunter were designed to do just this.

I believe that the enormous numbers of -- not enormous, but the studies that Dr. Hunter has done, the fact that she has designed documents that assess fear levels, that she has taught courses which deal with fear levels, I believe that this allows her to be an expert in three different behavior categories, and that is the physiological consequences of stress, coping behavior and in the behavioral responses to stress.

Therefore I believe that the first basis for Mr. Turk's arguments, which is that Dr. Hunter does not have the expertise to assess fear levels, is totally without foundation.

The second point that Mr. Turk brought up was that Dr. Hunter does not have any expertise in evacuation. I believe that we have already admitted that Dr. Hunter

1 does not have expertise in evacuation.

2 What Dr. Hunter has done is to take the area
3 of evacuation and broadly apply the information that she
4 has as an expert in the communication process, and has
5 said that a practice evacuation has a large number of
6 positive attributes.

7 She is not saying that having a practice
8 evacuation is -- She is not saying that she has looked
9 at every aspect of having a practice evacuation, but she
10 is saying that from a communications process, and there
11 might be other things that come into play besides the
12 communications process, but she is saying that if you
13 look at just the communications process, that a practice
14 evacuation for many, many people is a very, very positive
15 thing.

16 Now, I believe that this is her testimony and
17 that the opposing Counsels would have to show that other
18 factors rather than just the communications process
19 override the opinion of our expert, and I think that that
20 is fair game.

21 If there are logistics problems, for instance,
22 which Dr. Hunter has absolutely no expertise in, that
23 would override the fact that the communications process
24 would have to take a secondary role in this, I think fine,
25 let them do that, and that is something that the Board

1 would have to judge.

2 However, if the communications process is the
3 most important element in this, then I believe that in
4 this situation that this Board would have to override
5 NUREG regulations and possibly have a practice evacuation,
6 if in fact the people in this area would have a positive
7 response to a practice evacuation that would allow them to
8 react more favorably in the case of a real evacuation.

9 Those are my arguments on Mr. Turk's motions
10 to strike. I believe that the arguments would be the same
11 for all of them.

12 However, Mr. Churchill's motion which would
13 eliminate -- let me see if I understand this.

14 JUDGE WOLFE: Correct me if I'm wrong,
15 Mr. Churchill. I think Mr. Churchill's argument, or his
16 independent motion to strike, addressed to the entire
17 paragraph at Page 4, beginning "Selective retention."

18 MR. GROESCH: In other words, the last
19 sentence would be what --

20 JUDGE WOLFE: The last --

21 MR. GROESCH: "Action items," or he would
22 take away the word "Target," and then remove the rest
23 of the -- is that --

24 MR. CHURCHILL: No, sir. All I'm doing is
25 moving to strike the entire first paragraph of the section

-4 1 entitled, "The Target."

2 JUDGE WOLFE: And I think you have already
3 responded to that, if I'm not mistaken, Mr. Groesch, in
4 addressing Mr. Turk's argument that this certainly is
5 a circumstance where the Board can override regulations
6 and require an evacuation test. Is that it, cutting
7 through -- Is that it, Mr. Groesch?

8 MR. GROESCH: Yes. Yes, I think that those
9 arguments would also -- on the fear level and on the
10 practice evacuation, the arguments that I made, I believe,
11 would also suffice for the first paragraph under "The
12 Target."

13 JUDGE WOLFE: All right.

14 JUDGE FOREMAN: Mr. Groesch, I would like some
15 clarification about my perceptions.

16 From my reading of Dr. Hunter's resume and
17 looking over her bibliography, I gather the impression
18 that her interest in stress and anxiety and fear stems
19 from her concerns about the relationship of these matters
20 to coronary artery disease, or the development of coronary
21 artery disease, primarily that.

22 Has she had any other experience relating to
23 stress and anxiety and fear that bear upon emergency
24 situations?

25 To help you, there are really two questions

3-5 1 there. Am I right in my perception about what she does,
2 or maybe there is more there than I read?

3 Secondly, if that is so, has she had any
4 experience in relating to emergency situations?

5 MR. GROESCH: I do not believe that she has
6 had experience relating to emergency situations.

7 However, I believe that she has had enormous
8 experience in assessing fear levels and stress levels.

9 I believe that probably in emergency situations
10 that she might not have direct information; and, therefore --
11 and we readily admit to that.

12 (Bench conference.)

13 JUDGE FOREMAN: We think it would be better if
14 we asked you that, Dr. Hunter, since you are the one
15 involved.

16 Has your concern about these matters, and I
17 repeat again, fear, anxiety, stress, been related to
18 other than your concerns about the predilection to coronary
19 artery disease?

20 THE WITNESS: Yes. My primary research
21 focus has been in theoretical conceptual, as well as
22 measurement issues, associated with anxieties, fears, things
23 of that sort, coping behavior, as it related to arterio-
24 sclerosis.

25 This is also related to other physiological

-6 1 consequences, such as cancer, ulcers, things of that sort.

2 I have been involved in -- The first time
3 that we put a questionnaire assessing cigarette smoking
4 behavior in Bogalusa in over 5,000 children, the first
5 time we put that questionnaire in our study, there was a
6 large concern as to whether or not this would affect
7 blood pressure levels of the children.

8 In other words, if they took the questionnaire,
9 would it cause so much anxiety that their blood pressure
10 levels would go up, and thereby we would not have basal
11 blood pressure levels on these children.

12 So we needed to design a questionnaire that
13 would assess cigarette smoking behavior without arousing
14 anxiety.

15 I'm also involved in developing questionnaires
16 about coping behavior, which involve coping in many
17 situations. It could be coping in evacuating a school,
18 things of that sort, coping with a flat tire on a highway,
19 emergency type situations.

20 I am involved in that sort of research.

21 JUDGE FOREMAN: I see.

22 THE WITNESS: As a matter of fact, I am
23 consulting with a student right now at Loyola University
24 where we are developing a measure of assessing the anxiety
25 associated with a nuclear war.

1 JUDGE WOLFE: With what?

2 THE WITNESS: Nuclear war.

3 JUDGE FOREMAN: Thank you.

4 MR. TURK: Mr. Chairman, may I respond
5 briefly to one aspect of Mr. Groesch's reply concerning
6 the fear level question.

7 JUDGE WOLFE: All right.

8 MR. TURK: It seems to me that we need to
9 focus here on the expert opinion that's being proffered
10 in the testimony and see whether the witness can make
11 that expert opinion.

12 I think the essence of the opinion which is
13 proffered by the witness is contained in the sentence
14 which reads, "There are probably different fear levels
15 and awareness levels within the ten-mile radius."

16 That's one of the passages which I have moved
17 to strike.

18 The other portions of the testimony which
19 relate to this issue really revolve around that central
20 sphere.

21 My motion to strike is based on my belief
22 that this witness does not have any expertise which would
23 enable her to make a judgment like that, that there are
24 different fear levels around the nuclear plant.

25 She has not been involved in any radiological

1 emergency planning or in the drafting of brochures.

2 In response to the Board's question yesterday
3 he boldly stated at Page 4479, "It's my assumption that
4 those closest would have the highest anxiety level
5 already, the assumption that I'm making. I think that
6 that needs to be assessed in reality."

7 This witness does not have expertise to be
8 able to make a judgment as to what fear levels may be
9 around the nuclear plant.

10 She may very well have expertise in dealing
11 with the fear associated with arteriosclerosis or other
12 diseases, but that's a different question.

13 That concludes my remarks.

14 JUDGE WOLFE: Anything more?

15 MR. GROESCH: I believe that we have an expert
16 here who is an expert in the physiological consequences of
17 stress and coping behavior and behavioral responses to
18 stress.

19 I believe that it is a commonsense
20 observation that stress levels around a nuclear powerplant
21 are related to the distance from the powerplant.

22 I believe that is commonsensical, but I
23 believe when it comes from a person with the expertise
24 and the years of study of Dr. Hunter, I believe that it
25 becomes more than simply commonsense, it becomes a

1 presumption; and, therefore, I don't believe that she would
2 have to have expertise in the logistics of evacuation or
3 in nuclear physics in order to assess that; and, therefore,
4 I believe that the statement stands on its merit.

5 JUDGE WOLFE: All right.

6 The Board understands now that all motions to
7 strike have been completed now with respect to Dr. Hunter's
8 testimony; is that correct?

9 MR. TURK: Yes, that's correct.

10 JUDGE WOLFE: The Board will now recess for
11 approximately 15 minutes. It may be more or less, but
12 keep yourselves available.

13 (Brief recess taken.)

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JUDGE WOLFE: All right.

The Board has given consideration to the --
Mr. Turk's and Mr. Churchill's motions to strike. We deny
the motions to strike. We will hear Dr. Hunter's testi-
mony and give whatever weight, if any, such testimony de-
serves at the time we write our decision.

Let me advise all parties, however, that we
recognize that we as a Board cannot, quote, override,
closed quote, NRC regulations.

I would also advise the parties that we will
not permit the reopening and the rehearing of matters that
have previously been decided in our partial initial de-
cision of November 3, 1982.

So we will hear Dr. Hunter's testimony and
give weight to it at the time we write our decision to the
extent it bears on the issue of the adequacy of the re-
vised brochure.

All right. Back to you, Mr. Groesch.

I take it you now wish to --

MR. GROESCH: Yes. I'm going to move that
the testimony of Dr. Hunter be incorporated into the
record at this time.

JUDGE WOLFE: Any objection?

MR. CASSIDY: No objection, Your Honor.

MR. TURK: No objection at this time.

1 JUDGE WOLFE: No objection in light of the
2 Board's ruling.

3 All right, Mr. Churchill.

4 MR. CHURCHILL: Thank you for the correct
5 words. No objection in light of the Board's ruling.

6 JUDGE WOLFE: All right.

7 (The "Direct Testimony of Dr. Saundra MacD.
8 Hunter" is incorporated into the record and follows.)
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)
) Docket No. 50-382
LOUISIANA POWER & LIGHT CO.)
) January 26, 1983
(Waterford Steam Electric Station)
Unit 3)

Direct Testimony of Dr. Saundra MacD. Hunter

Q.1. Please give your name, present employment, and a statement of your qualifications.

A.1. My name is Saundra MacD. Hunter. I am an Associate Professor in the Department of Family Medicine at the Louisiana State University School of Medicine. I have included a copy of my curriculum vitae as a separate attachment.

Q.2. Have you reviewed the evacuation brochure entitled "Plans to Help You During Emergencies" (Applicant Exhibit 13) and the attached colored map (Applicant Exhibit 14)?

A.2. Yes

Q.3. Please comment on them.

A.3. The purpose of this brochure is to communicate and persuade individuals to follow certain practices of evacuation from the areas surrounding Waterford III Nuclear Power facility if an accident should occur. If the message is effective, the desired persuasive effect will take place. In line with this view, many researchers of the communication process have presented messages of various types in order to assess their relative effectiveness toward behavioral motivation. Simply, they asked "Will this style of message result in the behavior I wish to evoke".

There are three main elements in the communications process--the communicator, the message, and the target.

The Communicator

Two main characteristics of communicator credibility are expertness and trustworthiness. Expertness may be a personal characteristic, deriving from special training or education, experience, social background, or even age. But it may also be more of a nominal characteristic stemming from position or status. A related but somewhat distinct attribute is the legitimate power held by the communicator. Legitimate power is based on the acceptance by the recipient of the idea that the position or status of the communicator gives him the authority to influence people - by making decisions, determining policy, or giving orders.

Trustworthiness is also a property attributed to a highly credible communicator. The characteristics of a communicator that lead people to trust him may be widely varied. He may be trusted because he is in a position of authority. Certain personality characteristics, physical appearance, ways of expressing oneself, and style or mannerisms may be associated with trustworthiness.

Another factor in trustworthiness is the perceived intent of the communication, as gleaned from what he says or what is known about him. If he stands to gain through acceptance of his message by other persons he is usually considered untrustworthy. Many people are skeptical of the communications of publicity agents, salesmen, politicians, and surveyors of products advertised in radio and television commercials.

A communicator who is perceived as untrustworthy or disliked may not only be ineffective, but may cause a "boomerang effect." The target may move in a direction opposite to the communications message.

The brochure displays a certain informality which is used to make people feel as if the source of the communication is friendly and trustworthy. The first page, however, is headed with "A Message to Our Friends and Neighbors" followed immediately by a statement which indicated that this brochure was prepared by State and Parish governments. And, finally signed by "Ikey", "Bert" and "Dave." This is very confusing and likely to result in low credibility attributed to the brochure. If the communicator is seen as untrustworthy, the brochure is likely to be discarded. No definitive study has been done to assess the trustworthiness and credibility of this brochure as a source of communication.

The Message

Many aspects of the message may be considered as potentially affecting persuasion. Among these are emotional versus rational appeals and such organizational characteristics of the message as the ordering of elements within it, the presence of reinforcing elements, the extent to which conclusions or recommendations are made explicit and the mention and refutation of counterarguments to the message theme.

The first question raised as to the effectiveness of the brochure must address the relative value of emotional versus rational appeals. Would a strictly emotional appeal be more effective than a rational one which appeals to the intelligence and good sense of the audience? Behavioral scientists have subjected to controlled experimentation the question of emotional versus rational appeals with very mixed results. Sometimes a rational appeal may arouse certain emotions; an emotional appeal may make a person think.

By its very nature (i.e. life or death) this brochure must speak to the emotion of fear. The use of fear appeals have been extensively researched to pin down the means by which it succeeds or fails to persuade. Advertisers sometimes use fear appeals to sell a product. The lack of use of toothpaste and deodorants arouse the threat of being unpopular. These influence attempts consist essentially of information describing a danger and recommendations for action that would avoid the danger.

Much research has addressed the intensity issue of fear appeals. If fear is thought of as a drive, a motivating force, then one might expect that the greater the fear, the stronger the influence. The basic idea is that fear acts as a motivating force leading the person to accept the recommendations offered in order to reduce his fear, but when fear is too strong, other processes enter in. For example, strong fear appeals may be seen as offensive, exaggerated or deliberate attempts to scare the reader thus producing discounting of the communication and resistance to change. Or when the reader actually becomes afraid, the individual may generate defenses against the fear, such as, arguments counter to those in the brochure.

Recent studies find that mild fear is associated with less persuasion. Some 22 studies can be cited which indicate greater

persuasion when more intense fear is aroused. As a result, there are an abundance of interpretations and it has become necessary to postulate more precisely the means by which fear facilitates or inhibits persuasion, and to specify the conditions under which it does so.

The most powerful explanation has been postulated by Howard Leventhal. Fear-arousing communication produces two parallel and independent reactions. One reaction is to control the fears aroused by the threat; the other reaction is to cope with the danger. While fear control may take place by means of actions that cope with the danger, many other actions that control fear are either irrelevant to or interfere with coping behavior. For example, defenses against fear could include withdrawing from the situation, thinking up counterarguments against the threat, stop think about the danger, obtaining reassurance, or developing rationalizations for not worrying.

The other reaction- to cope with the danger -would include facing and acknowledging the danger, accepting the recommendation of the communication, adopting other adequate means of avoiding the danger, and obtaining additional information on how to cope with it. Typically, there is some correlation between the fear and coping reactions. More serious threats elicit stronger emotional reactions. But this occurs because of the nature of the communication; there is no necessary connection between fear arousal and coping behavior - one does not cause the other.

In this brochure, the desired effect would be to arouse fear (to its optimal level) and have individuals cope with the fear by facing and acknowledging the danger and accepting the recommendations in the brochure. The undesired effect would be to arouse the fear only to have avoiders throw away the brochure thus withdrawing from the situation, think up counterarguments against the threat, stop thinking about it, or develop rationalizations for not worrying. Of course, if the fear level is too low, the message in the brochure will be totally discounted. Communications arousing high fear will be more effective if the response is delayed. The issue gets even more complicated since research has shown that personal characteristics of self-esteem affects the way in which a person reacts to or handles fear. The coping responses of individuals with low self-esteem are temporarily disrupted by their inability to handle the fear aroused. Other personal characteristics, such as avoiders-copers or feelings of vulnerability, effect behavioral responses to fear arousing situations. But, studies have shown that even for those with low self-esteem the desired behavior change was accomplished by action instructions. Thus, motivation is not enough to change behavior. The individual needs to perform a series of actions in order to cope with the danger. These actions need to bridge the gap all the way from the receipt of the communication to the final act.

What is the most effective order of presentation of separate communications? What is the most effective order of elements in a communication? The first question has led to a number of experiments to determine whether a message was more effective when it was presented before or after another communication. This is commonly referred to as the primacy-recency question. If the first communication is more effective, the result is referred to as a primacy effect; if the last is more effective, as a recency effect.

A number of methodological problems in primacy-recency experimentation have made it difficult to determine whether primacy or recency of communication had the advantage. In the typical experiment, the two communications are presented in immediate succession an

followed by an immediate test of recall. Presenting the communications in immediate succession provides little advantage to recency. These effects hold true with respect to the amount of learning of the communication that takes place.

Under nonexperimental conditions, primacy is likely to have advantages over recency. When a communication contains two kinds of elements, one tending to arouse a need and the other tending to satisfy the need, the most effective arrangement presents the need-arousing elements first and the elements providing need satisfaction last.

Since this is obviously a situation which can arouse fear, the brochure should clarify the need. Instead, fear is underplayed, put on a back page in small print. "If there is an accident, Waterford 3 can block the release of all or most of the radiation. But in a severe accident, some radioactive matter may be released. If it is, this matter will be carried in the air. If that happens, an emergency will be declared. You may then be asked to do certain things to protect yourself until the wind carries the radioactive matter away." Why should you protect yourself if there is no danger from radioactive material. If there is no danger, why have a brochure explaining methods of evacuation.

When considering the message within the brochure, both areas of research-primacy/recency and fear arousal would suggest that the "need" or the "fear" situation should be placed first in the brochure. Additionally, separate brochures should be required based on distance from the power plant with highest fear appeals furthest away from Waterford. Action items, or "what to do" items should be placed second. The most effective messages are those which have "hands on" practice sessions. An announcement should be made that a practice evacuation will take place. People will read and take seriously the message when they realize that they will need to take action soon. A practice evacuation of these areas is essential.

The Target

Selective retention is a result of utility. When housewives were offered a pamphlet on toilet training, those who had an infant in the relevant age bracket most often requested it and actually read it. If individuals believe that they will engage in the behavior at some future time (for example, a practice evacuation) they will learn the material in the brochure. As mentioned above the utility of the message to the target individual is essential, that is why unique brochures are needed depending on the distance the target is from Waterford. Educational level and self-esteem effect an individuals ability to respond to a crisis situation which requires action. This further emphasizes the need for practice evacuations giving individuals with low confidence an opportunity to act.

In conclusion, based on experimental evidence and the contents of the brochure, it is my opinion that this brochure will be discarded because of low fear appeal and non-discriminated target persons (there are probably different fear levels and awareness levels within the 10 mile radius).

Given the present situation, I suggest the following:

1. A community based assessment of communicator credibility and trustworthiness, as well as, fear levels of residents based on distance from power plant.
2. Develop several brochures based on findings with plans for practice evacuation.

3. Announce through the media a practice evacuation. This announcement should include an explanation of the map and their location on it.

4. Have a practice evacuation.

CURRICULUM VITAE

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CURRENT POSITION:

Principal Investigator: Biobehavior Section of the Specialized Center of Research—
Arteriosclerosis. The Bogalusa Heart Study.

Research Director: Department of Family Medicine

RESEARCH ACTIVITIES:

Social and psychological determinants of health habits in children and adolescents. Health habits include: cigarette smoking, Type A coronary prone behavior pattern, eating patterns, coping styles, and compliance.

Physiological and biochemical responses to these health habits.

Design behavioral components for health habit intervention.

Design and implementation of many research projects in the Department of Family Medicine.

Writing Graduate and Undergraduate Training grants in Family Medicine.

EDUCATION:

<u>Date</u>	<u>Major Field</u>	<u>Degree</u>	<u>Institution</u>
1971	Sociology	B.S.	The University of Akron
1973	Sociology	M.S.	Iowa State University
1975	Sociology	Ph.D.	Iowa State University

HONORS:

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PROFESSIONAL EXPERIENCE:

1981-date	Specialized Center of Research - Arteriosclerosis (SCOR-A), Dept. of Medicine, LSU Medical Center, New Orleans, LA.	Associate Professor
1978-date	Biobehavior Section of SCOR-A, The Bogalusa Heart Study	Principal Investigator
1978-date	Department of Family Medicine, LSU Medical Center, New Orleans, La.	Research Director
1975-1978	Department of Sociology, LSU - Baton Rouge, Louisiana	Assistant Professor
1973-1975	Department of Sociology, Drake University, Des Moines, Iowa	Lecturer
1973-1975	Department of Sociology, Iowa State University, Ames, Iowa	Teaching and Research Assistant

PROFESSIONAL ORGANIZATIONS:

American Sociological Association: Medical Sociology Section
American Association of Public Health
Southern Sociological Society
Society for Teachers of Family Medicine
Society for Behavioral Medicine

TEACHING EXPERIENCE:

Undergraduate: Sociology	Graduate: Sociology
Introduction to Sociology	Social Psychology
Social Psychology	Sociology of Medicine
Research Methods	
Introduction to Statistics	
Industrial Sociology	
Marriage and the Family	
Sociology of Health and Illness	
Introduction to Social Life in the United States for Foreign Students	
Gerontology	
Medical Students: Seminars	Residents: Seminar
Compliance with Medical Regimens	Research Methods for the Family Physician
Health Habits and Cardiovascular Disease	

LECTURES AND CONFERENCES:

1. Presenter: Rural Sociological Association Meetings. Section: Quality of Life. Montreal, Canada, 1974.
2. Discussant: Southern Association of Agricultural Scientists. Section: Quality of Life. Mobile, Alabama, February, 1976.
3. Discussant: Mid-South Sociological Meetings. Session: Sociology of Medicine. November, 1976.
4. Invited Lecturer: New Orleans Dietetic Association. "Value Clarification, Behavior Modification, and the Food-in-the-Door Technique: Compliance with Dietary Regimens." November, 1976.
5. Invited Lecturer: Loyola University. "Stress and Cardiovascular Disease," 1978.
6. Invited Lecturer: William Carey College, School of Nursing, Summer, 1978.
7. Organizer and Presider, Section: Sociology of Health. Mid-South Sociological Association, Monroe, Louisiana, November, 1977.
8. Organizer and Presider, Section: Women and Health, Southern Sociological Society, Atlanta, Georgia, 1979.
9. Invited Lecturer: Alton Ochsner Medical Foundation, Alumni Association. Scientific Program. "The Role of Tobacco, Alcohol, Type A and Psychosocial Factors in Cardiovascular Disease." October, 1980.
10. Invited Lecturer: Maryland Health Education Council. "Physiological Response to Stress in Children." Ocean City, Maryland. April, 1981.

ABSTRACTS:

1. Sklov, M., Baugh, J.G., Hunter, S. MacD., Webber, L.S., Srinivasan, S.R., Voors, A.W. and Berenson, G.S.: Cardiovascular risk factor variables and smoking behavior in children--The Bogalusa Heart Study. American Heart Association, 53rd Scientific Sessions, Miami Beach, Florida, November, 1980.
2. Berenson, G.S., Srinivasan, S.R., Hunter, S.M., Webber, L.S., Sklov, M. and Voors, A.W.: Cigarette smoking, oral contraceptives, and serum lipid and lipoprotein levels in children of a total community. Presented at the Am. Heart Assn. meeting, Miami Beach, Fla., Nov. 17-20, Circulation 62:III-270, 1980.
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Revised: 6/15/82

4-3

1 JUDGE WOLFE: Anything more then, Mr. Groesch,
2 before turning the witness over for cross-examination?

3 MR. GROESCH: No, Your Honor.

4 JUDGE WOLFE: Cross, Mr. Churchill.

5 CROSS-EXAMINATION

6 BY MR. CHURCHILL:

7 Q Good morning, Dr. Hunter.

8 A Good morning.

9 Q On Page 3 of your testimony you cite the
10 work of Howard Leventhal. I take it that you agree with
11 his opinions.

12 A Yes, I do.

13 Q Now the first three complete paragraphs on
14 Page 3 of your testimony deal in some measure with the
15 coping response and the control response. I take it that
16 these are based on Dr. Leventhal's work?

17 A Yes, that's correct.

18 Q Could you give us a citation to Dr. Leventhal's
19 work to which you are referring?

20 A There are several. Would you just want one?

21 Q As many as you have.

22 A I have with me at this time: Leventhal,
23 "Findings and Theory in a Study of Fear Communication,"
24 N. L. Berkowitz, Editor, "Advances in Experimental Social
25 Psychology," Volume V, New York, Academic Press, Inc., 1970.

4-4

1 Leventhal, H. (is Howard), J. C. Watts and
2 F. Pagano -- I don't know how to pronounce his name,
3 P-a-g-a-n-o, "Effects of Fear and Instructions on How to
4 Cope with Danger," Journal of Personality and Social
5 Psychology, 1967, Volume VI, Pages 313, 321.

6 I might also add that the work of Albert
7 Bandura has furthered studied these coping behaviors in
8 response to fears and phobias.

9 Q In Dr. Leventhal's work on motivational
10 response, do you think that Dr. Leventhal draws the dis-
11 tinction between, on the one hand, persuading people to
12 voluntarily change certain day-to-day practices, such as
13 their health practices, and on the other hand, an immediate
14 emergency situation where orders are given and group con-
15 formity pressures exist?

16 A I don't understand your question.

17 Q Would conclusions drawn by Dr. Leventhal with
18 respect to motivational behavior be different perhaps under
19 those two sets of circumstances?

20 A Health practices and evacuation, is that what
21 you're --

22 Q Yes. I'm talking about two different types
23 of behavior which are attempted to be motivated. On the
24 one hand, motivating people to have, for example, improved
25 health practices and on the other hand, an immediate

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1 emergency situation where orders are given and group con-
2 formity pressures exist.

3 A I believe that his findings are certainly
4 applicable to both situations in that the people need to
5 know how they're going to respond. They need to know their
6 mental feelings in that situation. They need to know what
7 sort of behavioral action that needs to be taken, and they
8 also need to be aware of how they might feel physiologically
9 during those situations.

10 Q I take it that if he were to -- if one were to
11 devise an experiment to determine or assess the adequacy
12 or the effectiveness of certain communications in how
13 effective it is in bringing about the desired response
14 that there are a great deal of variables involved.

15 A Yes. But under very good experimental con-
16 ditions, you can control many of the variables and study
17 each of the variables separately.

18 Q If you were conducting a study or developing a
19 study in which you wanted to inquire into the first type
20 of behavior -- that is, affecting people's health be-
21 havior and their health habits -- do you think the results
22 of that study would be equally applicable to a second type
23 of situation where an order is given and group conformity
24 pressures exist?

25 A I believe -- Science is cumulative. And the

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1 results that you would get from a study like that would
2 have theoretical implications that would apply to other
3 areas.

4 Human behavior does follow some patterns,
5 which are predictable and can be studied. And they can be
6 generalized to other situations.

7 Q Dr. Hunter, are you familiar with a 1965
8 publication of Dr. Leventhal in the Bulletin of New York
9 Academy of Medicine entitled "Fear Communications and the
10 Acceptance of Preventive Health Practices"?

11 A I'm not familiar with that one. I may have
12 read it somewhere along the line.

13 Q Are you familiar with the work of Mr. -- of
14 Dr. Leventhal and Robert Paul Singer entitled "Effect
15 Arousal and Positioning of Recommendations and Persuasive
16 Communications," also -- this is in the Journal of Per-
17 sonality and Social Psychology, 1966?

18 A I wouldn't remember the details of it. If I
19 have read it, I wouldn't remember the details of it.

20 Q Do you think you've read it?

21 A Probably.

22 Q Are you familiar with a work which he did
23 with James M. Dabbs, Jr., entitled "Effects of Varying the
24 Recommendations of Fear Arousing Communication," which
25 was in the same journal, the Journal of Personality and

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1 Social Psychology? This is all '66?

2 A I wouldn't remember the details.

3 MR. CHURCHILL: Your Honor, these are my only
4 copies. May I stand right here and ask her just one or
5 two questions?

6 JUDGE WOLFE: Certainly.

7 JUDGE FOREMAN: Be sure and use the micro-
8 phone, Mr. Churchill.

9 MR. GROESCH: Mr. Churchill, is it going to
10 be the entire thing? Certainly it is a very long docu-
11 ment. Are there certain sections you're going to have
12 her read?

13 MR. CHURCHILL: I'm only going to ask one or
14 two questions, which I think will be apparent even on the
15 synopsis.

16 Perhaps you would like to wait until I ask
17 the question, and then I'll give you as much time as you
18 need.

19 (Documents handed to witness.)

20 BY MR. CHURCHILL:

21 Q Dr. Hunter, on the article, "Affect Arousal
22 and Positioning of Recommendations in Persuasive
23 Communications," what was the subject matter of the
24 type of behavior that was attempted to be motivated?

25 A I have --

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1 MR. GROESCH: Objection. I believe that Dr.
2 Hunter has stated that she possibly has read the article,
3 but --

4 MR. CHURCHILL: I'll rephrase the question,
5 Your Honor.

6 JUDGE WOLFE: All right.

7 BY MR. CHURCHILL:

8 Q With reference to the summary at the top of
9 the first page, the very first sentence, what are the --
10 What is the subject matter of the recommendations which
11 would be discussed in this paper?

12 MR. GROESCH: Objection. Your Honor, I
13 believe that this is -- Dr. Hunter has said that she
14 is not familiar with these articles, that she may have
15 read them at sometime in her -- in the past. She's not
16 familiar with the details of these articles.

17 I believe that this type of cross-examination
18 should be best handled by the Applicant as rebuttal testi-
19 mony.

20 MR. CHURCHILL: Your Honor, this is a perfectly
21 acceptable form of cross-examination. She has cited Dr.
22 Leventhal in her testimony.

23 MR. GROESCH: But not that --

24 MR. CHURCHILL: But she hasn't given --
25 Worse yet, she hasn't even given specific references. I

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1 have three articles here that I would like to have her
2 read a portion and ask her a very simple question about
3 it.

4 This is done commonly and routinely. It's a
5 very standard type of cross-examination of expert wit-
6 nesses, particularly when they involve works that the
7 expert witness herself has cited.

8 JUDGE WOLFE: Objection overruled.

9 Did you want her to read this to herself or
10 aloud into the record, Mr. Churchill?

11 MR. CHURCHILL: She can either read the first
12 sentence or she can characterize it herself. What I'm
13 interested in is what is the type of behavior that is the
14 subject matter of this work.

15 JUDGE WOLFE: All right.

16 THE WITNESS: This refers to the work that
17 Howard Leventhal has done on dental hygiene.

18 BY MR. CHURCHILL:

19 Q Dental hygiene?

20 A Yes.

21 Q Now --

22 A Brushing your teeth.

23 Q Thank you.

24 Now, in the other document that I have
25 mentioned, "Effects of Varying the Recommendations in

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1 a Fear-Arousing Communication," what fear is the action
2 which is attempted to be motivated?

3 A. This is inoculation shots, whether or not
4 people would actually follow through and have inoculation
5 shots. I -- In this quick -- tetanus, against tetanus.

6 MR. GROESCH: Excuse me. Is there an extra --
7 Are there two copies of these over there?

8 THE WITNESS: No, this is --

9 MR. GROESCH: That's your only copy.

10 MR. CHURCHILL: I'm finished with these. Mr.
11 Groesch can have them.

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ed
1 BY MR. CHURCHILL:

2 Q Now, Dr. Hunter, in the third article
3 entitled, "Fear Communications and the Acceptance of
4 Preventive Health Practices," would you please read into
5 the record on Page 1145, which is the second page of the
6 article -- do you have that page?

7 A Uh-huh.

8 Q -- the first complete paragraph on that
9 page, starting with, "It should be clear."

10 MR. GROESCH: Objection. I would like to read
11 it first.

12 You want her to read the entire paragraph?

13 MR. CHURCHILL: Yes, please.

14 MR. GROESCH: Your Honor, I believe it is quite
15 a long paragraph. I believe if Mr. Churchill wants to
16 read it into the record, I think he could read it into the
17 record.

18 I believe that if Mr. Churchill wants to ask
19 questions about this particular thing to Dr. Hunter, that
20 some time be given in order for her to assess this.

21 This is not simply a synopsis of the first
22 page, as was in the previous two papers, but this is a
23 section out of context in the center of the paper, and
24 it's unclear to me. I believe that Dr. Hunter should be
25 given a chance to read the entire document in order to

5-2 1 assess what it says.

2 MR. CHURCHILL: Your Honor, I would suggest
3 that Dr. Hunter simply read the passage that I requested.

4 I will then ask my question and at that time
5 we can determine whether Dr. Hunter needs more time to
6 look at it.

7 MR. GROESCH: I don't understand why
8 Mr. Churchill can't read it into the record, instead of
9 burdening Dr. Hunter with his task.

10 JUDGE WOLFE: Well, it's the cross-examiner's
11 purview, how he wants to handle it. If he doesn't want
12 to read into the record, and he would rather the witness
13 read it, the witness may read it to herself.

14 She may take all the time necessary to do it,
15 but this is all right. If there were any objections, they
16 are overruled.

17 Read that paragraph to yourself, Doctor?

18 THE WITNESS: To myself or out loud?

19 JUDGE WOLFE: Read it to yourself. This is
20 what Mr. Churchill is asking you to do.

21 MR. CHURCHILL: No, sir. I was asking her to
22 read it out loud into the record.

23 JUDGE WOLFE: All right. Read it into the
24 record.

25 THE WITNESS: May I ask the publication date

-3
1 on this?

2 MR. CHURCHILL: Yes. This is Volume 41,
3 No. 11, November 1965.

4 THE WITNESS: "It should be clear that
5 there are factors influencing health behavior
6 that do not involve the acceptance of health
7 information.

8 "For example, an authority may require
9 and individual to take a chest x ray or an
10 inoculation when he applies for a job or a
11 passport.

12 "The goal for this type of health
13 action is not to secure protection against
14 disease, but to obtain a permit from a
15 controlling power.

16 "An individual may also behave so as
17 to conform to the actions of those about him.
18 Again, however, the response reflects action
19 toward a group goal rather than toward a
20 health goal.

21 "Since orders, where they can be
22 given, and conformity pressures, where groups
23 exist, may well have more powerful effects
24 upon behavior than the best presentation of
25 information, they may appear very attractive

5-4 1 routes for influence to the health educator.

2 "For the purpose of studying the
3 acceptance of persuasive communications, they
4 are, for the moment, less relevant to our
5 interests."

6 Whatever he is talking about there.

7 "A psychologist interested in acceptance
8 would probably point out that obedience and
9 conformity can change behavior while failing
10 to change inner attitudes.

11 "In this case the induced behavior will
12 disappear when the force of the authority or
13 group is removed.

14 "As examples he could mention the
15 driver who slows down only when a policeman
16 is in sight or when his wife or parents are
17 in the car.

18 "Thus the motivation to obey or
19 conform is often insufficient to sustain
20 consistent responses toward health and safety
21 goals.

22 "On the other hand, acceptance or change
23 in internal beliefs should lead to a sustained
24 and general awareness of the conditions where
25 appropriate and healthful responses can be made.

1 "This does not imply that obedience and
2 conformity cannot lead to internalization.

3 Under certain conditions they do..." and he cites
4 Brehm and Cohen and Festinger.

5 I'm aware of what he's talking about.

6 BY MR. CHURCHILL:

7 Q Now, Dr. Hunter, would this not indicate
8 that Dr. Leventhal's work is concerned with communications
9 to influence voluntary health practices, rather than
10 practices brought about by orders or group conformity
11 pressures?

12 MR. GROESCH: Objection, Your Honor. I
13 would like to allow the witness some time to review the
14 entire document.

15 It's quite a lengthy document. She has
16 already stated that she is not familiar with this
17 particular work of --

18 JUDGE WOLFE: All right, Mr. Groesch.

19 Dr. Hunter, would you like more time to look
20 at the document and read it?

21 MR. CHURCHILL: Your Honor?

22 JUDGE WOLFE: Yes.

23 MR. CHURCHILL: I withdraw the question.

24 JUDGE WOLFE: All right.
25

1 BY MR. CHURCHILL:

2 Q Dr. Hunter, in your testimony what is the
3 action to which you believe people should be persuaded or
4 motivated by the emergency information brochure?

5 A The purpose of the brochure, I would imagine,
6 would be, first off, to get people to turn on the radio.
7 That would be a behavior.

8 To read the map and locate the pickup points
9 and the reception centers. That's a behavior.

10 And ultimately, I would imagine, the goal of
11 the brochure is to have people actually perform those
12 behaviors and to evacuate an area, if necessary.

13 All those are behaviors.

14 Q Then you believe, as you stated in your
15 testimony, that the purpose of this brochure is to
16 communicate and persuade individuals to follow certain
17 practices of evacuation from the area surrounding
18 Waterford 3 nuclear power facility if an accident should
19 occurred?

20 A That in addition to turning on a radio and
21 looking at the map and locating where they live and where
22 they need to go.

23 Q Can you cite any Civil Defense literature or
24 any NRC or FEMA -- that's Nuclear Regulatory Commission
25 and the Federal Emergency Management Agency -- documents

-7 1 characterizing the purpose of pre-emergency education
2 information?

3 MR. GROESCH: Objection, Your Honor. The
4 witness has already testified that she's not familiar with
5 FEMA documents, NRC documents or Civil Defense literature;
6 and, therefore, this is redundancy.

7 MR. CHURCHILL: May I please complete my
8 question?

9 JUDGE WOLFE: Complete your question.

10 MR. CHURCHILL: I was interrupted in mid-
11 sentence, Your Honor, and I think so that the witness can
12 get the full understanding of the question, I will repeat
13 the question.

14 BY MR. CHURCHILL:

15 Q Can you cite any Civil Defense literature or
16 any NRC or FEMA documents characterizing the purpose of
17 pre-emergency education information as to persuade
18 people to take the required action in the event of an
19 emergency?

20 MR. GROESCH: Are you finished?

21 Objection, Your Honor. The witness has
22 already testified that she is not familiar with Civil
23 Defense literature, NRC literature or FEMA literature;
24 and, therefore, I believe that this is a redundant -- this
25 would be redundant.

5-8 1 MR. CHURCHILL: Your Honor, I did ask the
2 witness questions of that type, but it was confined solely
3 to NRC or FEMA requirements related to the nuclear
4 emergency response plan.

5 This is a much broader question. I'm just
6 asking simply --

7 JUDGE WOLFE: Well, no harm. Objection
8 overruled.

9 Answer the question.

10 THE WITNESS: No, I haven't read those
11 documents.

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BY MR. CHURCHILL:

Q I didn't ask if you had read any particular documents. I asked you if you could cite any literature or documents that would characterize the purpose of such educational information as I have characterized them?

A Nothing that would characterize the purpose; I'm not familiar with.

I am familiar with some Civil Defense literature that has to do with evacuation, but not with the purpose of the brochure.

Q Do you know of any evacuations in a general emergency type situation, which were ineffective, where the ineffectiveness was attributed to the non-persuasive nature of pre-emergency public education materials?

A No.

Q Are you aware that the emergency information brochure describes three different types of protective actions, two which do not involve evacuation?

A Going into the home and covering up your mouth and turning on the radio. Those are the ones that I recall.

Q And would you think that an instruction or a direction or an order to go into the home, which is called sheltering, would be inconsistent with an instruction to evacuate?

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1 A. Yes.

2 Q Are you aware that the emergency plans call for
3 a determination at the time of an accident precisely which
4 of the three protective actions should be taken?

5 A Would you repeat that question, please?

6 MR. CHURCHILL: Could we have it read back,
7 please?

8 (Question read by the reporter.)

9 THE WITNESS: I have already said that I did
10 not read the evacuation announcements and that sort of
11 thing, so I am not aware of what the statements will say in
12 the event of an emergency.

13 BY MR. CHURCHILL:

14 Q But are you aware of the fact that what would
15 be said would -- that one of the things that would be
16 said would be that the people would be told which one of
17 those three types of protective actions should be taken?

18 A. Am I aware of that?

19 Q. Yes.

20 A. No.

21 Q Dr. Hunter, you said that you were familiar
22 with certain Civil Defense literature. Would that be the
23 work of George Bill, the professor that you referred to
24 yesterday?

25 A. Yes, and Charles Mofford.

1 Q Are there any others?

2 A No.

3 MR. CHURCHILL: Your Honor, I have no further
4 questions.

5 JUDGE WOLFE: Mr. Turk.

6 CROSS-EXAMINATION

7 BY MR. TURK:

8 Q Dr. Hunter, I only have a few questions for
9 you.

10 I take it you are aware of the fact that
11 the Waterford nuclear plant is being constructed.

12 Are you aware of any other nuclear plants,
13 either in operation or under construction, around the
14 country?

15 A The Grand Gulf in Mississippi. I know there
16 are others, but I don't know them specifically.

17 Q Well, with respect to Grand Gulf in
18 particular, are you aware of any studies which have been
19 done, or have you done any studies concerning what the
20 different fear levels might be in the area surrounding the
21 plant?

22 A I'm not aware of them, nor have I done any.

23 Q I take it that would be your answer, also,
24 with respect to other nuclear plants --

25 A Yes.

1 Q -- whose names you are not familiar with?

2 A Right.

3 MR. TURK: I have no further questions.

4 JUDGE WOLFE: Mr. Cassidy?

5 MR. CASSIDY: Thank you, Your Honor.

6 CROSS-EXAMINATION

7 BY MR. CASSIDY:

8 Q Dr. Hunter, in regard to the work of
9 Howard Leventhal that you apparently relied on in the
10 preparation of your testimony, Mr. Churchill provided you
11 with at least three articles that he -- or he provided you
12 with three articles.

13 As I understood your testimony, it wasn't these
14 articles that you relied on in preparing your testimony?

15 A No. I relied on a summary article that was
16 published later than any of these.

17 Q And that article, I believe you said, was
18 part of a book?

19 A Yes.

20 Q What is the title of that book again, please?

21 A ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY.

22 Q And when was that published?

23 A 1970.

24 Q Now, in his article there --

25 A I've also drawn heavily on the work of Van Dora

-13
1 as well.

2 JUDGE WOLFE: Of what?

3 THE WITNESS: Van Dora.

4 BY MR. CASSIDY:

5 Q And what works of that particular person did
6 you draw from in preparing your testimony?

7 A May I read the --

8 Q Sure.

9 A I can't memorize all the names of the articles.

10 Q I can appreciate that.

11 A There was a very recent one, "Microanalysis of
12 Action and Fear Arousal as a Function of Differential
13 Levels of Perceived Self Efficacy," Albert Van Dora,
14 Linda Reese and Nancy E. Adams.

15 Q If I could ask, and perhaps it would save some
16 time, could you provide us with a list of those articles
17 that you relied on when you are finished with your
18 testimony? Would that be possible?

19 A I need to run back to my office and get them.
20 I could do it, but I need a time frame.

21 Q Let me ask, then, in any of these articles that
22 you relied on, did the authors distinguish between
23 individual response, such as was indicated in the articles
24 that Mr. Churchill showed you by Dr. Leventhal, versus
25 group response?

14 1 A. The articles he is referring to really refer
2 to group influence on individual responses.

3 Q. Okay, now, when you are saying that "he" is
4 referring to --

5 A. Mr. Churchill's referring. The pamphlets that
6 he wanted me to read deals with the work on conformity,
7 which is directly related to the issue of whether or not
8 if you are in isolation does it make any difference if you
9 are with a group of people or if you are in isolation, and
10 the difference between conformity, which is public
11 behavior, without necessarily private agreement, which is
12 known as internalization.

13 That's what he....

14 Q. As I understand your resume and your experience,
15 most of your work has been involved with internalizing
16 response of individuals so that they could modify their
17 behavior and improve their health habits; would that be
18 a fair --

19 A. No. that would not be a fair --

20 Q. Okay. Maybe you could clarify that a little
21 bit for me then?

22 A. The work that I've been involved in looks as
23 theoretical, conceptual, measurement issues associated
24 with social, which you could think of in terms of groups,
25 cognitive, which you can think of in terms of thinking,

1 behavior, the actual behavior in individuals, as well as
2 the physiological response to the behavior of an
3 individual.

4 And that involves studying things such as
5 peer pressure, conformity, the adoption of a health habit
6 whether or not it appears on peer pressure, the adoption
7 of any behavior whether it appears on peer pressure or
8 internalized beliefs, and the conflict among them.

9 Q The primary focus, as I understand it, based
10 on what you've been saying, is more geared toward
11 habitual responses over a period of time, in modifying a
12 behavior that has been learned, a habit, if you will?

13 A Well, yes. My own research has to do with
14 habits, such as exercise, cigarette smoking, Type A
15 behavioral patterns.

16 But in the process of reading that material,
17 I read other materials which have to do with perhaps one-
18 time events, which aren't habits.

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BY MR. CASSIDY:

Q Have any of the articles that you've relied on in your testimony here -- deal with the type of stimuli that was referred to in Dr. Leventhal's article, that passage that Mr. Churchill had you read, of group response?

MR. GROESCH: I would like to object -- Go ahead and finish your question.

MR. CASSIDY: I was finished.

MR. GROESCH: I would like to object. The -- I had made an objection after Mr. Churchill had Dr. Hunter read the passage into the record. Mr. Churchill then proceeded to ask one question about the passage. I had requested time, that Dr. Hunter be given time to look at the document to familiarize herself with the document. She said she had not read it.

I would like to move -- and I should have made a contemporaneous objection at the time, but I did not. However, I would like to ask that the part -- the article that she -- the paragraph that she read into the record be stricken since there was not any questions that were appended to that -- that paragraph.

And, certainly, any questions by Mr. Cassidy concerning that paragraph would have my -- the same objections; and that is, that Dr. Hunter, I believe, would

1 like to have a period of time in order to be able to
2 review the entire document.

3 MR. CASSIDY: My question doesn't go to the
4 substance of the document. The question was whether or
5 not she was familiar with any of the works or any work that
6 she used in the preparation of her testimony that made
7 the distinction that was being made in the article.

8 JUDGE WOLFE: Mr. Cassidy, I'm having diffi-
9 culty understanding -- hearing you, for one thing.
10 Please, once again --

11 MR. CASSIDY: Yes. The question does not go
12 to the substance of the article that Mr. Churchill had
13 Dr. Hunter read. I appreciate the fact, as Mr. Groesch
14 has pointed out, that she has not had an opportunity to
15 read that article.

16 My question was whether or not in any of the
17 works that she has relied on in her testimony or any of the
18 works that she is familiar with, based on her experience,
19 the authors have made this same kind of distinction that
20 Dr. Leventhal was apparently making in his article between
21 the kind of internalized behavior modification, if you
22 will, as opposed to the kind of group behavior that he
23 talks about, vis-a-vis, using the example of somebody
24 going to -- getting their chest x-rayed because it's
25 required for a job.

6-3
1 That's the thrust of my question. It doesn't
2 have to do with her understanding of that particular article.

3 MR. GROESCH: My objection --

4 JUDGE WOLFE: Just -- Well, all right, go
5 ahead.

6 Your objection --

7 MR. GROESCH: I would like to make as con-
8 temporaneous as possible my objection to the incorporation
9 into the record of these paragraphs by Dr. Hunter since
10 there was no questions that were attached to this --
11 to these --

12 JUDGE WOLFE: Well, you're not objecting then
13 to the question being put by Mr. Cassidy to the witness?

14 MR. GROESCH: I will not object to the
15 question of Mr. Cassidy.

16 JUDGE WOLFE: All right. Let's get that out
17 of the way first. What's your answer, Doctor?

18 THE WITNESS: He makes several distinctions.
19 I'm not sure -- You're referring to the distinction
20 about private conforming and public compliance --

21 MR. CASSIDY: Yes.

22 THE WITNESS: Is that the distinction you're
23 making?

24 MR. CASSIDY: Yes.

25 THE WITNESS: A lot of -- There has been a

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1 lot of research done, in terms of hostage-taking in that
2 area that I know of.

3 BY MR. CASSIDY:

4 Q Have you relied on any of those articles in
5 the preparation of your testimony? Have you reviewed
6 them --

7 A I haven't reviewed them, but I am very --
8 you know, I'm aware of them. I've been a social psycho-
9 logist for many years, and I have read many articles.

10 Q The specific question is whether or not you
11 reviewed those and used those in the preparation of this
12 testimony.

13 A I used the basic knowledge that I've acquired
14 over the years.

15 Q Okay. But you did not specifically review
16 any of those articles that you just referred to in prepara-
17 tion of this testimony?

18 A No, not specifically.

19 MR. CASSIDY: I have nothing further.

20 JUDGE WOLFE: Now your motion.

21 MR. GROESCH: Yes. I would like to move
22 that the paragraph -- I guess I should get the article in
23 front of me, I was not given a copy of it -- but the para-
24 graph that was read into the record --

25 JUDGE WOLFE: By Mr. Churchill and as to which

1 there was no cross-examination?

2 MR. GROESCH: That's right. Exactly.

3 JUDGE WOLFE: All right. What's your
4 response?

5 MR. CHURCHILL: My response, Your Honor, is
6 that there was indeed cross-examination under -- about
7 that. Previous to that I had asked Dr. Hunter if she had
8 agreed with the opinions of Dr. Leventhal. She said she
9 had.

10 I attempted to -- She read this in. I was
11 going to ask another question. There was an objection to
12 the follow-up question. On the basis of that objection, I
13 withdrew that question.

14 Subsequent to that, Dr. Hunter voluntarily
15 provided testimony with respect to that passage during the
16 cross-examination by Mr. Cassidy. These were not even in
17 direct response to questions by Mr. Cassidy.

18 And then, in addition, I believe there were
19 questions by Mr. Cassidy with reference to this same piece
20 of testimony.

21 If this now were taken out of the record, it
22 would totally obliterate and confuse a fairly significant
23 amount of testimony.

24 JUDGE WOLFE: Directed to that particular para-
25 graph?

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MR. CHURCHILL: Directed to that.

Furthermore, the objection is late.

JUDGE WOLFE: Overruled.

All right. You had finished, Mr. Cassidy?

MR. CASSIDY: Yes, Your Honor.

JUDGE WOLFE: Redirect, Mr. Groesch.

MR. GROESCH: Your Honor, I would like to

have --

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6-7
1 JUDGE WOLFE: I used the wrong terminology.
2 I thought it was an objection. It was more in the form
3 of a motion to strike that paragraph. The motion is
4 denied.

5 All right. Redirect, Mr. Groesch.

6 MR. GROESCH: Your Honor, I would like to have
7 a period of time, since this paragraph was left into the
8 record, I need -- I would like to have Dr. Hunter take some
9 time to review the document.

10 It's quite a lengthy document. If --

11 JUDGE WOLFE: How many pages is the document,
12 Doctor?

13 THE WITNESS: This one is --

14 MR. GROESCH: How many pages?

15 THE WITNESS: It starts at 1144 and ends at
16 1168.

17 JUDGE WOLFE: Twenty-four pages? Twenty-five
18 pages.

19 THE WITNESS: This one is six pages.

20 JUDGE WOLFE: Which document did you want her
21 to review?

22 MR. GROESCH: Well, I would like to have her
23 review all of these documents, since I had had objections
24 to any of the information being incorporated into the
25 record.

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1 So I would -- on my redirect -- I suppose
2 that's what you call it -- I would --

3 JUDGE WOLFE: That's what it's called, yes.

4 MR. GROESCH: I would like to have Dr. Hunter
5 have sufficient time to be familiar with those documents.

6 MR. CHURCHILL: Your Honor, what was asked
7 was really very, very simple. On two of those documents
8 I simply asked her generally what the subject matter of
9 the motivational behavior was. She could get that right
10 from the synopsis. She answered that. That's all I
11 asked.

12 There can be very little cross-examination on
13 that subject.

14 As to the other one --

15 JUDGE WOLFE: Little cross-examination or
16 little redirect?

17 MR. CHURCHILL: Redirect, Your Honor. I
18 could conceive of very little redirect that there could
19 be on that.

20 The other paragraph was from Page 2 of the
21 article, which was very general and introductory in
22 nature.

23 I just don't understand why he would need time
24 to sit and read the entire document, in order to have
25 redirect on those very simple questions that were asked,

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1 unless he's going to go well beyond the scope of cross-
2 examination, to which I would object.

3 JUDGE WOLFE: Well, speak frankly to the
4 Board, Mr. Groesch. Do you need time really to speak to
5 your witness in preparation for your redirect examination;
6 or is it merely that you want her to have more time to
7 review these documents, or a combination of both?

8 MR. GROESCH: What was the first one, whether
9 or not I need to talk with her about this?

10 JUDGE WOLFE: Yes. For purposes of prepara-
11 tion for redirect.

12 MR. GROESCH: Yes. I would need to talk to
13 her about this, and at the same time to have her suf-
14 ficiently able to be familiar with the document to see if
15 there are any variables included in the document which
16 would make those introductory statements not relevant to
17 her testimony or to the --

18 JUDGE WOLFE: How much time are you going to
19 request?

20 MR. GROESCH: I think probably Dr. Hunter would
21 be --

22 JUDGE WOLFE: Well, we'll speak to Dr.
23 Hunter.

24 Dr. Hunter, how long would it take you to read --
25 How many articles are there -- publications or whatever?

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1 THE WITNESS: Three.

2 JUDGE WOLFE: Three. Doctor?

3 THE WITNESS: I would like an hour. You all
4 could go to lunch, and I could read them.

5 MR. GROESCH: I don't think necessarily that
6 we -- you know -- should be putting our lunch time into
7 this. You know, it's going to be difficult enough with
8 going out and trying to get something. We're going to go
9 until 9:00 o'clock this evening.

10 JUDGE WOLFE: Just give me your best estimate
11 of time. These other factors are extraneous now.

12 MR. GROESCH: All right. Let's -- I would
13 think that 45 minutes with the documents, outside of any
14 time for lunch, I think would be sufficient.

15 JUDGE WOLFE: All you're asking for then is
16 an extension of time of 45 minutes, and then we'll proceed
17 with your redirect; is that correct?

18 MR. GROESCH: That's correct.

19 MR. CASSIDY: Your Honor, we have a modest
20 proposal, if it would be acceptable to the parties, in
21 order to save time. If Mr. Groesch has no objection,
22 perhaps this witness could be excused now, given an op-
23 portunity to read the articles.

24 I believe Mr. Groesch would be finished with
25 his case in chief at that point. We could put Mr.

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1 Lookabaugh on the stand, and that would give Dr. Hunter
2 ample time to review the documents, and during the lunch
3 break more than ample time, I think, for Mr. Groesch to
4 discuss what he needs to discuss with her, and I think
5 save the hearing some time so that we don't have to go
6 late this evening.

7 JUDGE WOLFE: We do like to use our time
8 expeditiously.

9 How say you, Mr. Groesch?

10 MR. GROESCH: Well, this -- My stress level
11 when I'm eating lunch, I like to keep as low as possible,
12 for my own digestive system.

13 MR. TURK: One other possibility, Your Honor,
14 is if the Board has questions -- I, of course, don't know
15 how long the questioning would take -- perhaps Board
16 questioning could proceed. Then we could break for
17 lunch.

18 JUDGE WOLFE: Well, we'd like to have the
19 testimony complete. I see no objection to the witness
20 stepping down temporarily, and you will so do, Doctor,
21 and read whatever you have to read.

22 (Witness temporarily excused.)

23 JUDGE WOLFE: We will call out of time and
24 fill in with -- Will it be your witness, Mr. Turk, or
25 your witness --

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1 MR. TURK: Our proposal is to put on the
2 FEMA witness, Mr. Lookabaugh, first, and Mr. Perrotti
3 will follow later.

4 JUDGE WOLFE: All right. We'll see how it
5 goes. The Doctor will have time before 12:30, our usual
6 lunch break, to review the documents.

7 You may chat with her, obviously, during the
8 luncheon period on your redirect. Then we'll see whether
9 we're prepared and you're prepared to go forward with re-
10 direct or just continue with Mr. Cassidy's witness. But
11 that's the order.

12 All right. Please step down, Dr. Hunter.

13 Mr. Cassidy, would you call your witness.

14 MR. CASSIDY: If I might have one moment.

15 MR. TURK: May we take a five-minute recess
16 to prepare?

17 JUDGE WOLFE: We'll have a five-minute
18 recess.

19 (A short recess was taken.)
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1 JUDGE WOLFE: All right, Mr. Cassidy.

2 MR. TURK: Mr. Chairman, before Mr. Cassidy
3 goes forward with his witness --

4 JUDGE WOLFE: Yes.

5 MR. TURK: -- we wish to make a brief announce-
6 ment and distribute something to the Board members.

7 JUDGE WOLFE: All right.

8 MR. TURK: Yesterday it came to our attention
9 that FEMA has recently written to the Commissioner --
10 excuse me -- to the Commission Staff enclosing a work
11 plan for foreign language translation of safety messages.

12 The FEMA letter to the Commission, signed by
13 Mr. Prim at FEMA and addressed to Mr. Edward L. Jordan,
14 Director of the Division of Emergency Preparedness and
15 Engineering Response, is dated February 2, 1983.

16 Yesterday the individual who will be appearing
17 here as a Staff witness in this proceeding learned of this
18 document from his office in Washington. He has arranged
19 to have the document telefaxed here, and we now have
20 copies to distribute to the Board members and counsel
21 and representatives of the parties.

22 JUDGE WOLFE: All right.

23 (Document distributed.)

24 MR. TURK: The Board has required that we
25 serve copies of correspondence between FEMA and the Staff

7-2

1 which relates to the Waterford 3 facility on the parties.
2 This document does not directly mention Waterford 3, but
3 since it is a generic letter, I will assume that it covers
4 Waterford 3, and it should be sent to the parties.

5 I feel that by giving it to the parties today,
6 I have accomplished that purpose.

7 In addition, it may be that cross-examination
8 may take place concerning the contents of the document.
9 For that reason, it may be appropriate to mark it as
10 a Staff exhibit in this proceeding.

11 JUDGE WOLFE: All right. The Board has read
12 this letter. What is your pleasure with it -- or
13 disposition? You've handed it to the Board and parties.
14 What now?

15 MR. TURK: At this time I really yet don't
16 see a need for it to be admitted into evidence.

17 JUDGE WOLFE: All right.

18 MR. TURK: So having made distribution, I
19 rest with that for the time being.

20 JUDGE WOLFE: All right. Mr. Cassidy.

21 MR. CASSIDY: Your Honor, I believe Mr.
22 Lookabaugh is ready to be sworn.

23 JUDGE WOLFE: I think he has been sworn be-
24 fore, but we'll do it again.

25 Raise your right hand.

Whereupon,

ALBERT L. LOOKABAUGH

was called as a witness by and on behalf of the FEMA Staff and, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CASSIDY:

Q Please state your name for the record.

A My name is Albert L. Lookabaugh.

Q And where are you employed, Mr. Lookabaugh?

A I'm employed with the Federal Emergency Management Agency, Region VI, Denton, Texas, that covers this region.

Q And in what capacity are you employed?

A My title is Supervisor, Technological Hazards Branch of the Natural and Technological Hazards Branch. I also could be called Chief of the Technological Hazards Branch.

Q And with regard to the matter of the public information brochure for Waterford 3, have you had an opportunity to review that document?

A I have.

Q And as a result of your review of that document, have you prepared written testimony for presentation here before the Board?

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1 A I have.

2 Q Do you have a copy of that testimony before
3 you?

4 A Yes, sir, I do.

5 Q Are there any corrections or changes that you
6 would make to the testimony at this time?

7 A No, sir.

8 MR. CASSIDY: Your Honor, at this time I would
9 move that the prefiled testimony of Albert L. Lookabaugh
10 Concerning the Public Information Brochure be admitted --
11 or included into the record as if read.

12 JUDGE WOLFE: Any objection?

13 MR. GROESCH: Yes, Your Honor.

14 JUDGE WOLFE: Wait --

15 MR. TURK: No objection from the Staff.

16 JUDGE WOLFE: Mr. Churchill?

17 MR. CHURCHILL: No objection.

18 MR. GROESCH: Yes. The Joint Intervenors
19 would like to conduct a limited voir dire of Mr. Looka-
20 baugh.

21 JUDGE WOLFE: All right.

22 VOIR DIRE

23 BY MR. GROESCH:

24 Q Mr. Lookabaugh, what is your degree in?

25 A My degree is a Bachelor of Science in Geology.

Q Have you ever taken an education course?

MR. CASSIDY: Your Honor, I would object to the imposition of voir dire at this juncture. Mr. Lookabaugh has testified in this proceeding before. Counsel has had an opportunity to voir dire him, and, in fact, has voir dired Mr. Lookabaugh before with regard to his qualifications.

If they have some specific questions, perhaps relating to the public information brochure which he had not previously testified to, that may be appropriate. But I think Mr. Lookabaugh has already been admitted to testify before this Board as an expert on emergency planning.

MR. GROESCH: Yes. Your Honor, there was a very large number of issues that we were interested in during the evacuation hearings in May. I don't believe that the Joint Intervenors specifically conducted voir dire on Mr. Lookabaugh specifically in regards to the brochure.

JUDGE WOLFE: Well, that's Mr. Cassidy's observation. I take it he's saying that he has no objection if your limited voir dire of this witness is only to examine his expertise insofar as his conclusions regarding this brochure are concerned.

MR. GROESCH: Yes. Well, that's --

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1 JUDGE WOLFE: All right. You have no actual
2 objection then, other than making this observation? You
3 don't object to this initial question as to what was his
4 degree in --

5 MR. CASSIDY: I -- The last -- Mr. Looka-
6 baugh's admission at the last hearing was as an expert in
7 the area of emergency planning. As that relates to this
8 proceeding, that would include his ability to deal with
9 the issue of provisions for notifying residents of
10 evacuation procedures, which was one of the contentions
11 decided at the last hearing, and to which Mr. Lookabaugh
12 testified with no objection, and which he was admitted to
13 testify on at the last hearing.

14 So, yes, my objection would go to the line of
15 questioning with regard to his expertise in that area,
16 that being provisions for notifying residents of evacua-
17 tion procedures, which is specifically what the public
18 information brochure encompasses.

19 JUDGE WOLFE: Well, do you really have any
20 questions beyond that which have already been asked of
21 this witness on voir dire, Mr. Groesch; or are we just
22 using up time here?

23 MR. GROESCH: No, we're not --

24 JUDGE WOLFE: We have other things to do. If
25 you --

7-7

1 MR. GROESCH: Yes, I have other things --

2 JUDGE WOLFE: -- feel strongly about this, go
3 right ahead. I will overrule this objection, if you
4 will point out time after time, Mr. Cassidy, wherein this
5 question has been asked already, then I will cut off
6 voir dire all together.

7 All right. With that advice, proceed.

8 BY MR. GROESCH:

9 Q Mr. Lookabaugh, did you -- Have you examined
10 other brochures in this country?

11 A Yes, sir, I have.

12 Q Did you examine the information brochure
13 entitled Applicant Exhibit 11?

14 A It's --

15 Q And the title of it is "Plan To Aid Area Resi-
16 dents During Emergencies." It was the first brochure.

17 MR. CASSIDY: Objection, Your Honor. I
18 believe the Board ruled yesterday that it wasn't going to
19 allow any questions on the exhibit that had been with-
20 drawn by the Applicant.

21 MR. GROESCH: Your Honor, what we have here is
22 an example of Mr. Lookabaugh's work in evaluating evacua-
23 tion brochures. Now, if the Joint Intervenors can show
24 that Mr. Lookabaugh was not doing his job correctly when he
25 evaluated the first brochure, then I think it bears on

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1 whether or not Mr. Lookabaugh's testimony should be given
2 any credence on what he says about the second brochure, if
3 I can show that the first brochure was simply an unusable
4 document, and Mr. Lookabaugh says it's clear, concise and
5 accurate. It bears directly on his expertise.

6 MR. CASSIDY: Well, that line of questioning
7 would be beyond the scope of voir dire.

8 JUDGE WOLFE: It wouldn't go to his expertise?

9 MR. CASSIDY: I wouldn't think it would. Also,
10 as I understood the Board's ruling yesterday with regard
11 to questions on the withdrawn exhibit, what Mr. Groesch
12 has indicated would be that he would be making a com-
13 parison of the previous exhibit, and he, of necessity,
14 would have to ask specific questions and make specific
15 references to a document which was withdrawn and is not
16 before the Board.

17 JUDGE WOLFE: Are you going to refer to the
18 original brochure in your questioning, or are you going
19 to refer to the former testimony of this witness?

20 MR. GROESCH: Well, I was planning to do
21 both.

22 MR. CASSIDY: Again, as to the former testi-
23 mony, Your Honor, which Mr. Groesch just brought up, that
24 also was never presented as evidence before the Board and
25 is not before the Board -- not part of the record.

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(Bench conference.)

JUDGE WOLFE: The Board at all times tries to be consistent and fair. The original brochure, however, was marked as an exhibit, but was never offered into evidence and was withdrawn and is not presently before us. We don't want to spin our wheels and waste a lot of time on a document which was never admitted as an exhibit and was never subject to any sort of direct or cross-examination.

Therefore, the Board will not allow any questioning on the original brochure. It's -- This is not, as I indicated before -- or attempted to indicate -- this does not prevent you from voir diring this particular -- not voir diring, but cross-examining this witness on prior testimony with regard to the informational brochure that he testified -- that this witness testified to in general terms at the original hearing.

If you want to impeach or discredit him at that point on prior testimony, you may proceed to do that, but only on cross-examination.

So proceed with your voir dire. You may not at any time, however, refer to the original brochure, only to prior or former testimony.

All right.

MR. GROESCH: I have no further voir dire

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1 then.

2 JUDGE WOLFE: And no objection to the in-
3 corporation of the testimony?

4 MR. GROESCH: Let me have one second.

5 (Pause.)

6 MR. GROESCH: Yes, I have one objection. And
7 that is on Page 4 of the Lookabaugh testimony, Section
8 D, "Special Needs of the Handicapped (Criterion G.l.d)," "
9 I would ask that that entire section be stricken, which
10 would include two paragraphs.

11 The reason it should be stricken is because
12 the special needs card has never been -- is not an exhibit
13 in this hearing. It was -- The Applicant had put it
14 into exhibit (sic) at one time and then withdrew it.

15 The Joint Intervenors have not had a chance
16 to -- will not be given a chance in this proceeding to
17 question Mr. Lookabaugh or anyone else on this special
18 needs card, and, therefore, I believe that this Section D
19 is beyond the scope of this hearing.

20 MR. CASSIDY: Your Honor, Mr. Groesch is
21 correct in that the special needs card was never placed
22 into evidence. I appreciate his comment on that.

23 I think the testimony contained in those two
24 paragraphs that are captioned "D. Special Needs of the
25 Handicapped" did not address the issue of the card. They

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1 do refer to the card in terms of what the brochure
2 states about the card and what the brochure encourages
3 people to do as far as assisting each other in filling
4 out the card.

5 So I believe although Mr. Groesch is correct
6 as to the card not being in as an exhibit and not being
7 an issue before the Board, what the testimony there goes
8 to is what the brochure specifically states about the
9 card without discussing the merits or demerits of what
10 information may be contained in the card.

11 Therefore, I think that the testimony contained
12 in the paragraph that Mr. Groesch seeks to strike is
13 appropriate comment and review of the brochure, not the
14 card.

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1 MR. GROESCH: Your Honor, in previous
2 testimony of Mr. Lookabaugh, regarding G.1(d) of NUREG-
3 0654 --

4 MR. CASSIDY: May I stop you to inquire what
5 previous testimony you are referring to?

6 MR. GROESCH: I'm sorry. I believe it's
7 September 30, 1982.

8 MR. CASSIDY: I would respectfully submit
9 that that is material that Your Honor just ruled could not
10 be discussed.

11 At that September time the card had been
12 included as an exhibit, along with the brochure and the
13 map, and was withdrawn at a later date when the original
14 brochure and map were withdrawn.

15 So any reference to testimony that
16 Mr. Lookabaugh may have prepared but was not put into
17 evidence on material that was withdrawn is not relevant
18 to this matter.

19 JUDGE WOLFE: I don't know what testimony
20 this is that Mr. Groesch is referring to and to which you
21 object now.

22 MR. CASSIDY: Mr. Groesch just indicated that
23 he was referring to the testimony, the prefiled testimony
24 of Mr. Lookabaugh that was dated September 30th, which was
25 that testimony that was never put into evidence, which

-2 1 related to the --

2 JUDGE WOLFE: That was in affidavit form, was
3 it?

4 MR. CASSIDY: I believe that is correct.

5 MR. TURK: Yes, Your Honor.

6 JUDGE WOLFE: Yes. All right, and that was in
7 the form of comment that was submitted by the Staff, the
8 FEMA witnesses, in compliance with the Board's order, is
9 that not correct, of August 17th, 1982?

10 MR. CASSIDY: Yes, I believe that's correct,
11 Your Honor.

12 MR. TURK: For the record, Judge Wolfe, I
13 believe the testimony was submitted on September 1, not
14 September 30th, the initial affidavit testimony.

15 JUDGE WOLFE: That is correct, Mr. Turk.

16 MR. TURK: May I take this opportunity to add
17 something at this time?

18 The card, which was withdrawn, and had been
19 marked initially as Applicant's Exhibit 11, was the
20 subject of a telephone conference call held by the parties
21 and the Licensing Board on September 13th, 1982, and a
22 letter dated September 14th, 1982, was written by
23 Applicant's Counsel to Judge Wolfe summarizing that
24 telephone conference call.

25 JUDGE WOLFE: Yes.

MR. TURK: At Page 3 of Mr. Churchill's letter he recites the ruling by Judge Wolfe as to the fact that the card need not be part of this hearing since it related to the planner's needs, not to the needs of the public to get information.

JUDGE WOLFE: Yes.

MR. TURK: I would join in Mr. Cassidy's position that since the testimony relates to matters contained in the brochure, rather than to the accuracy of the card, the testimony on this issue is admissible.

JUDGE WOLFE: The motion to strike is denied. The portion sought to be stricken only speaks to the brochure and not to the special needs card and the provisions thereof.

However, I would ask this of Mr. Churchill. I'm looking at the special needs card, a copy of which you furnished to the Board and parties on September 8, 1982.

Has that special needs card or special needs information card been amended or changed since September 8th?

MR. CHURCHILL: Yes, Your Honor. That card was submitted to Dr. Klare, who read it and reviewed it and made changes in it to make it more readable.

JUDGE WOLFE: All right. If there are no further objections, then, to the incorporation of the

1 Lookabaugh testimony....

2 MR. GROESCH: No, Your Honor.

3 JUDGE WOLFE: All right. The testimony of
4 Albert L. Lookabaugh is incorporated into the record as
5 if read.

6 (The Staff's testimony of Albert L. Lookabaugh
7 was incorporated into the record as if read, and
8 follows:)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

LOUISIANA POWER AND LIGHT COMPANY

(Waterford Steam Electric Generating Station,
Unit 3)

}
}
}
}
}
Docket No. 50-382

TESTIMONY OF ALBERT L. LOOKABAUGH
CONCERNING THE PUBLIC INFORMATION BROCHURE

I, Albert L. Lookabaugh, am the Supervisor, Technological Hazards (TH) Branch, Federal Emergency Management Agency (FEMA), Region VI, Denton, Texas. A copy of my professional qualifications was filed with my previous testimony in May, 1982.

As the Supervisor of the TH Branch my responsibilities include the review and evaluation of all Radiological Emergency Response Plans (RERP's) for fixed commercial nuclear power plants located within Region VI. Since testifying in May I have reviewed several drafts of the "public information brochure" which is currently being prepared for distribution to residents within the Emergency Planning Zone (EPZ) for Waterford 3. This testimony is based upon my review of the draft brochure which has been filed as Exhibits 13 and 14, and served on the Board and parties on November 12, 1982.

The criteria used by FEMA to evaluate public information brochures are set forth in NUREG 0654/ FEMA REP 1, Revision 1 (1980), Criteria G. The information required to be in the brochure includes the following:

- "a. educational information on radiation;
- b. contact[s] for information;
- c. protective measures, e.g. evacuation routes and relocation centers, sheltering, respiratory protection, radio-protective drugs; and
- d. special needs of the handicapped."

Each of these criteria will be addressed seriatim.

A. Educational Information On Radiation (Criterion G. 1. a.)

This section has been condensed from four (4) panels in the previous draft to one (1) panel in the current Exhibit 13. This reduction is the result of the elimination of the "Glossary" section and reduction of the "How Waterford Works" sections of the brochure. The current Exhibit 13 describes what radiation is, how Waterford 3 works, and the "emergency action levels" for accidents at fixed commercial nuclear power plants. The result of these changes is a significant reduction in the size of the brochure. This reduction in size from the earlier edition of the brochure eliminates "extraneous" material not directly related to instructions of what to do in the event of an accident. The inclusion of the "emergency action levels", which did not appear in the earlier draft is a good addition since messages going out over the Emergency Broadcast System and commercial news stations may use those terms.

There is sufficient information included in the brochure to meet the requirements of NUREG 0654/ FEMA REP 1, Revision 1, Criterion G. 1.

a.

B. Contacts For Additional Information (Criterion G. 1. b.)

The brochure contains a section entitled "~~For Additional Information~~"

*"where to get more
Information or other Help"*

on a separate panel. This section directs the reader to call the St. Charles Parish Department of Emergency Preparedness or the St. John the Baptist Civil Defense for additional information or for answers to any question about information contained in the brochure. The print in the current Exhibit 13 is larger and the type face is bolder than the previous edition which FEMA found to be adequate. This section is now on a separate panel and stands out more than before. The correct telephone numbers for each of the Parish organizations are listed immediately after their reference in the text of the brochure. These numbers are also listed elsewhere in the brochure.

Since accurate and concise information regarding the sources of additional information is contained in the brochure I find that it meets Criterion G. 1. b.

C. Protective Measures: Evacuation Routes (Criterion G. 1. c.)

The evacuation route map and "Protective Action Sectors" table which identifies school and public transportation pick-up points, evacuation routes, and reception centers by sector, Parish, and community are clear, comprehensible and accurate. The evacuation map, while not identifying every road in the EPZ, is adequate to show the routes to be utilized in the event of an evacuation. The City of Johnson which had been omitted from the Protective Action Sector table in the earlier draft has now been included (See, Sector C-3). The color printing of the map does not obscure the roads, route numbers or place names and should assist residents in identifying where they are located. The Sector lines on the evacuation map for sectors A-1, A-2, A-4, B-1, B-3, C-1, C-3, D-1, and D-3 now go up to the river. This eliminates a concern I had with the earlier draft that people on the levee would not be able to identify the sector they were in.

The brochure meets the requirements of NUREG 0654/ FEMA REP 1, Revision 1, G. 1. c.

D. Special Needs of the Handicapped (Criterion G.1.d.)

In the section entitled "What Actions You Might Need To Take" the brochure advises that all person needing assistance fill out the "special needs card" enclosed in the brochure. The brochure encourages neighbors to assist those people they know may have difficulty filling out the card or having other problems in supplying the information requested.

The brochure meets the requirements of NUREG 0654/ FEMA REP 1, Revision 1 Criterion G. 1. d. with regard to the needs of the handicapped.

E. Overall Assessment

With regard to the Contention raised I find that the brochure meets the requirements of NUREG 0654/ FEMA REP 1, Revision 1. The brochure is clear, concise and well organized. Emergency telephone numbers are prominently displayed in the brochure. The type of action residents may be asked to take are described and discussed in the document. The information about radiation has been condensed allowing the reader to focus on information directly related to "what to do" and "how to do it" in the event of an emergency at Waterford 3.

The text of the brochure has been simplified. Repetition has been used to reinforce the concepts presented. For example, direction to turn on the radio or television and a listing of the stations when the sirens are sounded is mentioned six (6) times in the brochure. Where to obtain additional information, additional copies of the brochure or to have questions answered is mentioned four (4) times. Instructions on what protective action to take are stated twice.

There are two items which should be corrected. First, the brochure states that the sirens will be tested at noon on the first Thursday of each month. This is inconsistent with the testing schedule set forth in the St. Charles Parish Plan at page 134 and the St. John the Baptist Parish Plan at page 301. The plan should be changed to reflect the new test times. This matter does not affect my conclusion as to the adequacy of the public information brochure.

Second, in the section captioned "What To Do If You Are Told To Evacuate" item 5 states that:

"An emergency would most likely allow time for schools to finish their day's classes. The schools would then close and your children would come home as always. You could then take them to a center yourself if that is called for."

I find that this provision may confuse parents. If an emergency is declared while school is in session it is unclear whether parents should (a) wait at home for their children or (b) evacuate themselves and assume that the schools will take the children to the designated reception center. This paragraph should be clarified or eliminated.

I conclude that, subject to resolution of the above-mentioned school matter, the public information brochure filed with the Board meets the criteria of NUREG 0654/ FEMA REP 1, Revision 1.

STATEMENT OF
PROFESSIONAL QUALIFICATIONS
OF
ALBERT L. LOOKABAUGH

I, Albert L. Lookabaugh am presently employed by the Federal Emergency Management Agency, Region VI, Denton, Texas as Supervisor, Technical Hazards Branch. I also serve as the Chairperson of the Regional Assistance Committee (RAC), the interagency committee which, among other things, reviews and comments upon Radiological Emergency Response Plans.

Prior to employment with FEMA I worked for its predecessor agency, the Defense Civil Preparedness Agency, Department of Defense (1966-1977) (DCPA). While employed by DCPA I worked in both a management capacity, assessing the use of agency resources and funds, and as a Regional Field Specialist. In the latter capacity, my responsibilities included the development and implementation of emergency plans and the coordination of Federal, State and local emergency planning efforts.

I was also employed by the Department of Justice, Federal Bureau of Investigation, as a special agent (1962-1966). During that period I worked extensively with State and local police and sheriff departments in investigating and coordinating multijurisdictional police efforts.

I received a Bachelor of Science Degree from Oklahoma State University in 1959. I received additional training in the Army (1959-1961), as a special agent, and have completed a number of courses related to emergency planning and preparedness.

1 JUDGE WOLFE: Is the witness to be turned
2 over for cross-examination now?

3 MR. CASSIDY: Yes, he is, Your Honor.

4 JUDGE WOLFE: Mr. Churchill?

5 CROSS-EXAMINATION

6 BY MR. CHURCHILL:

7 Q Mr. Lookabaugh, would you turn to Page 5 of
8 your testimony, please.

9 You note at the top of the paragraph that
10 the schedule for the siren testing in the brochure is
11 inconsistent with the schedule that's given in the
12 emergency plan; is that correct?

13 A That's correct, sir.

14 Q And you further state that the plan should be
15 changed to reflect the new test times?

16 A That is correct.

17 Q When the plan is changed, FEMA reviews changes
18 to plans?

19 A Yes, sir, that's correct.

20 Q So that FEMA will be able to -- When this
21 minor change is made, FEMA will review it to assure that
22 the correct schedule for the siren test times will be
23 reflected in the new plan?

24 A Yes, sir, that's correct.

25 Q Toward the bottom of the page you suggested

1 that a certain passage in the brochure, because it may be
2 confusing, should be clarified or eliminated.

3 A That is correct.

4 Q You heard the testimony of Mr. Perry earlier
5 that stated that that passage would be eliminated?

6 A Yes, sir, I did.

7 Q I take it, then, that that takes care of your
8 concern?

9 A Yes, sir, it does.

10 MR. CHURCHILL: No further questions.

11 JUDGE WOLFE: Mr. Groesch?

12 CROSS-EXAMINATION

13 BY MR. GROESCH:

14 Q Mr. Lookabaugh, on Page 2 of your testimony,
15 I believe it's five lines down, it's the sentence that
16 begins, "The result."

17 A Is that under Part A.? Is that what you
18 are referring to?

19 Q Yes.

20 A All right.

21 Q It says, "The result of these changes is a
22 significant reduction in the size of the brochure."

23 I don't understand what you mean by the "size
24 of the brochure." Do you mean the over-all size of the
25 brochure?

1 A No, sir. I mean the amount of material that's
2 in the brochure. It may not be perfectly clear in my
3 written testimony, but it would mean the amount of material
4 that's in the brochure, rather than the actual size.

5 JUDGE JORDAN: You are referring to the number
6 of words, then?

7 THE WITNESS: Yes, sir.

8 BY MR. GROESCH:

9 Q Do you know the reduction in the number of
10 words?

11 A I did not count them, no. No, sir. I couldn't
12 give you a specific number as to whether it dropped from
13 4,000 to 3,000, but just by taking that out, it's obvious
14 that the amount was reduced.

15 Q So you've made this assessment without
16 counting the words; is that correct?

17 A That would be correct.

18 Q Does the Federal Emergency Management Agency
19 have any criteria that would make a document that they
20 would submit that -- a document that the FEMA would
21 write, is there any regulations now that requires that
22 people be able to read that document?

23 A As far as a particular regulation stating
24 such, I do not know.

25 Q So it's your testimony that the Federal

-8

1 Emergency Management Agency can write documents and
2 distribute these documents without -- with no regulations
3 that require that the people they are distributing these
4 documents to be able to read this material?

5 MR. CASSIDY: Objection, Your Honor. The
6 Federal Emergency Management Agency neither writes nor
7 distributes documents.

8 I believe -- I assume he's referring to the
9 public information brochures.

10 JUDGE WOLFE: Is that your understanding,
11 Mr. Groesch, or would you like to revise the question?

12 MR. GROESCH: Yes. Let me revise the
13 question.

14 JUDGE WOLFE: All right.

15 BY MR. GROESCH:

16 Q The Federal Emergency Management Agency
17 simply reviews documents; is that correct?

18 A When you are referring to document, are you
19 specifically talking about this type of document or any
20 kind of a document?

21 Q I would -- documents dealing with emergency
22 planning or emergency management in which the Agency
23 would distribute these documents to the public to
24 facilitate emergency planning or emergency management.

25 Does the Agency do this?

MR. CASSIDY: Objection. As I understand the question, it's beyond the scope of the hearing, Your Honor.

JUDGE WOLFE: I think if you were to limit your question to this brochure, Mr. Groesch, you would run into no objection. Try it.

BY MR. GROESCH:

Q Does the Federal Emergency Management Agency, in reviewing documents such as the public information brochure, Applicant Exhibit 13, have any criteria that would make it necessary that people be able to read this document?

A The only criteria that FEMA -- or the main criteria that FEMA follows in reviewing a public information brochure comes from NUREG-0654, Part G.1(a) through (d).

However, in the review process, common sense would prevail and the reviewer, if he was unable to read it, would so state.

Q You are saying common sense would prevail; is that correct?

A That is correct.

Q And if the reviewer could not read this document, he would so state?

A He would so state back to the person who

1 submitted it to FEMA for review.

2 Q I see. Mr. Lookabaugh, are the reviewers
3 like yourself mostly college graduates?

4 A That's a difficult question to answer, but in
5 all likelihood, all of the FEMA staff that I have ever
6 come in contact with that are working in this particular
7 program, I would say yes, they are.

8 Q So the reviewing staff would have 16 years of
9 educational attainment, at least, most of the people you've
10 come in contact with?

11 A I would say that's correct.

12 Q Are there any requirements in NUREG-0654,
13 Part G.(a) through (d), or in common sense, which is the
14 other criteria that you used, that would necessitate a
15 reviewer in looking at the target population, as far as
16 reading level or educational attainment?

17 A Not to my knowledge.

18 Q And this includes NUREG-0654, Part G.(a)
19 through (d), and common sense, which was the second
20 criteria you used?

21 A My answer to yours would have been pertaining
22 to NUREG-0654, G.1(a) through (d).

23 Common sense, of course, would allow you to
24 consider, of course, the population that it would be
25 going to.

B-11

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1 Q Did common sense lead you to consider the
2 population of St. John and St. Charles Parish as far as
3 educational attainment?

4 A I'm not sure that I know exactly what you --

5 Q Let me restate the question.

6 A Okay.

7 Q Did common sense lead you to inquire into the
8 educational attainment levels of the peoples of St. John
9 and St. Charles Parish who would be asked to interpret and
10 use correctly the pre-emergency evacuation brochure?

11 A No, sir, it did not.

12 Q I take it, then, that neither NUREG-0654 nor
13 common sense allowed you -- excuse me.

14 Also, NUREG-064 nor common sense made it
15 necessary that you review the educational attainment
16 levels of St. John and St. Charles Parish in relation to
17 your previous submitted testimony of September the 1st?

18 MR. CASSIDY: Objection.

19 JUDGE WOLFE: Sustained.

20 When I spoke previously, Mr. Groesch, of
21 prior testimony, an affidavit is not testimony unless
22 admitted into evidence.

23 I'm speaking about the prior testimony of
24 Mr. Lookabaugh during the initial hearing when he was
25 sworn and testified. That was the testimony I was referring

to.

We will recess until 1:30.

(Whereupon, at 12:30 p.m., the hearing was recessed, to reconvene at 1:30 p.m., the same day.)

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AFTERNOON SESSION

1:30 p.m.

JUDGE WOLFE: All right. Mr. Groesch, continue with your cross-examination. You were on cross-examination, were you not, of Mr. Lookabaugh?

MR. GROESCH: Yes.

JUDGE WOLFE: Proceed.

MR. GROESCH: Your Honor, am I going to finish with Mr. Lookabaugh before we go to Dr. Hunter?

JUDGE WOLFE: Yes.

MR. GROESCH: Okay.

CROSS-EXAMINATION (continued)

BY MR. GROESCH:

Q Mr. Lookabaugh, you stated in your testimony before lunch that the criteria you used to assess brochures, such as the brochure Applicant Exhibit 11 that is the subject of this hearing is twofold. The firstfold is Part G, NUREG-0654, (a) through (d). And the second part you mentioned was common sense.

JUDGE WOLFE: That was Applicant's Exhibit 13, Mr. Groesch.

MR. GROESCH: Yes.

JUDGE WOLFE: All right.

BY MR. GROESCH:

Q Is that correct?

9-2

1 A That is correct.

2 Q Have you seen census data from the State of
3 Louisiana that would indicate educational attainment
4 levels?

5 A I have seen some census data on the State of
6 Louisiana, yes, sir.

7 Q When did you see that data?

8 A Since being here in court.

9 Q So your testimony is that prior to the begin-
10 ning of these hearings, you had not seen census data that
11 would indicate educational attainment in the State of
12 Louisiana at all?

13 A That would be correct.

14 Q Do you think it would be a common sense action
15 for a person who is reviewing a document to inquire into
16 the educational attainment levels in the target community?

17 A Again, in the review process this document is
18 submitted to us. In a normal circumstance, it would come
19 from the state that the plant would be in -- involved in.

20 Along with that document that would come, I
21 would assume in an instance -- it's possible that it could
22 be called to our attention in some instances that -- about
23 the educational level.

24 We do not have guidance ourselves that we
25 follow -- the 0654 G.l.a. through d does not specifically

1 state that you must check the educational level -- the
2 reading level in the area that the brochure will be sent
3 out to -- the people that it would be sent out to.

4 Q I believe my question was: Would common sense,
5 which was the second criteria you used to evaluate this
6 brochure, lead you to check on the educational levels in
7 order to make a correct or a reasonable assessment of
8 how this brochure would be comprehended by the target com-
9 munity?

10 A I don't believe it necessarily would.

11 Q On Page 3 of your testimony, the second line
12 from the bottom says, "This eliminates a concern I had
13 with the earlier draft that people on the levee would not
14 be able to identify the sector they were in."

15 What earlier draft were you talking about?

16 A That would have been the former Exhibit No.
17 11, the prior document that we reviewed.

18 Q What was the problem with the earlier draft?

19 A Well, on the map -- on the particular part --
20 the map, the sector lines, as it's stated right above in
21 my written testimony, did not go all the way to the water
22 level. They came up within like an eighth of an inch or
23 so and stopped and did not go on to the level.

24 So there could have been an area up and down
25 the river bank that was not covered by sector.

9-4

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1 Q Does FEMA have any regulations about the size
2 of type involved in the documents that they review?

3 A Not to my knowledge.

4 Q Well, how would you assess whether or not a
5 type of -- I hate to say it -- a type of type, but a
6 certain --

7 A I know what you're saying.

8 Q -- type would be sufficient in a document?

9 A I think what I said was I had the two docu-
10 ments, and you can compare one to the other, and the more
11 recent document, as it states -- and let me find it in my
12 testimony -- on Page 3 as you were alluding to a while
13 ago.

14 "The print in the current Exhibit 13 is
15 larger and the type face is bolder than the previous
16 edition which FEMA found to be adequate."

17 So by just comparison is the manner in which
18 I made my testimony here.

19 Q So making something larger and bolder is, in
20 your estimation, making it a -- is making it a better
21 document?

22 A Perhaps.

23 Q Not in all cases, though?

24 A Not necessarily in all cases.

25 Q Well, what criteria do you have in order to

1 judge what is better or worse?

2 A As I mentioned previously, the only criteria
3 that we use is the Criteria G.1.a, b, c, d and common
4 sense.

5 Q On Page 2 of your testimony, you reviewed the
6 educational information on radiation; is that correct?

7 A That is correct.

8 Q And you used what criteria to judge this
9 section? Criteria G.1?

10 A Right. G.1.a, which requires that some
11 educational information on radiation be included in the
12 brochure. So we review it to see that some educational
13 information on radiation is in the brochure.

14 Q And your criteria that you use on this,
15 since it's not spelled out in 0654, is -- would again be
16 common sense?

17 A That is partially correct. Of course, we
18 would rely also on the expertise of other government
19 agencies, like the NRC, which would review this document
20 also.

21 Q On Page 4 of your testimony, in the
22 Section E, "Overall Assessment," the second paragraph
23 says, in the second sentence it says "Repetition has
24 been used to reinforce the concepts presented."

25 A All right.

1 Q Is that a common sense --

2 A Yes, that would be a common sense ...

3 Q Assessment?

4 A Assessment.

5 As in most instances when people are trying to
6 make points and emphasizing a particular point by
7 repetition, it would appear to me by using common sense
8 that the point must be important enough to be set out
9 if they're going to repeat it several times.

10 - - -

1 Q As your statement indicated earlier, the
2 common sense assessment did not lead you to look at the
3 educational attainment levels in the target community be-
4 fore writing this testimony?

5 A That would be correct.

6 MR. GROESCH: That's all the questions that
7 I have.

8 JUDGE WOLFE: Mr. Turk.

9 CROSS-EXAMINATION

10 BY MR. TURK:

11 Q Mr. Lookabaugh, I'd like to ask you one
12 question relating to Page 2 of your testimony, in the
13 large paragraph at the center of the page. There's a
14 statement that "The result of these changes is a signifi-
15 cant reduction in the size of the brochure."

16 That's a statement about which you answered
17 some cross-examination questioning earlier. It seems to
18 me -- and correct me if I'm wrong -- that that sentence,
19 if read in conjunction with the sentence that follows
20 it, would indicate that the reduction in size that you're
21 talking about is not necessarily just a reduction in the
22 number of words, but also a reduction in the different
23 types of information contained in the brochure.

24 Is that a fair reading of this sentence when
25 read in context?

9-8

1 A Yes, sir, that would be, because that's what
2 my written testimony states.

3 Q You had indicated that you've reviewed other
4 brochures, aside from the brochure for the Waterford
5 facility.

6 To your knowledge, have any of those brochures
7 been reviewed by FEMA or by any other government agency
8 for their readability?

9 A No, sir, they have not, as far as I know.

10 Q And the ones in which you were involved in re-
11 viewing have not been?

12 A The ones that I have personally reviewed have
13 not been reviewed using that criteria.

14 MR. TURK: I have no further questions.

15 JUDGE WOLFE: Redirect, Mr. Cassidy?

16 MR. CASSIDY: I have no redirect, Your
17 Honor.

18 JUDGE WOLFE: We'll proceed to Board questions.

19 BOARD EXAMINATION

20 BY JUDGE JORDAN:

21 Q You mentioned you had had occasion to read a
22 number of brochures and that you reviewed them on the
23 basis of the NUREG-0654 criteria, plus common sense. Now
24 the four NUREG-0654 criteria you have spelled out. It
25 appears to me that judging whether a brochure meets those

9-9

1 criteria or not must be very straightforward and fairly
2 simple, and that there would very rarely ever be a
3 turndown on the straight meeting of 0654. Is that
4 correct?

5 A. That would be a fair assumption, Your Honor.

6 Q. So is it, therefore, common sense that results
7 in rejections or results in requests for changes? For
8 example, the original brochure, you suggested that they
9 leave out a paragraph that was confusing. So is perhaps
10 common sense the main item that you use in reviewing the
11 brochures to see whether the brochure is adequate or
12 not, according to FEMA?

13 A. That's a difficult question actually to
14 answer. I would say the main criteria that we use is
15 0654, because that's what we have in front of us to have
16 something to judge by.

17 Of course, going along with that, you're cor-
18 rect in stating that common sense would be very important;
19 and it is. And probably so that we do make comments back
20 to the states probably more for clarification and that
21 type of statement, which would be common sense.

22 Q. All right. But there is no FEMA document that
23 supplements 0654 that spells out any additional criteria?

24 A. No, sir, not to my knowledge.

25 Q. Would you, therefore, turn down a request for

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1 an approval if the brochure met all the requirements of
2 0654, but had some extraneous information or some confusing
3 information. Would that result in a turndown?

4 A Well, of course, what we would do first would
5 be go back to the state and see if we could not correct
6 it to meet the satisfaction of all parties concerned.

7 As far as turning down, all we could do in
8 FEMA is make suggestions back to the state and the parishes
9 for corrections. We're not a regulatory agency, as you
10 well know, and would not have any authority to actually
11 turn down.

12 Q Do you ever have any problem when you make a
13 recommendation, such as "We think it would be better if
14 you leave out that paragraph"? Do you have problems with
15 licensees saying, "No, we think that paragraph should be
16 there," or do they usually knuckle under pretty quick?

17 A Well, I don't know about the word "knuckle
18 under."

19 Q Use your own words.

20 A So far the ones that we have dealt with, our
21 suggestions have been taken, and I would say changed so
22 far.

23 Q Is that because -- if they don't, your
24 recommendation to the NRC would not be an approval?

25 A I couldn't answer for why.

9-11

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1 Q You've never done that?

2 A No, we have not. We have not made a recom-
3 mendation on the ones that we have reviewed so far to
4 turn down or to the NRC that they shouldn't approve it.

5 Q Now you, therefore, have not really made
6 any judgment as to whether this brochure does the job
7 it is supposed to do or, in fact, do you have any definition
8 of your own as to what the brochure must accomplish, other
9 than just meet NUREG-0654?

10 A Well, of course, what the brochure would do,
11 first, we would look at it to see that it meets the
12 criteria. And as has been brought out in this hearing so
13 far that the brochure is only one means of alerting the
14 public to what could happen. It is only one of the many
15 means that the people could be notified.

16 And, of course, as has been brought out here,
17 it is a priming document. I think that's a good term.
18 I have not heard that used before, but that is a good
19 term -- a priming document to get the people aware of
20 the information that is available and how additional in-
21 formation could be gotten to them in case of an incident
22 at any of the plants.

23

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red
1 Q But you would not turn a brochure down because
2 in your judgment it did not do an adequate job of priming
3 the population; that is, so long as it met 0654?

4 A That is the main criteria we are looking for,
5 yes.

6 JUDGE JORDAN: Okay. That's all I have.

7 BOARD EXAMINATION

8 BY JUDGE WOLFE:

9 Q Mr. Lookabaugh, at the bottom of Page 2,
10 under Capital B. you state, "The brochure contains a
11 section entitled 'For Additional Information' on a
12 separate panel."

13 I have looked to Applicant's Exhibit 13 and
14 I don't find that caption.

15 A All right, sir. That may be wirtten a little
16 incorrectly. What it should be is on -- it would be on
17 the last page of your brochure, "Where To Get More
18 Information," rather than the way it's stated there,
19 "For Additional Information."

20 Q The caption on Applicant's Exhibit 13 is --

21 A "Where."

22 Q "Where To Get More Information or Other
23 Help."

24 A Yes, sir.

25 Q I see, and so --

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1 A. My testimony probably should read that, rather
2 than "For Additional Information."

3 Q. I see.

4 A. And if you would like for us to change it....

5 Q. I think that would be helpful, if that's what
6 you intended.

7 A. That is what I intend, sir.

8 Q. All right.

9 JUDGE WOLFE: Could you make changes to the
10 copies that are incorporated into the record, Mr. Cassidy,
11 or is that too much of a problem at this stage? Ms. Bagby?

12 THE REPORTER: No problem, if you'll just
13 tell me what the correction is, what page and what it is
14 you want in there.

15 JUDGE WOLFE: All right.

16 Mr. Lookabaugh, would you make the change now
17 to Page 2, at the bottom of Page 2 of your testimony, in
18 that B, the first sentence should now read?

19 THE WITNESS: You want me to say that, sir?

20 JUDGE WOLFE: Yes.

21 THE WITNESS: Yes, I would like to change,
22 then, my written testimony, Page 2, caption heading
23 Capital Letter B, under, "Contacts for Additional
24 Information (Criterion G. 1. b.)," the first sentence
25 where it states, "The brochure contains a section entitled

0-3 1 'For Additional Information' on a separate panel."

2 That should be changed to read, "The brochure
3 contains a section entitled 'Where To Get More Information
4 or Other Help.'"

5 JUDGE WOLFE: All right, and Ms. Bagby, will
6 you make that interlineation?

7 THE REPORTER: Yes, sir.

8 JUDGE WOLFE: All right.

9 Is there cross on Board questions, Mr. Churchill?

10 MR. CHURCHILL: No, sir.

11 JUDGE WOLFE: Mr. Groesch?

12 MR. GROESCH: No, Your Honor.

13 JUDGE WOLFE: Mr. Turk?

14 MR. TURK: Yes, just one question.

15 CROSS-EXAMINATION

16 BY MR. TURK:

17 Q It's brought to mind by Judge Jordan's
18 further question concerning whether common sense is the
19 major criteria after all, as opposed to NUREG-0654, and
20 my question to Mr. Lookabaugh is: When you state that
21 common sense is employed by a FEMA reviewer, do you
22 recognize that the reviewer has expertise behind his
23 common sense judgment?

24 A Yes, sir.

25 MR. TURK: I have no further questions.

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1 JUDGE WOLFE: Is there any redirect, Mr. Cassidy?

2 MR. CASSIDY: Yes, Your Honor, just to follow
3 up on some of Judge Jordan's inquiry.

4 REDIRECT EXAMINATION

5 BY MR. CASSIDY:

6 Q Mr. Lookabaugh, taking a hypothetical situation
7 with a brochure that came in that had all of the elements
8 that are required by NUREG-0654, but after reading it,
9 you determined that it was incomprehensible, and assuming
10 also that you made recommendations to the state to make
11 changes in that brochure and the state did not make any
12 changes but resubmitted an incomprehensible brochure,
13 would you make a recommendation to the Nuclear Regulatory
14 Commission that that was an acceptable document?

15 A No, sir.

16 MR. CASSIDY: Nothing further.

17 JUDGE WOLFE: All right. Is this witness to
18 be excused permanently, Mr. Cassidy?

19 MR. CASSIDY: Your Honor, my understanding of
20 what the parties intend as far as rebuttal witnesses are
21 going to be limited to the readability issues and the
22 reading experts.

23 I don't expect that I would be recalling
24 Mr. Lookabaugh, but as assuming they are limiting the
25 rebuttal to that area.

0-5 1 Otherwise, it may be necessary to recall him,
2 but I don't anticipate that.

3 MR. CHURCHILL: Your Honor, that's not my
4 understanding. My understanding is rebuttal is rebuttal of
5 another party's direct case.

6 MR. TURK: Could we go off the record for a
7 moment?

8 JUDGE WOLFE: All right.

9 (Discussion off the record.

10 JUDGE WOLFE: Back on the record.

11 There was some discussion off the record.

12 Is there anything....

13 MR. CASSIDY: Yes. Based on the off-the-
14 record discussion of Counsel, Your Honor, and my
15 understanding of what is going to be presented by the
16 rebuttal witnesses, Mr. Lookabaugh can be permanently
17 excused.

18 JUDGE WOLFE: All right. You are permanently
19 excused, Mr. Lookabaugh.

20 (The witness was excused.)

21 JUDGE WOLFE: All right. Now we go back to
22 Mr. Groesch's redirect of Dr. Hunter. Is she here?

23 MR. GROESCH: Well, what I would like to suggest
24 at this time to the Board is I think we could probably
25 get through with Mr. Perrotti in relatively short order.

0-6 1 I have talked with Mr. Turk and he thinks it's
2 all right. That would give Dr. Hunter a little bit more
3 time.

4 JUDGE WOLFE: All right. Mr. Turk.

5 MR. TURK: May we go off the record for one
6 moment.

7 JUDGE WOLFE: Off the record.

8 (Discussion off the record.)

9 JUDGE WOLFE: Back on the record, and before
10 Mr. Lookabaugh leaves, when you furnished his written
11 direct testimony, Mr. Cassidy, did you have attached
12 his resume or curriculum vitae?

13 MR. CASSIDY: Yes, I did, Your Honor. I
14 understood that the reporter needed that. Yes.

15 There was one revision made to his professional
16 qualifications since the last time and that was a title
17 change. He is now supervisor; at the time he wasn't.

18 JUDGE WOLFE: Both his written direct
19 testimony and his professional qualifications have been
20 incorporated into the record.

21 MR. CASSIDY: That's correct.

22 JUDGE WOLFE: All right.

23 All right, Mr. Turk.

24 MR. TURK: Mr. Chairman, while we were off
25 the record, I handed to the Licensing Board members --

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1 JUDGE WOLFE: Off the record.

2 (Discussion off the record.)

3 JUDGE WOLFE: All right, on the record.

4 MR. TURK: Mr. Chairman, I was stating that
5 while we were off the record I handed to the Licensing
6 Board members a copy of the revised professional
7 qualifications statement for Mr. Perrotti.

8 As the Licensing Board is aware, Mr. Perrotti
9 was a witness in this proceeding last May, May 1982.

10 At that time he submitted a professional
11 qualifications statement which has been bound into the
12 record.

13 We are submitting today a revised professional
14 qualifications statement which is identical to the former
15 statement, except that in the first paragraph of his
16 revised professional qualifications, his own title has
17 been changed and the title of the branch in which he
18 works has been changed.

19 With the exception of those two name changes,
20 the professional qualification statement is the same.

21 The Staff calls at this time Mr. Donald Perrotti,
22 and consistent with the Board's requests of other
23 witnesses, we ask that he be sworn.

24 JUDGE WOLFE: Would you stand, please,
25 Mr. Perrotti, and raise your right hand.

0-8
1 Whereupon,

2 DONALD JOSEPH PERROTTI

3 was called as a witness by and on behalf of the NRC Staff
4 and, having been first duly sworn, was examined and
5 testified as follows:

6 DIRECT EXAMINATION

7 BY MR. TURK:

8 Q Mr. Perrotti, would you please state your
9 full name, title and by whom you are employed?

10 A I'm Joseph Perrotti. My title is Emergency
11 Preparedness Specialist, and I'm employed by the U. S.
12 Nuclear Regulatory Commission.

13 Q Have you prepared a revised statement of
14 professional qualifications for use in this proceeding?

15 A Yes, I have.

16 Q To your knowledge, has that revised statement
17 now been attached to your written testimony?

18 A Yes.

19 Q Do you have a copy of your professional
20 qualifications statement in front of you?

21 A No, I'm afraid I don't seem to have that copy
22 attached.

23 (Document handed to witness.)

24 THE WITNESS: Thank you.
25

0-9 1 BY MR. TURK:

2 Q Do you have a copy of it in front of you now?

3 A Yes, I do.

4 Q Are there any changes you wish to make to that
5 statement?

6 A No.

7 Q And do you adopt it as part of your testimony
8 in this proceeding?

9 A Yes.

10 Q I would ask you now to turn to your written
11 prefiled testimony, which was submitted on January 26th,
12 1983.

13 Do you have that in front of you?

14 A Yes.

15 Q Was this document prepared under your general
16 direction and supervision?

17 A Yes.

18 Q Do you have any corrections, additions,
19 deletions or modifications you wish to make?

20 A I have one minor change that compares with the
21 change in my qualifications statement.

22 On Page 1 under Answer No. 1, the name of
23 my branch should be changed to the "Emergency Preparedness
24 Branch," rather than "Emergency Preparedness Licensing
25 Branch," as it is written.

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1 Q So we can simply strike the word "Licensing"
2 from that title?

3 A Yes, that's correct.

4 Q As now corrected, is your written testimony
5 true and correct?

6 A Yes, sir.

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

9 A Yes, I do.

10 MR. TURK: Mr. Chairman, at this time we
11 request that the written testimony of Donald Perrotti,
12 including his statement of professional qualifications,
13 as revised, be incorporated into the transcript as if
14 read.

15 JUDGE WOLFE: Any objection, Mr. Cassidy?

16 MR. CASSIDY: No objection, Your Honor.

17 JUDGE WOLFE: Mr. Churchill?

18 MR. CHURCHILL: No objection.

19 JUDGE WOLFE: Mr. Groesch?

20 MR. GROESCH: No objection, Your Honor.

21 JUDGE WOLFE: All right. The testimony of
22 Donald J. Perrotti, inclusive of his professional
23 qualifications, are incorporated into the record as if
24 read.

25 (The Staff's testimony of Donald J. Perrotti
follows:)
ALDERSON REPORTING COMPANY, INC.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

LOUISIANA POWER AND LIGHT COMPANY

(Waterford Steam Electric Station,
Unit 3)

}
}
}
}
Docket No. 50-382

TESTIMONY OF DONALD J. PERROTTI ON THE
APPLICANT'S PUBLIC INFORMATION BROCHURE

Q.1 Please state your name and by whom you are employed.

A.1 My name is Donald J. Perrotti. I am employed by the U.S. Nuclear Regulatory Commission ("NRC") as an Emergency Preparedness Specialist in the Emergency Preparedness Licensing Branch, Office of Inspection and Enforcement.

Q.2 Please describe the nature of the responsibilities you have had with respect to nuclear power plant emergency preparedness.

A.2 Since October 1980, I have had responsibility for the review and evaluation of radiological emergency plans submitted by licensees and applicants for licenses, in order to assure that the proposed plans meet the regulatory requirements and guidance of the Commission. I also function as a Team Leader and Team Member of Emergency Preparedness Appraisal Teams engaged in the onsite inspections of the implementation phase of licensee emergency programs. I observe nuclear power plant emergency drills and

exercises involving State and local government response agencies, and participate in interagency critiques.

For the four year period prior to the assumption of my present responsibilities, I was the lead emergency planning inspector at the NRC's Region II Office of Inspection and Enforcement in Atlanta, Georgia, where I was responsible for planning, conducting and documenting inspections of licensees' emergency plans and procedures, emergency facilities and equipment, emergency training, tests and drills, and coordination with offsite support agencies.

Q.3 Have you prepared a statement of professional qualifications?

A.3 Yes. A copy was attached to my pre-filed written direct testimony on Contention 17/26, admitted into evidence in this proceeding on May 7, 1982 (fol. Tr. 3229).

Q.4 Please describe the nature of the responsibilities you have had with respect to the Waterford Steam Electric Station, Unit 3.

A.4 I have served and continue to serve as the NRC Staff reviewer of the Applicant's emergency planning and preparedness. In addition, I have coordinated on behalf of the NRC Staff with the Federal Emergency Management Agency ("FEMA") in its review of State and local emergency planning and preparedness for the Waterford facility.

Q.5 Have you examined the Applicant's proposed public information brochure, entitled "Safety Information", and the color sketch

overlay, which were admitted into evidence in this proceeding as Applicant's Exhibits 13 and 14, respectively?

A.5 Yes.

Q.6 Have you provided your comments to the Applicant on earlier drafts of its public information brochure?

A.6 Yes. I provided my comments to the Applicant on earlier drafts of the public information brochure, which had been submitted to the NRC Staff and FEMA for evaluation.

Q.7 Has the Applicant adequately responded to your comments in its proposed public information brochure and color sketch overlay (Applicant's Exhibits 13 and 14, respectively)?

A.7 Yes.

Q.8 Is it primarily the role of FEMA or of the NRC Staff to review and evaluate the adequacy of the Applicant's public information brochure?

A.8 Since the public information brochure primarily relates to offsite emergency preparedness, it is primarily the function of FEMA to review and evaluate the adequacy of the brochure.

Q.9 Have you provided your comments to FEMA concerning the Applicant's public information brochure?

A.9 Yes. I provided my comments to FEMA on the earlier drafts of the brochure as well as on Applicant's Exhibits 13 and 14.

Q.10 Will the NRC Staff review the adequacy and implementation of the coordinated public information and education program, including the publication and dissemination of the Applicant's public information brochure?

A.10 Yes. The NRC Staff will review FEMA's comments on the adequacy of the brochure and the Applicant's incorporation of those comments in the brochure, prior to issuing a full power operating license for Waterford Unit 3. The NRC Staff will also confirm the dissemination of the brochure to the residents located within the 10 mile EPZ surrounding Waterford Unit 3, prior to issuing a full power operating license to the Applicant.

DONALD J. PERROTTI
OFFICE OF INSPECTION AND ENFORCEMENT
STATEMENT OF PROFESSIONAL QUALIFICATIONS

I am employed as an Emergency Preparedness Specialist in the Emergency Preparedness Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission. I have responsibility for the review and evaluation of radiological emergency plans submitted by reactor applicants and licensees to assure that proposed plans meet the regulatory requirements and guidance of the Commission. I also function as a Team Leader and Team Member on Emergency Preparedness Appraisal Teams engaged in the onsite inspection of the implementation phase of licensee emergency programs. I observe nuclear power plant emergency drills and exercises involving State and local government response agencies and participate in interagency critiques.

From December 1976 to October 1980 I was employed at the NRC's Region II Office of Inspection and Enforcement in Atlanta, Georgia. I was the lead inspector for Region II emergency planning inspections at nuclear power reactors and fuel facilities. My responsibilities included planning, conducting and documenting inspections of licensees' emergency plans and procedures, emergency facilities and equipment, emergency training, tests and drills, and coordination with offsite support agencies. From April 1977 to August 1978, I assisted my immediate supervisor who served as Chairman of the Federal Regional Advisory Committee (RAC) in the review of State Radiological Emergency Plans. During October 1978 I assisted in the review and approval of emergency plans for two nuclear fuel facilities. During the period of March - August, 1979, I participated in the Commission's coverage of environmental monitoring programs at Three Mile Island, where I served as Emergency Monitoring Team Leader; in that capacity, I was responsible for coordination with State and Federal agencies engaged in measurement and evaluation of environmental radioactivity levels in the vicinity of the TMI nuclear plant.

From 1973, to [1976], I was employed at Florida Power and Light Company's Turkey Point Nuclear Power Plant, as Health Physics instructor. My duties included radiation safety training of plant personnel (general employees and technicians), special project reports such as providing background material for management comment on proposed changes to the Code of Federal Regulations, and maintaining radiation exposure records for plant personnel.

From 1953 to 1973, I served in the United States Army. As a member of the U.S. Army Engineer Reactors Group during the period 1961-1973, I performed a variety of jobs with varying degrees of responsibility as rank and experience were gained. Among my more responsible jobs were shift health physics technician at the PM-3A Naval nuclear power plant in McMurdo, Antarctica (1965-1966), Senior Health Physics/Process Chemistry instructor at Ft. Belvoir, Virginia (1966-1972), and Project Officer for SM-1 Army nuclear power plant (1972-1973).

I received an Associate of Arts Degree in Health Physics from the New York State Regents, Albany, NY, in 1973. In addition, I attended Army service schools including Special Nuclear Weapons Disposal and the 52-week Nuclear Power Plant Operators course. I have completed the following U.S. Public Health Service courses:

- Basic Radiological Health
- Radionuclide Analysis by Gamma Spectroscopy
- Environmental Radiation Surveillance
- Analysis of Radionuclides in Water
- Occupational Radiation Protection
- Chemical Analysis for Water Quality
- Statistical Methods - Quality Control in the Laboratory
- Operational Aspects of Radiation Surveillance
- Reactor Hazards Evaluation

I attended the "Radiological Emergency Response Operations" course at the Nevada Test Site and the "Planning for Nuclear Emergencies" course at Harvard University.

I am and have been a member of the Health Physics Society since 1974.

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MR. TURK: At this time the Staff has completed its direct case, and the witness is now available for cross-examination and Board questioning.

JUDGE WOLFE: Cross, Mr. Churchill?

MR. CHURCHILL: The Applicant has no questions.

JUDGE WOLFE: Mr. Groesch?

MR. GROESCH: Just a few questions, Your Honor.

CROSS-EXAMINATION

BY MR. GROESCH:

Q Mr. Perrotti, what criteria does the NRC use in evaluating an evacuation brochure?

A The NRC utilizes NUREG-0654 criterion and also reviews FEMA's evaluation of these public information brochures as part of our overall review function.

Q Do you do a parallel evaluation of the brochure?

A Yes, I do.

Q At any points do the evaluation methods or teams of the NRC and the FEMA, do they coincide at any particular point?

MR. TURK: Could we have the question repeated?

MR. GROESCH: Yes. I was not very clear on that.

BY MR. GROESCH:

Q Do the NRC people who evaluated this brochure, of which you were one, I take it?

A Yes, I was.

Q And the FEMA people at any point do they meet in Washington or somewhere to discuss the brochure? Is it an independent parallel assessment?

A It is an independent parallel assessment. However, when I finished my review, I contacted FEMA and provided my comments to FEMA.

Q So your comments to FEMA were provided to -- I'm sorry.

Are those comments a part of the record of this hearing?

MR. TURK: I'm not sure I understand the question.

BY MR. GROESCH:

Q Are the comments of Mr. Perrotti and the team that evaluated this brochure -- I imagine that they made some kind of a paper that they submitted to the FEMA people. Is that part of this hearing?

A No, sir, I didn't submit a written record of those comments. What you might consider a formal written record.

Q What did you submit to the FEMA people?

11-3

1 A I submitted comments vocally, over the tele-
2 phone, I would say on two or three different occasions.

3 Q So there is no written record of the NRC
4 doing a parallel assessment?

5 A You'll have to define "written record" to
6 me. I --

7 Q There is no record of any type, either in a
8 conversation -- a letter memorializing a conversation or
9 anything of that sort?

10 A There's no report. However, I have all of
11 my notes that are written on the original draft and the
12 subsequent draft. These are not part of the hearing re-
13 cord.

14 Q Did the FEMA people contact you on -- for
15 instance, the brochure section marked "What Radiation
16 Is," the content?

17 A I don't remember who contacted who. I know
18 that we discussed all of the brochure contents. Some of
19 the panels were discussed very much in detail because I
20 did have some concerns about the clarity of the panel.
21 Other panels were discussed more generally with the con-
22 clusion that the panel appeared to be acceptable.

23 Q Which panels were you concerned about the
24 clarity?

25 MR. TURK: Objection. I'm not sure, first of

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1 all, which document Mr. Groesch is inquiring about, whether
2 it's the withdrawn Exhibit 11 or the current Exhibit 13,
3 which is the Applicant's brochure. That's my first
4 objection.

5 My second objection is that I don't see the
6 relevancy of the question.

7 MR. GROESCH: I'm interested in the brochure
8 that we have in front of us, Applicant Exhibit 13. I
9 was -- It was my understanding that Mr. Perrotti had
10 discussed with the FEMA people areas of the document that
11 perhaps were unclear. He talked about clarity.

12 I was just inquiring which panels in which he
13 had problems. If there were no problems with Applicant
14 Exhibit 13 as far as clarity, then, you know, certainly
15 I'm barking up the wrong tree.

16 MR. TURK: As I understand the question now,
17 it does relate to Exhibit 13. However, I had a concern
18 over whether the Staff's reviewer must go through in
19 detail each of the various thoughts he had during his
20 review process.

21 I think it might be appropriate to ask whether
22 he has any concerns at this time about this Exhibit 13,
23 which is really what we should be concerned about our-
24 selves, not what mental thought processes he went through
25 as he reviewed the document.

11-5

1 I don't see that those thought processes are
2 relevant.

3 MR. GROESCH: I'm not interested in thought
4 processes. I know that thought processes go through many
5 stages. And at the end of that stage you get a piece of
6 paper and you write down the best points you've got.

7 And I was interested to know if the NRC had
8 actually taken a piece of paper and written down on it
9 what they thought about the document and it's clear that
10 they have not.

11 JUDGE WOLFE: Well, then what is your
12 question?

13 MR. GROESCH: Well, my question is simply:
14 He has stated that --

15 JUDGE WOLFE: What is your question?

16 MR. GROESCH: My question is: Which sections
17 of Applicant Exhibit 13 did the NRC team who reviewed
18 Applicant Exhibit 13 have questions about clarity?

19 JUDGE WOLFE: Which -- You're speaking to
20 the present revised --

21 MR. GROESCH: Yes, the present revised 13.

22 JUDGE WOLFE: -- and whether they had -- have
23 had or have now any problems with clarity of any of its
24 provisions?

25 MR. GROESCH: Yes. Did they have --

11-6 1 JUDGE WOLFE: If that's your question, and that
2 was the objection, the objection is overruled. You may
3 answer the question.

4 THE WITNESS: There were two panels that I
5 had comments on. The first one has to do with the test
6 schedule of the sirens being consistent with Revision 3
7 of the St. Charles plan.

8 The second concern I had was the clarity re-
9 garding parents going to the schools to pick up their
10 children. This was on the panel right alongside the
11 map, Item No. 5. It was that first paragraph, which I
12 believe is going to be deleted for clarity's sake.

13 Those were the only two comments that remained
14 on Exhibit 13.

15 BY MR. GROESCH:

16 Q Mr. Perrotti, you reviewed the section
17 entitled "What Radiation Is," and you found that to be
18 clear?

19 A Yes.

20 Q And the -- Could you point out in that
21 section entitled "What Radiation Is," the answer to the
22 question, "What is radiation?"

23 MR. TURK: Objection. The document is before
24 all of us. I don't see that anything is to be gained
25 by this forced review again of the document.

11-7

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1 MR. GROESCH: Your Honor, I'm just -- the
2 title of the section is entitled "What Radiation Is,"
3 and I'm just wanting to know what the NRC believes is
4 the most telling section of the document that tells people
5 what is radiation.

6 JUDGE WOLFE: I don't see any objection to it.
7 I don't know where it's going. But the objection is over-
8 ruled. Answer the question.

9 THE WITNESS: The second and third sentences.
10 BY MR. GROESCH;

11 Q The second and third sentences say: "When
12 this happens, it gives off energy called radiation." The
13 other sentence is: "This energy can be used to make
14 electricity, to treat cancer and in other helpful ways."

15 A No, I said the second and third sentences.
16 You quoted the third and fourth sentences.

17 Q Okay.

18 A If you want me to, I can read those for you.

19 Q That would be good.

20 A "The atoms in some matter are radioactive and
21 can split to form new matter. When this happens, it gives
22 off energy called radiation."

23 Q Is radiation a carcinogen, Mr. Perrotti?

24 MR. TURK: Objection. I don't see how that
25 relates to the issue of whether this brochure is adequate.

11-8

1 MR. GROESCH: Your Honor, I'm interested in
2 what the NRC thinks is a sufficient amount of information
3 that people have to have concerning what radiation is in
4 their brochure.

5 I mean the way that the section is, it says
6 "What radiation is." People should be able to say,
7 "Radiation is what."

8 MR. TURK: Your Honor, the brochure itself in
9 the next paragraph states that "Sometimes you must be
10 careful of how much radiation" -- "of how much of this
11 radiation enters your body. If the amount of radiation
12 in the air is large, you must protect yourself from it."

13 As far as this brochure is concerned, I think
14 it addresses the safety problem -- the health problem.
15 I don't see that it has been established that we need to
16 go into the different kinds of effects radiation may
17 have, or what the NRC's understanding of radiation may
18 be.

19 JUDGE WOLFE: I'll have to sustain that ob-
20 jection.

21 BY MR. GROESCH:

22 Q In the second paragraph it says that -- in
23 the third sentence it says, "If the amount of radiation
24 in the air is large, you must protect yourself from it."
25 Are there other sentences in there that tell people why

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1 they must protect themselves from radiation?

2 A In this panel are you talking about, the whole
3 panel itself or just that one paragraph?

4 Q The whole panel.

5 A You'll have to give me a few minutes to read
6 the entire panel.

7 Q That's fine.

8 (Pause.)

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ged
1 A. About halfway down the panel there is a
2 statement regarding the severe accident. It says, "But
3 in a severe accident some radioactive matter may be
4 released. If it is, this matter will be carried in the
5 air. If that happens, an emergency will be declared. You
6 may then be asked to do certain things to protect
7 yourself until the wind carries the radioactive matter
8 away."

9 And towards the bottom of the panel, under
10 "Radiation Emergencies," they identify two types of
11 emergency, site emergency and general emergency.

12 In each case, the latter portion of that
13 paragraph indicates that, "If action is needed, the
14 sirens will be turned on. You should then listen to local
15 radio or TV stations for advice."

16 I believe that's all on that panel that I
17 can spot at this time.

18 Q Does this panel say anything about why people
19 must protect themselves from radiation?

20 MR. TURK: I think that's already been
21 established through reading of certain sentences into the
22 record.

23 I do not understand the question.

24 MR. GROESCH: I am talking about a person
25 reading this document. The only thing that I see that

2-2 1 he has got to be afraid of is that radiation is large -- if
2 radiation is large. Does that mean that he is going to
3 be crushed by radiation?

4 I just -- I don't think that this panel says
5 anything about what radiation can do to a human being.

6 JUDGE WOLFE: Is your question, then, to the
7 witness whether in his mind there is sufficient warning to
8 the reader of the effects of radiation? Is that your
9 question?

10 MR. GROESCH: Not necessarily. It just --

11 JUDGE WOLFE: Well, I'm trying to help you. I
12 thought I was trying to do that.

13 State your question once again. We'll see
14 where we can go with it.

15 BY MR. GROESCH:

16 Q In your mind does this panel give an
17 individual who would be reading this document sufficient
18 information about what radiation can do to him in order to
19 make him somewhat afraid for his own safety, which is
20 obviously the title of this entire brochure?

21 MR. TURK: I object to the question. As I
22 understand the question now, the cross-examiner is
23 attempting to go beyond the scope of Mr. Perrotti's
24 testimony.

25 Mr. Perrotti in his testimony indicates what

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1 the role of the NRC is in reviewing pamphlets and what his
2 own role has been with respect to the Waterford plant.

3 He indicates therein that the emergency
4 information brochure is primarily an offsite issue within
5 the province of FEMA, that FEMA reviews it, and the NRC
6 then discusses FEMA's comments and comes up with a final
7 determination as to licensing.

8 But I think the depth of detail that the
9 examiner may wish to go into really was a question that
10 should be addressed to the offsite people; i.e., FEMA.

11 MR. GROESCH: Your Honor, I assume that -- Did
12 you tell me to be quiet?

13 JUDGE WOLFE: No, go ahead.

14 MR. GROESCH: Okay.

15 JUDGE WOLFE: It's just about the time of day
16 for me to sigh heavily; that's all.

17 MR. GROESCH: Yes. I also am getting tired.

18 JUDGE WOLFE: Go right ahead.

19 MR. GROESCH: Mr. Perrotti has said that he
20 has also done a parallel assessment of this brochure, that
21 he has used NUREG-0654.

22 I believe that he's also used his common
23 sense, and he has looked at this panel, and I'm just
24 interested in why he thinks that this panel is sufficient.

25 JUDGE WOLFE: Well, this was a subject of one

2-4 1 of your comments, I take it, to FEMA, as part of one of
2 your comments to FEMA, did you or did you not find that
3 this particular sentence, or whatever, that Mr. Groesch is
4 addressing the question to was sufficient?

5 THE WITNESS: Yes. Based on the criterion in
6 the NUREG that the document should include some information
7 on radiation, I expressed to FEMA that I considered that
8 criterion as having been met.

9 JUDGE WOLFE: All right. Obviously, your
10 objection is overruled.

11 Next question.

12 MR. GROESCH: I don't have any more questions
13 of this witness.

14 JUDGE WOLFE: Mr. Cassidy, cross?

15 MR. CASSIDY: Just very brief, Your Honor.

16 CROSS-EXAMINATION

17 BY MR. CASSIDY:

18 Q Mr. Perrotti, in the course of Mr. Groesch's
19 cross-examination questions, he referred to an NRC team.

20 Was it a team that reviewed this brochure, or
21 was that your review?

22 A No, it was my review. There were a few areas
23 where I enlisted comments from the other reviewers in my
24 branch as to their opinion on certain areas of the
25 brochure; but for the most part it was my review alone.

2-5 1 Q It wasn't a team review in the sense of that,
2 in other words?

3 A No, not in any sense of the word was it a
4 team review.

5 Q When you gave your comments to FEMA, could you
6 specifically identify who you passed your comments along
7 to?

8 A I believe all my comments were passed to
9 Mr. Lookabaugh.

10 MR. CASSIDY: Thank you. Nothing further.

11 JUDGE WOLFE: Is there redirect, Mr. Turk?

12 MR. TURK: Very brief redirect.

13 REDIRECT EXAMINATION

14 BY MR. TURK:

15 Q When Mr. Groesch asked you whether the NRC
16 does a parallel review of the brochure along with FEMA,
17 how did you understand the use of the word "parallel"?

18 A Parallel in the sense of an assistance to FEMA
19 and not a parallel primary review.

20 Q Is it your understanding that the NRC and FEMA
21 duplicate each other's efforts here?

22 A No, not at all. For example --

23 Q Who bears -- I'm sorry, did you want to add
24 something?

25 A Well, for example, in anything that pertains

1 to the site emergency plan, the categories of the radiation
2 emergencies, any interface between the onsite plan and
3 the offsite plan, naturally come under the purview of the
4 NRC.

5 So these are areas where I focus most of my
6 attention.

7 Q You indicated in response to cross-examination
8 that you had two concerns over clarity about Exhibit 13.

9 One of those was the siren testing schedules
10 as stated in the brochure vis-a-vis, or as opposed to the
11 way they are stated in the emergency plan; and the second
12 had to do with a paragraph in the brochure.

13 A Yes, that's correct.

14 Q Have those concerns now been resolved to your
15 satisfaction, based on what you've heard at this hearing?

16 A Yes, they are. They are confirmatory in nature,
17 however, pending the change of the plan that was
18 committed to.

19 Q And that's with respect to the siren testing
20 schedule?

21 A Yes, that's correct.

22 MR. TURK: I have no further questions.

23 JUDGE WOLFE: Board questions?
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BOARD EXAMINATION

BY JUDGE JORDAN:

Q You said that your review was pretty much limited to the things that NRC was primarily interested in, namely the onsite, but nevertheless, the two comments that you mentioned that you objected to and that there were changes made were not primarily the NRC.

So it looks to me that you have indeed done a parallel review of the other sections, too, is that not correct?

A That's true, a parallel review, but not in the depth that the areas that pertain strictly to the site emergency plan were involved.

Q Would you say, then, that your review has been primarily on the panel of what radiation is, radiation emergency and the onsite plans?

A Yes. In the map, the general location of the reactor site with respect to the surrounding area.

Q All right. With respect to the section, "What Radiation Is," do you in general, not necessarily for Waterford now, do you in general read that pretty carefully, and do you usually have changes to suggest; or do you read it -- Well, give the Applicant a fair amount of latitude, even though it may be expressed somewhat clumsily, so that you would not change English or things

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1 of that nature? Do you read that pretty critically?

2 A. No. I believe I give them quite a bit of
3 latitude, except where they are very far afield or there
4 is just some outright incorrection, and then I would make
5 a comment on it.

6 Q. You would not, therefore, comment either that
7 this has been -- that the section on "Radiation Emergency,"
8 "What Radiation Is," and so on, would you say that that is
9 a particularly good example, or do you find places that
10 it is sort of clumsily written, but you don't feel that
11 you should pick at it to the point of -- since it is not
12 obviously false?

13 A. I would not nitpick it. In comparing this
14 with the half a dozen or so others that I've reviewed, I
15 find it to be as comprehensive and as clear as those.

16 Q. I see. So you don't object to the use of
17 the language, say, when atoms in some manner are radioactive
18 and can split, you don't mind the word "split" there?

19 A. No. I don't believe that the -- to be
20 technically correct is important at this point.

21 Q. All right. When this is radioactive -- the
22 last sentence in that paragraph, "This energy can be used
23 to make electricity. These radioactive atoms, which..."
24 I would have preferred to use the word "disintegrate,"
25 but "this energy." Is it that energy that is used to

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1 make electricity?

2 A No, sir, but for simplicity, I think that what
3 they have is adequate. There are a lot of areas here where
4 they may not be perfectly technically correct, but in order
5 to be technically correct, I think that you would get
6 into the area where it would be too technical for the
7 general public to understand and to be able to utilize.

8 They have said, "Energy is called radiation."
9 They've given examples of where radiation comes from.

10 They've given an indication of what the
11 reactor is like and where this radioactive matter is
12 formed, and then they go on to explain what the
13 emergencies are.

14 I think that the continuity is good, even
15 though there are some areas that are very simple and not
16 perfectly technically correct.

17 Q Have you agreed or challenged the statement
18 that, "Living next to a plant like Waterford 3 will add
19 one millirem per year"? Did you consider that statement?

20 A I reviewed that statement, Your Honor, and I
21 did not challenge it, no, sir.

22 Q Do you agree with the statement that, "Your
23 house or some other building can often be a good shelter
24 if there is too much radiation in the air"?

25 A Yes, sir, I do, under certain conditions,

2-10 1 certain types of radioactive material.

2 Q Such as?

3 A For example, a plume of radioactive material
4 that is passing, being indoors and closing windows and
5 turning off air conditioning units to where you will not
6 draw in outside air can effectively reduce the
7 concentration of the material inside the house compared to
8 outside the house.

9 It does not provide much protection in the
10 way of shielding against direct gamma radiation, however.

11 Q In a typical cloud?

12 A From a typical cloud or from deposition.

13 Q All right. Let's take a typical cloud passing
14 over a house, say a residence. What is the major
15 dose? What is the source of the major dose to the
16 residents of the house?

17 Is it the plume? Is it the gamma radiation
18 from the plume that penetrates the house, or is it
19 the radioactivity that gets into the house and is
20 breathed by the occupants?

21 As a health physicist, you probably have
22 studied that.

23 A I would say that it's the direct radiation
24 from the plume.

25 Q And is the house a good shelter when there is

2-11 1 too much radiation from the plume?

2 A Not very effective. A typical wood-frame
3 house would offer very little shielding.

4 A brick home would offer substantially more.
5 If the people went into their basement which was
6 underground, they would be sheltered somewhat more than
7 if they stayed on an upper level.

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1 BY JUDGE JORDAN:

2 Q But you don't think that the statement as it
3 exists is misleading?

4 A No, because in order to clarify it, then you
5 would have to start to identify what particulate matter
6 is, what direct radiation is. It would almost mean putting
7 a glossary back in, like it was on one of the original
8 drafts that I had seen.

9 Q If the statement were to read, "In the event
10 that there is not sufficient time to evacuate, then go
11 into the house and take whatever protection it gives you,
12 it is better than staying outdoors," that would be es-
13 sentially as short as this. Would that not be more
14 accurate?

15 A Yes, I would consider that to be an accurate
16 statement.

17 Q Now, the FEMA witnesses stated that they
18 used, in order to judge the adequacy of the brochure,
19 they would see if it meets the NUREG-0654 criteria. That
20 in itself is usually not a very large job. It is fairly
21 simple to see if it meets the four criteria.

22 They also say, however, they do exert some
23 judgment. Now, do you have a similar situation in which
24 it is a matter of judgment as to whether the brochure is
25 adequate to do the job, or is it just a matter of meeting

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1 0654 criteria? Do you try to go further than just 0654
2 and insist -- or at least recommend strongly to FEMA that
3 improvements be made?

4 A It is a great deal of judgment. I admit
5 that. The criterion in the NUREG are general. In order
6 to meet the NUREG, they only have to have four elements.
7 And this certainly has much more information than the
8 minimum requirement of the NUREG.

9 In evaluating one of these brochures, I take
10 into consideration the other brochures that I have
11 examined, the type of plant that is applying for the
12 license, and in general rely on my background and ex-
13 pertise and good judgment as to what would be an adequate
14 brochure.

15 Q All right. In answer to Question 10, Page 4,
16 where you were asked: "Will the NRC Staff review the
17 adequacy and the implementation of the coordinated public
18 information and education program, including the publica-
19 tion and dissemination of the Applicant's public informa-
20 tion brochure," your answer is "Yes. The NRC Staff will
21 review FEMA's comments."

22 Now, do you have a schedule for this, or is
23 this going to be a big job, something that is off in the
24 future? When do you think you will be able to tell FEMA
25 or decide that indeed the brochure is adequate, and what

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1 will be involved in making that?

2 A It is a little bit complicated, Your Honor.
3 I'm not exactly sure of these dates, but I will give you
4 a rough outline of the schedule that will take place.
5 We have at the moment FEMA's interim comments on state and
6 local plans, which includes the evaluation of the bro-
7 chure.

8 The on-site emergency preparedness appraisal is
9 scheduled for February 22nd. The exercise is scheduled
10 for April 13th. The state plan is being revised and is
11 supposed to be submitted back to FEMA this month. And
12 from that point it takes approximately 90 days before we
13 will get the final report from FEMA.

14 So we're talking about three months from now.
15 Certainly before the issuance of a full-power license
16 these things will be in place.

17 Q Since FEMA has essentially signed off on the
18 brochure, according to Mr. Lookabaugh who was here just
19 now -- Instead of trying to remember, let me --
20 It says -- the brochure -- meets the requirements of 0654 --
21 if the brochure is clear, concise, well-organized and
22 the only two problems they had with it have been cor-
23 rected.

24 So, apparently, as I gather from that, would
25 you say that FEMA has essentially signed off on the

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1 brochure?

2 A Yes, sir, that's a fair statement.

3 Q All right. What's your job? What do you have
4 to do before you can sign off on the brochure? Why do you
5 have to wait for all of the other things? Why can't you
6 sign off on the brochure now? What are you going to do
7 about this brochure?

8 A We can sign off on the brochure now.

9 Q Oh?

10 A And this will be done in the next supplement
11 to the Safety Evaluation Report, and I will refer to the
12 hearing findings.

13 Q I see. What are you going to say?

14 A That the brochure has been determined to be
15 adequate by FEMA with two exceptions, and I will make
16 reference to those two, and I will indicate that cor-
17 rective action is going to be taken for those two, and
18 that it's a matter of confirmation.

19 Q All right. So you really have then no reser-
20 vations at the moment? If those corrections are made, the
21 NRC is satisfied with the adequacy of the brochure?

22 A Yes, sir.

23 JUDGE JORDAN: Thank you.

24 JUDGE WOLFE: Cross on Board questions, Mr.
25 Churchill?

1 MR. CHURCHILL: No questions, Your Honor.

2 JUDGE WOLFE: Mr. Groesch?

3 RECROSS-EXAMINATION

4 BY MR. GROESCH:

5 Q Mr. Perrotti, you mentioned a glossary in
6 the cross-examination of yourself by Judge Jordan. You
7 said basically there would be -- if we were to spell out
8 these issues -- not these issues, but spell out and be
9 technically correct about radiation that we would have to
10 go back to a glossary; is that a correct statement?

11 A Yes, sir, it is. Either a glossary or you'd
12 have to explain what that word meant, and that would make
13 the text much longer than it is right now.

14 JUDGE FOREMAN: Mr. Groesch, that's Judge
15 Jordan. I'm Judge Foreman.

16 MR. GROESCH: I'm sorry?

17 JUDGE FOREMAN: I just thought maybe you
18 didn't realize who was who.

19 JUDGE JORDAN: I didn't complain.

20 BY MR. GROESCH:

21 Q Are there other brochures that you've signed
22 off on that have had glossaries; is that correct?

23 A Some of them have had, yes.

24 Q Did you as an NRC reviewer say that a glossary
25 would be a bad thing in those brochures?

1 A No, I didn't say that, sir.

2 Q But you're saying in this brochure a glossary
3 would be a bad thing?

4 A No, sir, I didn't say that either.

5 Q I take it that your testimony to Judge Jordan
6 is that the section entitled "What Radiation Is" is not
7 technically correct; is that correct?

8 A I hate to make a general statement like that.
9 There are some small portions of it that are not technically
10 correct. But in order to make them absolutely technically
11 correct, you would have to introduce some terms, and then
12 those terms would be unfamiliar with the general public,
13 and you would have to explain what those terms are.

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1 Q Doing this -- introducing a glossary, it was
2 not a problem in other brochures for you. That's your
3 testimony, is it not?

4 A That's right.

5 Q So your testimony in this hearing is that you
6 would rather be technically incorrect than to introduce
7 a number of terms in order to clarify the real -- what
8 radiation really is?

9 A I believe it has been explained adequately,
10 and I don't think making these few small areas technically
11 correct would add anything to the health and safety of the
12 public.

13 Q Does NUREG-0654 only mandate educational
14 information on radiation?

15 A I haven't memorized the NUREG, and I don't
16 have a copy in front of me. I believe that it states
17 that, that educational information.

18 Q Yes. It's, I believe, G.l.a, "Educational
19 Information on Radiation."

20 A Yes, that's what it states, "Educational
21 Information on Radiation."

22 Q But, in your opinion, that particular NUREG
23 does not mandate that all the information be as technically
24 correct as we can make it?

25 A I believe it implies accuracy is needed.

13-8

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Q So that the statement in the part, "What Radiation Is," that says "This energy can be used to make electricity," it has been your testimony that that's not accurate; isn't that correct?

MR. TURK: Objection. I think we're going over testimony now with no point.

MR. GROESCH: No. I believe that we're not going --

MR. TURK: It has been asked and answered.

MR. GROESCH: Not that particular question. I just want to clarify what came out in the testimony of Judge Jordan.

JUDGE WOLFE: Well, what the witness has testified to upon questioning by Judge Jordan is now a matter of record. You're asking him once again, "Did you say this?" And it has been asked, and it has been answered --

MR. GROESCH: I'll withdraw the question.

JUDGE WOLFE: Yes. All right.

MR. GROESCH: No further questions.

JUDGE WOLFE: Mr. Cassidy?

MR. CASSIDY: Just a couple, Your Honor.

RECROSS-EXAMINATION

BY MR. CASSIDY;

Q Mr. Perrotti, with regard to the technical

13-9

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1 deficiencies, if you will, that you've been discussing
2 with Judge Jordan, would it be fair to say that you're
3 talking about perhaps the brochure as it is currently writ-
4 ten being written -- saying something at a first-grade
5 level, if you will, as opposed to a technically correct
6 answer that may be written at a college physics level,
7 to get technically precise in terms of -- Let's take
8 the example of splitting an atom.

9 A. Yes, that's correct.

10 Q. So would it be your opinion that if you went
11 through and made every point here technically correct that
12 you would be increasing the reading level substantially?

13 A. In my opinion, it would.

14 MR. CASSIDY: Thank you. Nothing further.

15 JUDGE WOLFE: Redirect, Mr. Turk?

16 MR. TURK: One question.

17 REDIRECT EXAMINATION

18 BY MR. TURK:

19 Q. Mr. Perrotti, when you stated that you believe
20 NUREG-0654 implies that accuracy is needed, did you mean
21 to imply by your statement that you believe that the
22 information brochures which are distributed to the general
23 public require absolute technical accuracy in describing,
24 for instance, what radiation is?

25 A. No, I don't believe that.

1 MR. TURK: Nothing further.

2 JUDGE WOLFE: Is the witness to be excused
3 permanently, Mr. Turk?

4 MR. TURK: Yes, he is.

5 JUDGE WOLFE: All right, Mr. Perrotti, you're
6 excused permanently.

7 (Witness excused.)

8 JUDGE WOLFE: We'll have a 15-minute recess
9 and then -- or less -- to go back now to Mr. Groesch's
10 redirect of Dr. Hunter.

11 Fifteen minutes.

12 (A short recess was taken.)

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1 MR. TURK: Judge Wolfe, if I may, I'd like to
2 make a brief clarification.

3 JUDGE WOLFE: Certainly, go ahead.

4 MR. TURK: When Mr. Perrotti was being
5 questioned by Dr. Jordan, he answered a question as to
6 when the Staff would be issuing an approval of the
7 brochure, something -- I'm paraphrasing now, but along
8 those lines, and he indicated that it would be the next
9 SER Supplement.

10 Since he's come down from the witness stand,
11 I've spoken with Mr. Perrotti, and I believe that so the
12 record is correct, it should reflect the fact that
13 Mr. Perrotti intended to state that the approval will be
14 in the SER Supplement which deals with emergency planning.

15 That is not going to be a subject in the next
16 SER Supplement, as I understand the schedule.

17 There will be still one more SER Supplement
18 before what I believe is the last SER Supplement, which
19 would contain the emergency planning discussion.

20 JUDGE WOLFE: Is that of moment sufficient to
21 recall Mr. Perrotti to the stand to make that change in
22 his testimony or clarify his testimony?

23 MR. TURK: At your discretion.

24 JUDGE WOLFE: All right. You may sit still,
25 Dr. Hunter. Would you retake the stand, Mr. Perrotti.

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1 Whereupon,

2 DONALD JOSEPH PERROTTI

3 was recalled as a witness by and on behalf of the NRC
4 Staff and, having been previously duly sworn, was examined
5 and testified further as follows:

6 BOARD EXAMINATION

7 BY JUDGE WOLFE:

8 Q All right. Do you wish to clarify some
9 statement in your testimony or in response to Judge Jordan's
10 questioning?

11 A Yes, sir.

12 Q What is that?

13 A In response to Judge Jordan's question regarding
14 when the NRC would write off on the public information
15 brochure, I originally stated that that would be done in
16 the next supplement to the SER.

17 What I meant was that it would be done in the
18 next supplement to the SER that addressed the emergency
19 planning issues.

20 There are many, many other issues to be
21 addressed by supplements to the SER, and my understanding
22 now since I've discussed it with Counsel was that these
23 other issues are going to be the subject of future SER
24 Supplements and the last one, or the final supplement to
25 the SER is the one in which I will close out all of the

4-3 1 open items on emergency planning for Waterford 3.

2 JUDGE WOLFE: All right. Does this give rise
3 to any questions?

4 (No response.)

5 JUDGE WOLFE: If not, you are now permanently
6 excused.

7 Thank you, Mr. Perrotti.

8 (The witness was permanently
9 excused.)

10 JUDGE WOLFE: All right, Mr. Groesch, back to
11 your redirect of Dr. Hunter.
12 Whereupon,

13 DR. SAUNDRA MacDONALD HUNTER

14 resumed the stand as a witness and, having been previously
15 duly sworn, was examined and testified further as follows:

16 REDIRECT EXAMINATION

17 BY MR. GROESCH:

18 Q Dr. Hunter, have you reviewed the three articles
19 that were submitted to you this morning by Mr. Churchill?

20 A Yes, I have.

21 Q Did you read into the record two paragraphs
22 from one of those articles?

23 A It was one long paragraph.

24 Q One long paragraph?

25 Would you please comment on the relevance of

4-4 1 those three articles to your direct testimony, please?

2 MR. CHURCHILL: Your Honor, I think this goes
3 beyond the scope of redirect. The only question really
4 related to that was did she agree with those, did she
5 agree with the opinions of Dr. Leventhal.

6 That was with the one article, and with the
7 other article I simply asked what was the subject matter,
8 the type of behavior sought to be modified.

9 MR. GROESCH: I can rephrase that.

10 BY MR. GROESCH:

11 Q Dr. Hunter, do you agree with the paragraph
12 that was read into the record by yourself in the article
13 by Howard Leventhal?

14 A This article, "Fear Communications in the
15 Acceptance of Preventive Health Habits," published in
16 the BULLETIN OF NEW YORK ACADEMY OF MEDICINE, I assume,
17 Volume 44, Issue 11, November 1965, represents a summated
18 article about research up until that point in time, up
19 until 1965.

20 The paragraph I read is a very simplistic
21 statement that's well known about conformity and compliance.

22 I don't quite understand what the relevance of
23 it is, especially in relationship to my testimony.

24 The other two articles, "Affect Arousal and
25 Positioning of Recommendations in Persuasive Communications,"

4-5 1 by Howard Leventhal and Robert Paul Singer, published in
2 the JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY, 1966,
3 Volume 4, No. 2, Pages 136-146; and for the record, the
4 other article, "Effects of Varying the Recommendations
5 in a Fear-Arousing Communication," James M. Dabbs and
6 Howard Leventhal, JOURNAL OF PERSONALITY AND SOCIAL
7 PSYCHOLOGY, 1966, Volume 4, No. 5, Pages 525-531.

8 These two articles also represent the type of
9 research that was done up until that point in time where
10 the measurements that were used as the dependent
11 variables were basically paper and pencil measurements,
12 or measurements of behavioral intention. Sometimes
13 these are called behavioroid measurements.

14 Only one article, and that was the one on
15 inoculation, actually dealt with assessing actual
16 behavior as a dependent variable in the different fear
17 levels during the experiment.

18 All these articles, these two articles use
19 measures of susceptibility to the disease, intention to
20 follow through, to either have an inoculation or follow
21 certain general practices.

22 Taylor manifests anxiety scale, self-esteem
23 measurements; there were checks on experimental manipulations
24 which is always a standard thing; a moot adjective,
25 likelihood of getting a disease.

1 These were the types of measurements that were
2 used.

3 More current research really tries to assess
4 actual behavior as objectively as possible.

5 For instance, in my studies of cigarette-
6 smoking behavior in children, we ask them if they smoke
7 cigarettes, and then we validate that measure with a
8 plasma-thiocyanate analysis to see if they are indeed
9 smoking.

10 These articles don't generally do that, except
11 for the one that I referred to.

12 Q Therefore, your testimony is that the Leventhal
13 article was studies that were preliminary, 1965. You have
14 used Leventhal articles in your direct testimony that are
15 later articles; is that correct?

16 A Yes.

17 MR. CHURCHILL: Excuse me, Your Honor. Could
18 I have a point of clarification?

19 I understood his question to be to Dr. Hunter
20 with respect to the first article, did she agree with the
21 paragraph that she had read in, and I don't believe I
22 heard an answer to that.

23 THE WITNESS: It's common knowledge among
24 social psychologists about the issues that are raised that
25 have to do with conformity and compliance.

4-7 1 I didn't quite understand the point of it.

2 MR. CHURCHILL: Thank you.

3 BY MR. GROESCH:

4 Q What you are saying is that you may agree with
5 what Leventhal is saying in this study, but it does not
6 have any relevance, in your opinion, to your direct
7 testimony?

8 A It's just a very general statement about
9 conformity and how conformity is effected depends on
10 various variables under consideration in any particular
11 research study.

12 This is just a general theoretical statement
13 about conformity and compliance.

14 It is actually just a definition about the
15 difference between compliance and internalization.

16 Q And you believe that the later studies of
17 Leventhal which you relied on spoke more directly to the
18 issues in your direct testimony?

19 A The paragraph that I read is looking at the
20 basic issue of do our actions reflect our attitudes, what
21 we say our attitudes are.

22 It's just a general conceptual description of
23 conformity and compliance. It doesn't address the issue
24 of whether or not actual behavior has happened.

25 It only gives a definition.

4-8 1 MR. GROESCH: I have no further questions.

2 JUDGE WOLFE: Board questions?

3 BOARD EXAMINATION

4 BY JUDGE FOREMAN:

5 Q Dr. Hunter, as part of your testimony, you
6 spoke to the question of testing communication instruments
7 as a means of judging their efficaciousness or validity.

8 Are there means for testing a communication
9 instrument, such as a brochure, such as this brochure,
10 Exhibit No. 13, other than actual evacuation?

11 A I am not quite sure I understand the question.
12 Are you asking me how to evaluate the
13 effectiveness of the brochure?

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4-9 1 Q Yes. By what means can one do this, other
2 than, as you have suggested, a practice evacuation?

3 A I don't necessarily think that that's what's
4 in the record that I am saying. I don't think testing
5 the effectiveness of the brochure is done necessarily through
6 a practice evacuation.

7 What I am suggesting is that people are told
8 in the brochure that there will be some sort of rehearsal
9 time and there will be a practice, not only the points
10 that they are going to, but there will be a practice; but,
11 also, there will be practices on how to read the map,
12 whether or not everybody has access to a radio or a
13 television; that somehow there needs to be in the
14 community, in the community setting, there needs to be
15 centers set up where people can go to and there can be
16 role-playing where they will go through the feelings.

17 When the siren goes off, they can go through
18 and express the feelings that they will have, the doubts
19 that they will have that this is truly and emergency
20 situation, role-playing, what reception center they are
21 going to, what pickup center they are going to; an actual
22 cognitive rehearsal, and evacuation would just be a
23 behavioral rehearsal of that situation.

24 I believe that in the brochure it should say
25 that within the next period of time there will be a

4-10

1 practice evacuation.

2 If people feel that they can control an
3 adverse situation, there will be lower levels of
4 anxiety in that situation.

5 Q I am afraid we aren't communicating as
6 communicator and target. You keep talking about a
7 practice evacuation, at least as I hear you, and you say
8 that that wasn't what you had --

9 A That's one of my recommendations.

10 Q But that wasn't what you had recommended?

11 A It is a recommendation I had made.

12 Q And I asked you --

13 A But I did not say that that was a form of
14 evaluating the brochure.

15 Q Then why would one want to do that then?

16 A To reduce the stress that comes from doubt
17 associated with whether or not I can indeed, as a person
18 in that situation, I can handle going to the proper
19 pickup point, if I can read the map properly.

20 I think that the brochure itself arouses
21 needless fear and anxiety itself, and I think that people
22 will throw it away because of the anxiety that's aroused
23 simply by the brochure itself.

24 Four thousand words is a lot of -- gives rise
25 to anxiety.

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4-11

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1 The frustration of dealing with the map and
2 trying to read the map would cause anxiety. I know it
3 would give anxiety to myself. I have difficulty reading
4 maps, and I know if I saw the map, I would feel -- my
5 self-esteem would be very low and I would feel like I
6 couldn't handle the situation at all, and in order to
7 deal with that, I would probably throw the whole brochure
8 away and just avoid the anxiety that the brochure is
9 causing me.

10 Q So what you are saying is you are recommending
11 that there be some type of an evacuation practice in order
12 to alleviate the anxiety that had been engendered by the
13 brochure itself?

14 A Right, and people not knowing exactly what to
15 do. People have less anxiety and more self-efficacy, if
16 they believe that they will be able to handle that situation
17 if it should arise, that they have walked through the
18 procedures that they are going to have to go through if
19 that situation should arise, they have actually walked
20 through it, like a dress rehearsal.

21 Q And so I think I hear you saying, and you can
22 correct me if I am wrong, that the brochure as it stands
23 now, is not enough --

24 A That is correct.

25 Q -- in order to prepare people for a potential

4-12 1 emergency?

2 A That is correct. And I am also saying that
3 there are things that should be put in the brochure. There
4 should be different sorts of arrangements.

5 Based on the research that I know, there should
6 be different sorts of arrangements within the brochure.

7 For instance, I have misplaced my brochure
8 already. When you open it up, as I recall, on the left-
9 hand side, it is "Things To Do," and on the right-hand
10 side, it's "Why Should You Do Them."

11 This is how it's opened up; is that correct?

12 Q Well, one of the things that bothers me is I
13 think you have the outdated brochure.

14 A No, it is just Xeroxed.

15 Q Oh, I see. Okay.

16 A So you get the brochure and the way it opens
17 up, you have "Things To Do" here, and then you have, you
18 know, perhaps, why you should do them, but it's not
19 real clear here.

20 The real reason why you will be able to do them
21 is somewhere hidden in here, "Radiation Emergencies,"
22 that sort -- this page here, "What Radiation Is,"
23 "Radiation Emergencies."

24 So the first thing, I open up the brochure,
25 and I've got things that I have to do and it's in a lot

1 of words, and you've all assumed common meaning here.

2 You know, the communicator and the target,
3 whether or not we share common meaning is often assumed
4 in the communication process.

5 When an idea goes into the message and the
6 challenge, that's called the decoding process, and we
7 assume that the encoding process from the message and the
8 channel goes back into the head and interpreted in the
9 exact same manner.

10 For instance, when I first moved to --

11 Q I understand, and therefore, because we
12 have to --

13 A Well, these words -- it's already been
14 testified that some of these words might not have common
15 meaning, and so we have here, "Things To Do" on this
16 left-hand side, and we have assumed common meaning there.

17 Then there's no real reason why I should do
18 those things, you know, until I take the whole thing
19 apart and I find out, oh, there might be an accident, and
20 that's why.

21 I don't think that the fear level is even
22 at a minimal threshold in this for people to take it
23 seriously.

24 I think the placement, the minimal fear
25 level, the feelings of low self-esteem associated as to

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1 whether or not the individual can actually follow through
2 with what's asked of them in the brochure, I think all
3 these things are going to cause anxiety and people will
4 just toss the brochure away and avoid that anxious
5 situation.

6 Q And further--and this is my interpretation of
7 what you are saying; correct me if I'm wrong -- that there
8 should be some kind of group meetings or small group
9 meetings to further elaborate on this matter?

10 A Yes.

11 Q Whether that be in the form of a practice
12 evacuation or additional educational session, that that
13 would be highly efficacious to make this brochure do the
14 job that it's intended to do?

15 A Yes. If I may be real specific, I would
16 recommend that when you open up the brochure, if you
17 follow this format, on the left-hand side you give
18 specifically what can happen if there's an emergency,
19 specific problems.

20 And on this side, you give specific answers to
21 each of those problems.

22 You also say that there will be practice
23 sessions at their local schools or community centers or
24 reception centers, and you also say that there will be
25 a practice evacuation.

1 I'm talking about the ideal type. If you are
2 really concerned about people being evacuated and lives
3 saved, this is what is going to have to be done.

4 Other than that, it's just playing games; it's
5 not real.

6 JUDGE FOREMAN: I think that's all the
7 questions I have. Thank you.

8 BOARD EXAMINATION

9 BY JUDGE WOLFE:

10 Q When you were holding the brochure in your
11 hand and you said, "This side..." has something on it,
12 and your suggestion was that the other side be changed,
13 the record doesn't reflect what pages --

14 A The sides I'm talking about?

15 Q Yes.

16 A The pages aren't numbered, so I --

17 Q No, they are not. I take it when you were
18 speaking initially, you were speaking of that portion of
19 the brochure that when you open it up as it is now made
20 up, the left side of the page is captioned, "What To Do
21 If You Hear the Outdoor Sirens."

22 A Yes, that is the left side.

23 Q And when you referred to the other side, you
24 were speaking to what is now the page which is now
25 captioned, "A Message To Our Neighbors and Friends."

A Yes, that's correct.

15-1 1 JUDGE WOLFE: Is there cross on Board
2 questions, Mr. Churchill?

3 RECROSS-EXAMINATION

4 BY MR. CHURCHILL:

5 Q Dr. Hunter, would there be fear levels as-
6 sociated with a practice evacuation?

7 A There would be -- Well, you need to have a
8 certain amount of fear level. That was my original testi-
9 mony.

10 And I might say that the article you gave me
11 supports my notion of brochures having different fear
12 levels based on the distance from -- The article in here
13 supports that.

14 Q Excuse me. Perhaps I should rephrase my
15 question.

16 If a practice evacuation were to take place,
17 would the people feel fear? Would there be a fear level
18 motivating them to participate in the evacuation?

19 A Not if it's properly planned with role-playing
20 sessions in small neighborhoods or community centers. Then
21 they know that it's going to happen and what to do, what
22 their feelings are going to be.

23 If they know specific feelings and places to
24 go and the events that will happen, the fear will be aroused,
25 which you want. You want a certain amount of fear aroused

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1 so the people will take it seriously and follow through.
2 But the fear will be alleviated if they know exactly what
3 they're going to do and what they're going to feel.

4 Q Thank you, Dr. Hunter.

5 JUDGE WOLFE: Mr. Turk.

6 MR. TURK: I have a few questions.

7 RECROSS-EXAMINATION

8 BY MR. TURK:

9 Q I'm not sure I understand your bottom line on
10 this brochure. I thought I understood it. But in
11 responding to Judge Foreman's question, I heard you state
12 that this brochure arouses needless fear.

13 Is it your position that this brochure creates
14 more fear than necessary?

15 A I think the brochure itself, without even
16 addressing what it's talking about --

17 Q You mean the fact that a brochure is distri-
18 buted arouses too much fear?

19 A No. The fact that there is a lot of words in
20 it causes anxiety. The fact --

21 Q What is the --

22 A -- that there is a map in it that I have to
23 deal with --

24 Q So it's fear of not being able to understand
25 the document that you're now talking about?

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1 A That's right.

2 Q Rather than fear of the emergency situation.

3 A Well, I said above and beyond that. I mean
4 that's another issue that I stressed.

5 Q So what you're saying really is that there is
6 fear of the emergency, and there is fear of having to read
7 this document?

8 A That's right.

9 Q And you think that this brochure arouses too
10 much fear with respect to being able to understand it;
11 is that your position?

12 A Well, I don't know if "fear" is the right
13 word. But I would suspect that it arouses a great deal
14 of anxiety, and it will encourage people to avoid reading
15 it.

16 Q Do you feel that the brochure arouses the
17 proper level of fear concerning the emergency situation
18 that could arise?

19 A No.

20 Q There it's insufficient?

21 A Right.

22 Q Now, if I'm not mistaken, you haven't reviewed
23 other brochures -- That's correct, isn't it?

24 A That's correct.

25 Q And you wouldn't know then how this brochure

15-4

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1 compares, in terms of its ability to arouse the proper
2 level of fear, how it compares to other brochures?

3 A. No.

4 Q. My statement is correct then, right?

5 A. I would not know how this brochure compares
6 to other brochures; that is correct.

7 Q. And if I'm also not mistaken, earlier when we
8 did voir dire, you stated that you hadn't taken any courses
9 in radiation or health physics and hadn't participated
10 in emergency planning or emergency information brochure
11 drafting. That's correct, isn't it?

12 A. Yes, that's correct.

13 Q. Do people respond the same way when they're
14 feeling fear as when they're relaxed without feeling
15 fear?

16 A. No.

17 Q. In the event that you had a practice evacua-
18 tion then and -- Well, let me ask you. Would people feel
19 the same degree of fear that they might feel in the event
20 of an actual emergency?

21 A. If you do it exactly as I suggest, you want
22 to arouse some anxiety, you --

23 Q. Do you want to arouse --

24 A. -- and you want to tell people how to
25 alleviate that anxiety.

15-5

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1 Q Is it your --

2 A You don't just arouse it on its own. You tell
3 them how to overcome it. So then they can have feelings
4 of self-efficacy, and they have control over the situa-
5 tion.

6 Q Would it be your intention to arouse the same
7 level of fear or as close to the level of fear that might
8 be aroused by an actual radiation emergency?

9 A No. If you arouse too much fear, research
10 has shown that individuals will totally avoid the situation,
11 won't want to deal with it. You would not -- I'm not
12 recommending that at all.

13 What I was recommending is I think we need to
14 have a study to understand exactly what fear levels are
15 in areas around Waterford, and what the sufficient fear
16 threshold would be in order to have someone not disregard
17 the brochure, to take it seriously without causing them to
18 have too much fear and anxiety.

19 It's a fine line that needs to be assessed.

20 MR. TURK: I have no further questions.

21 JUDGE WOLFE: Mr. Cassidy.

22 MR. CASSIDY: I have no further questions, Your
23 Honor.

24 JUDGE WOLFE: Redirect, Mr. Groesch?

25 MR. GROESCH: Dr. Hunter, the first question

1 that Dr. Foreman asked was along the line of are there
2 ways of testing the stress levels of this brochure, other
3 than an actual evacuation. I believe I'm not far afield
4 from that. Was that your question?

5 JUDGE FOREMAN: No, to test the efficacy,
6 whether the brochure will do what it is intended to do.
7 I wasn't asking about anxiety levels or stress levels.
8 That's what I intended anyway.

9 MR. GROESCH: All right. So you were not
10 asking -- you were not asking how to -- how a psychologist
11 would be -- would measure the stress level in a document.
12 Okay.

13 JUDGE FOREMAN: I just asked her to find
14 some measure of how good, so to speak, this particular
15 version of the brochure is.

16 MR. GROESCH: I won't get into that then.

17 All right. I have no further questions.

18 JUDGE WOLFE: Is the witness to be excused
19 permanently?

20 MR. GROESCH: Yes, Your Honor.

21 JUDGE WOLFE: The witness is excused
22 permanently.

23 (Witness excused.)

24 JUDGE WOLFE: All right. Let's take a reading
25 now. As I understand it, we are proceeding to rebuttal

15-7

1 testimony.

2 I would like to get some expression from the
3 parties. I have to advise the United States Marshal
4 whether we are proceeding beyond six o'clock this evening.
5 I had advised the United States Marshal we would be here
6 as late as nine o'clock tonight.

7 Will the parties consult among themselves
8 now and delegate someone to advise the Board how late we
9 should proceed this evening and whether we'll be able to
10 get all the rebuttal, plus the closing statements -- and
11 I'm limiting closing statements to no more than ten
12 minutes; and if Mr. Groesch wants to have Mr. Fontana
13 split his closing statement, each will have five minutes
14 apiece.

15 I would caution all parties that closing
16 statements will be restricted and will not be allowed to
17 exceed the scope of this limited reopened hearing; namely,
18 the adequacy of the revised brochure.

19 All right. Do the parties want to consult?
20 We will remain in place for a few minutes while you come
21 up with some idea -- consensus on timing.

22 (A short recess was taken.)

23 JUDGE WOLFE: All right. May I have a report,
24 please?

25 MR. CHURCHILL: Your Honor, Applicant has its

15-8

1 two rebuttal witnesses. I estimated -- and I think con-
2 servatively -- that it might take about an hour, certainly
3 no more -- for each -- for the direct testimony of
4 each.

5 JUDGE WOLFE: That's two hours then, or one
6 hour?

7 MR. CHURCHILL: Yes. I hope I'm overstating
8 that by a wide margin. I just don't have a feel for how
9 long it takes to go through that.

10 JUDGE WOLFE: All right.

11 MR. CHURCHILL: Each witness -- There will
12 be cross-examination by three parties and questions by the
13 Board.

14 It seemed -- There seemed to be so much un-
15 certainty about how long that process would take that the
16 parties are in agreement that it would probably be pru-
17 dent to go as late as the Board would like to this even-
18 ing.

19 I suspect that a large part of the -- a large
20 determination in this will be how much cross-examination
21 Mr. Groesch has. But he's unable to say at this time. He
22 has not yet heard the testimony.

23 The risk, I suppose, of not going this evening
24 might be that Mr. Groesch wouldn't have as much time for
25 cross-examination as he might like.

15-9

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1 JUDGE WOLFE: Well, is there any -- Do you
2 plan to put your two witnesses on as a panel or sepa-
3 rately?

4 MR. CHURCHILL: Separately, Your Honor.

5 JUDGE WOLFE: Well, let's consider Mr.
6 Groesch's rebuttal through Ms. Duplessis. What's the
7 estimate on that? How long will that take?

8 MR. GROESCH: We're not going to put on Ms.
9 Duplessis for rebuttal testimony. We have decided against
10 that.

11 JUDGE WOLFE: You will have no rebuttal testi-
12 mony?

13 MR. GROESCH: That's correct.

14 JUDGE WOLFE: I see. All right. So we're
15 just having Applicant's rebuttal testimony.

16 All right.

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1 JUDGE WOLFE: If we were to proceed to --
2 I would like to be in a position to tell the officials
3 here that we will be finished at least tonight at 6:00,
4 or that we plan to proceed sometime beyond 6:00. What is
5 your suggestion?

6 MR. CHURCHILL: We had talked about nine
7 o'clock, Your Honor. That's what we meant when we --
8 which we thought was the Board's suggestion. We thought
9 we should go all the way.

10 JUDGE WOLFE: All right.

11 Call your first rebuttal witness, Mr. Churchill.

12 MR. CHURCHILL: Your Honor, I'd call Dr.
13 Dennis S. Mileti to the stand.

14 JUDGE WOLFE: Would you remain standing and
15 raise your right hand.
16 Whereupon,

17 DENNIS S. MILETI
18 was called as a witness by and on behalf of the Applicant
19 and, having been first duly sworn by the Administrative
20 Judge, was examined and testified as follows:

21 JUDGE WOLFE: Please be seated.

22 DIRECT EXAMINATION

23 BY MR. CHURCHILL:

24 Q Dr. Mileti, would you please state your full
25 name and place of employment.

1 A My name is Dennis S. Mileti, and I am
2 Associate Professor of Sociology at Colorado State Uni-
3 versity.

4 Q Dr. Mileti, what do you consider your primary
5 area of expertise to be?

6 A My specialty within sociology is individual
7 and organizational response to risk, both in times of
8 normal situations, as well as emergencies, as well as
9 response to information about risk.

10 Q Could you briefly describe the training you
11 have had in the area of how people respond to risk and
12 developing information about risk.

13 A My formal education in these areas began in
14 1971 at the University of Colorado where I was part of
15 an interdisciplinary research team to assess the state of
16 knowledge in the behavioral sciences in references to how
17 people and organizations deal with about 15 sorts of
18 different geophysical hazards.

19 I received my doctorate in 1974, and I have
20 been studying in the area myself ever since.

21 Q Do you think you could speak a little closer
22 to the mike? Thank you.

23 Could you summarize -- Have you finished?

24 A Yes.

25 Q Could you summarize your research experience in

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1 this area?

2 A My research experience in this area began in
3 1972 when I researched the Rapid City flood disaster, in
4 reference to how people responded to the warnings that were
5 given there on two different occasions.

6 After that I had a National Science Foundation
7 Grant to explore the implications of a new technology,
8 which is still in the process of emerging, and that is,
9 how society and people respond to credible scientific
10 earthquake predictions.

11 Since then I've also had a National Science
12 Foundation Grant to explore the National Flood Insurance
13 Program and how it's being perceived and adopted in dif-
14 ferent communities across the nation.

15 I also serve on several advisory panels and
16 boards in different sorts of capacities.

17 Q And could you please also summarize for us
18 your practical experience in this area?

19 A I have had a variety of different sorts of
20 practical experience in this area, ranging from consulting
21 to groups like the National Weather Service on hurricane
22 and flood warnings to different communities in Colorado
23 and California on warnings themselves.

24 I spent a year working for the California
25 Seismic Safety Commission, working specifically to develop

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1 the state's earthquake prediction warning information
2 system to be able to deliver a message to some folks in
3 an area of California that's likely to experience a
4 great earthquake sometime relatively soon.

5 And I currently serve as well on the board
6 of directors of the United States Geological Survey in
7 reference to the Earthquake Hazard Reduction Program.

8 I've also served on a variety of different
9 Congressional review panels in reference to that program
10 as well.

11 There are other experiences that I've had
12 that I don't recall at this time.

13 Q Do any of them involve experience with
14 emergency planning related to a nuclear power plant?

15 A Yes, indeed they do. I have overviewed and
16 critiqued a few --

17 THE REPORTER: I'm sorry, Doctor. Would you
18 start that answer over, please, and get up to the micro-
19 phone a little more.

20 THE WITNESS: Yes, they do. I have over-
21 viewed and critiqued a few emergency plans for nuclear
22 power plants and offered suggestions about how they might
23 be improved.

24 As well, I am currently under contract and
25 working with a colleague at Oak Ridge National Laboratories

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16-5

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1 to present a state of the art about what we know about
2 human and organizational behaviors that is relevant for
3 emergency planning for nuclear power plants.

4 Q Dr. Mileti, do you have before you a document
5 called "Academic Vita of Dennis S. Mileti" dated January
6 1982?

7 A No, I do not.

8 Q Ms. Ridgway will hand you this document.

9 MR. CHURCHILL: Your Honor, this is a state-
10 ment of his experience and training which was submitted
11 by Applicant to the Board and the parties by letter of
12 January 31, 1983.

13 We have distributed copies to the reporter,
14 and I believe all of the parties have copies of this.

15 BY MR. CHURCHILL:

16 Q Dr. Mileti, is this document an accurate state-
17 ment of your training and experience?

18 A Yes, it is.

19 Q Do you adopt this as part of your testimony?

20 A I do.

21 MR. CHURCHILL: Your Honor, I would move that
22 the Academic Vita of Dennis S. Mileti dated January 1982
23 be bound into the transcript as if read.

24 JUDGE WOLFE: Any objection?

25 MR. TURK: None from the Staff.

1 MR. CASSIDY: Your Honor, we're talking
2 just about the curriculum vitae?

3 MR. CHURCHILL: Uh-huh.

4 MR. CASSIDY: No objection.

5 MR. GROESCH: Your Honor, the Joint Intervenors
6 are objecting. It is my understanding that Dr. Mileti has
7 been brought here in order to rebut the testimony of
8 Dr. Hunter.

9 Possibly I'm not doing this at the correct
10 time. But it is the feeling of the Joint Intervenors
11 that if the case of the Applicant was presented by them
12 in their direct testimony that the information that Dr.
13 Mileti will be giving to this Board could have been pre-
14 dicted by the Applicant, by the materials that we sub-
15 mitted concerning the first brochure, Applicant Exhibit
16 11, which is now -- which has been taken and is not in
17 the record in this proceeding.

18 The material at that time that we presented
19 specifically the affidavit of Earl L. Duncan concerning the
20 emergency information brochure, the paragraph on Page 2
21 on No. 3, "Would you please give your professional
22 opinion on this brochure," one. In the third paragraph
23 of that, it says, "The brochure seems to show" --

24 JUDGE WOLFE: Wait just a moment. You're
25 reading from an affidavit of Mr. Duncan; is that correct?

MR. GROESCH: Yes.

JUDGE WOLFE: That was submitted in response to the Board's order requesting comments on the original brochure?

MR. GROESCH: That's right.

JUDGE WOLFE: You're now reading from that to suggest to the Board that the Applicant should have anticipated what your witnesses were going to testify to?

In the first place, the affidavit related to the original brochure; and, secondly, Mr. Duncan has not testified in this case. So I don't understand your objection to the admission or the incorporation into the record of this witness' professional qualifications. I simply don't understand.

MR. GROESCH: Well, it's my understanding that in the direct testimony of the Applicant, that they present their entire case.

JUDGE WOLFE: Well, let me just lay the foundation for you, Mr. Groesch. It's perfectly permissible -- and done in all courts of law and administrative bodies -- that rebuttal testimony is proper.

Understand that. Now, if it's proper, I don't understand why you're now objecting to the qualifications of this witness. This is only what's involved

16-8

1 here.

2 MR. GROESCH: Yes.

3 JUDGE WOLFE: You have not objected to the
4 man being called as a rebuttal witness. So it's a little
5 bit late for you to be objecting to his being called.
6 He's on the stand.

7 Now, you're objecting to his professional
8 qualifications coming in. I simply don't understand that.

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16-9

1 MR. GROESCH: It is my understanding that we
2 will not be able to rebut whatever testimony that Dr.
3 Mileti gives. Is that correct?

4 I mean, you simply cannot rebut rebuttal
5 testimony.

6 JUDGE WOLFE: That's right.

7 MR. GROESCH: And that if Dr. Mileti gives
8 very long detailed testimony involving large numbers of
9 citations, that the Joint Intervenors will be expected
10 to conduct cross-examination immediately on Dr. Mileti;
11 is that correct?

12 JUDGE WOLFE: What does this have to do with
13 the admission of Dr. Mileti's professional qualifications
14 into the record? And that's the only thing that's before
15 us at this time.

16 MR. GROESCH: All right. Well, I do not have
17 any objections to the admission of Dr. Mileti's vitae
18 into the record at this time.

19 JUDGE WOLFE: All right. The academic vitae
20 of Dr. Mileti is incorporated into the record as if read.

21 (The Academic Vita of Dennis S. Mileti is
22 hereby incorporated into the record and follows.)
23
24
25

ACADEMIC VITA OF DENNIS S. MILETI

January, 1982

PERSONAL

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Colorado State University
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EDUCATION

University of Colorado, Boulder: Ph.D., Sociology, 1974
California State University, Los Angeles: M.A., Sociology, 1971
University of California, Los Angeles, B.A., Sociology, 1968

SPECIALIZATIONS

Organizations, Hazards, Policy, Methods

ACADEMIC APPOINTMENTS

1978- date Associate Professor, tenured, Department of Sociology,
Colorado State University, Fort Collins
1974-1978 Assistant Professor, Department of Sociology, Colorado
State University, Fort Collins
1971-1972 Instructor, Department of Sociology, University of
Colorado, Boulder

OTHER APPOINTMENTS

1981-year Policy Analyst, Seismic Safety Commission, State of
California, Sacramento (on leave from university)

GUEST ACADEMIC APPOINTMENTS

1978-1979 Invited Instructor, American Association for the Advance-
ment of Science, Chautauqua Short Course Program
1975-year Visiting Assistant Professor, University of Southern Cali-
fornia, Graduate School of Public Administration, Intensive
Seminar Program

MEMBERSHIPS

American Sociological Association; Pacific Sociological Association;
Midwest Sociological Society; American Association for the Advancement
of Science; Earthquake Engineering Research Institute; New York Academy
of Sciences; American Academy of Political and Social Science

RESEARCH GRANTS AND CONTRACTS

- 1981-date Principal Investigator, "Nuclear Hazard Warnings and Emergency Evacuation Preparedness," contract for Pacific Gas and Electric Company.
- 1980-1981 Principal Investigator, "Power and Networks in Local Land Use Policy Decisions," Colorado State University Experiment Station.
- 1979-date Principal Investigator, "Behavioral Aspects of the Three Mile Island Incident and Restart," contract for General Public Utilities and Metropolitan Edison.
- 1977-1980 Principal Investigator, "Impacts of Migration on Non-metropolitan Areas in the West," U.S. Department of Agriculture Regional Project, Colorado State University Experiment Station.
- 1977-1979 Principal Investigator, "Adoption and Organizational Implementation of Policy for Community Land Use Regulations," multidisciplinary grant from the National Science Foundation.
- 1975-1977 Coprincipal Investigator, "Socioeconomic, Political and Organizational Response to Earthquake Prediction," multidisciplinary grant from the National Science Foundation.
- 1972-1974 Research Sociologist, "Assessment of Research on Natural Hazards," multidisciplinary grant from the National Science Foundation.

COMMITTEE MEMBERSHIPS

- 1981-date U.S. Geological Survey, Advisory Panel on the Earthquake Studies Program, U.S. Department of the Interior.
- 1981-1982 Pacific Sociological Association, Program Committee for the 1982 Annual Meetings in San Diego.
- 1981-date Governor's Emergency Task Force on Earthquakes, Threat Assessment Committee, State of California, Sacramento.
- 1981-year Governor's Emergency Task Force on Earthquakes, Disaster Reconstruction Committee, State of California, Sacramento.
- 1980-1981 Governor's Science and Technology Advisory Council, Committee on Uranium Mill Tailings Relocation, State of Colorado, Denver.
- 1979-year American Association for the Advancement of Science, Committee on Intergovernmental Research and Development on Fire Safety and Disaster Preparedness, Washington, D.C.
- 1976-1978 National Academy of Sciences, National Research Council, Commission on Sociotechnical Systems, Committee on Socioeconomic Effects of Earthquake Prediction, Washington, D.C.

BOOKS AND CHAPTERS

Implementation of Land Use Policy for Hazard Reduction: Lessons from the National Flood Insurance Program. Senior author with Janice Hutton and Ronald Perry. Lexington, Massachusetts: Lexington Books (in progress), 1982.

"Earthquake prediction and public reaction," with Janice Hutton and John Sorensen. Pp. 129-166 in T. Rikitake (Ed.). Current Research in Earthquake Prediction. Boston: D. Reidel Publishing Co., Center for Academic Publications Japan/Tokyo, 1981.

Technostructures and Interorganizational Relations. With David Gillespie. Lexington, Massachusetts: Lexington Books, 1979.

Organizational Response to Changing Community Systems. With David Gillespie and Ronald Perry. Kent, Ohio: Kent State University Press, 1976.

MONOGRAPHS

Earthquake Prediction Response and Options for Public Policy. Senior author with Janice Hutton and John Sorensen. Boulder: Institute of Behavioral Science, 1981.

Analysis of Adoption and Implementation of Community Land Use Regulations for Flood-plains. With Janice Hutton. San Francisco: Woodward-Clyde, 1979.

Fire Safety and Disaster Preparedness. With the Committee on Fire Safety and Disaster Preparedness. Washington, D.C.: American Association for the Advancement of Science, 1979.

A Program of Studies on the Socioeconomic Effects of Earthquake Prediction. With the Committee on Socioeconomic Effects of Earthquake Predictions. Washington, D.C.: National Academy of Sciences-National Research Council, 1978.

Human Systems in Extreme Environments: A Sociological Perspective. Senior author with Thomas Drabek and J. Eugene Haas. Boulder: Institute of Behavioral Science, 1975. Portions reprinted in Joseph Perry and Meredith Pugh, Collective Behavior: Response to Stress, 1978.

Natural Hazard Warning Systems in the United States. Boulder: Institute of Behavioral Science, 1975. Portions reprinted in Gerald Williams, Public Information Aspects of Warnings. Geneva: United Nations, 1978.

Disaster Relief and Rehabilitation in the United States: A Research Assessment. Boulder: Institute of Behavioral Science, 1975.

Earthquake and Tsunami Hazards in the United States. With Robert Ayre and Patricia Trainer. Boulder: Institute of Behavioral Science, 1975.

Landslide Hazard in the United States: A Research Assessment. With John Sorensen and Neil Erickson. Boulder: Institute of Behavioral Science, 1975.

JOURNAL ARTICLES

- "Intra and interorganizational determinants of decentralization," senior author with Douglas Timmer and David Gillespie, Pacific Sociological Review (forthcoming) 1982.
- "A review of research on public policy adoption," Public Administration Review (forthcoming) 1981.
- "The multidimensionality of organization size," senior author with David Gillespie and Stan Eitzen, Sociology and Social Research 65(4): 400-414, 1981.
- "Heterogeneous samples in organizational research," with David Gillespie, Sociological Methods and Research 9(3): 375-388, 1981.
- "Human adjustment to the risk of environmental extremes," Sociology and Social Research 64(3): 327-347, 1980.
- "Organizational and technological interdependencies," senior author with David Gillespie, Journal of Contemporary Sociology 17(3-4): 132-158, 1980.
- "Stress and transformation," with Ronald Perry and David Gillespie, Indian Journal of Sociology 21(2): 139-147, 1980.
- "Structure and decision making in corporate organizations," senior author with David Gillespie and Stan Eitzen, Sociology and Social Research 63(4): 723-744, 1979.
- "Action and contingency postulates in organization-environment relations," with David Gillespie, Human Relations 32(3): 261-271, 1979.
- "Technology and organizations: deficiencies and lacunae," senior author with David Gillespie and Elizabeth Morrissey, Technology and Culture 19(1): 83-92, 1978.
- "Organizational technology and environmental adaptation-manipulation," with David Gillespie, Scottish Journal of Sociology 2(2): 205-219, 1978.
- "Size and structure in complex organizations," senior author with David Gillespie and J. Eugene Haas, Social Forces 56(1): 208-217, 1977.
- "Technology and the study of organizations," with David Gillespie, Academy of Management Review 2(1): 6-19, 1977. Reprinted in Readings on How Managers Manage. Englewood Cliffs, New Jersey: Prentice-Hall, 1981.
- "An integrated formalization of organization-environment interdependencies," senior author with David Gillespie, Human Relations 29(1): 80-100, 1976.
- "Paradigmatic uses of the goal concept," with David Gillespie, Roy Lotz and Ronald Perry, International Review of History and Political Science 8(30): 1-14, 1976.
- "A refined model of differentiation in organizations," with David Gillespie, Sociology and Social Research 60(3): 263-278, 1976.
- "Attitudinal variables as estimates of behavior," with Ronald Perry, David Gillespie and Roy Lotz, European Journal of Social Psychology 6(1): 74-90, 1976.
- "Organizational adaptations to changing cultural contingencies," with David Gillespie, Sociological Inquiry 46(2): 135-141, 1976.

"The analytic use of case study materials," senior author with Ronald Perry and David Gillespie, Sociological Inquiry 45(4): 72-50, 1975.

"Explaining evacuation symbolically: communication in crisis," senior author with E. M. Beck, Communication Research 2(1): 24-49, 1975.

"Organizational tensions, decentralization and member commitment," with David Gillespie Ronald Perry and Roy Lotz, International Journal of Group Tensions 5(2): 26-37, 1975.

"Collective stress and community transformation," with Ronald Perry and David Gillespie, Human Relations 27(8): 767-788, 1974.

"Change ratios in age-specific percent contributions to fertility," Pacific Sociological Review 17(1): 3-26, 1974. First prize, student paper competition, Pacific Sociological Association, 1974.

"System stress and the persistence of emergent organizations," with David Gillespie and Ronald Perry, Sociological Inquiry 44(2): 111-119, 1974.

"An integrative approach to the study of organizational technology, structure and behavior," with David Gillespie, Current Sociology 23(1): 189-200, 1974.

"Nine demographic factors and their relationship toward abortion legalization," senior author with Larry Barnett, Social Biology 19(2): 43-50, 1972.

OTHER ARTICLES AND COMMENTS

"Organizational differentiation," with David Gillespie, Social Forces 61(forthcoming) 1982.

"Sociological aspects of earthquake prediction," Earthquake Information Bulletin 11(3): 102-105, 1979.

"Correcting for the human factor in tornado warnings," senior author with Patricia Harvey, Disaster Preparedness 2(February): 5-9, 1978.

"Socioeconomic and political consequences of earthquake prediction," with J. Eugene Haas, Journal of the Physical Earth 25(4): 283-293, 1977. Revised and reprinted in California Geology 30(7): 147-157, 1977 and San Francisco 20(4): 60-68, 1978.

"Social scientists and applied research in the United States," The American Sociologist 11(4): 220-221, 1976.

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"Earthquake prediction and other adjustments to earthquakes," with J. Eugene Haas, Bulletin of the New Zealand Society for Earthquake Engineering 9(4): 183-194, 1976.

"Response to research and national needs," Footnotes 2(October): 6, 1974.

REPORTS

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The Three Mile Island Incident and Restart: Stress, Impacts and Mitigation. Senior author with Donald Hartsough. Washington, D.C.: Shaw, Pittman, Potts and Trowbridge (forthcoming) 1982.

Earthquake Prediction-Warning Response for Emergency Organizations to the Prediction Terminology. Senior author with Arthur Svenson. Van Nuys: Southern California Earthquake Preparedness Project, 1981.

Impacts of Population Growth in Agricultural Colorado Communities. With Frank Santopolo. Fort Collins: Colorado State University Experiment Station, 1980.

Socioeconomic Impact of Earthquake Prediction on Government, Business and Community. With J. Eugene Haas. Boulder: Institute of Behavioral Science, 1976.

Interorganizational Relations and Community Service Delivery Systems. Senior author with David Gillespie. Boulder: Center for Action Research, 1976.

BOOK REVIEWS

Whistle-Blowing: Loyalty and Dissent in the Corporation. Alan Westin (Ed.) New York: McGraw-Hill. Sociology: A Review of New Books (forthcoming) 1982.

Unequal Care: Interorganizational Relations in Health Care by M. Milner, Jr. New York: Columbia University Press, 1980. Social Forces (forthcoming) 1982.

Aftermath: Communities After Natural Disasters by H. Paul Friesema et al. Beverly Hills: Sage Publications, 1979 and After the Clean-up: Long-range Effects of Natural Disasters by James Wright and Peter Rossi et al. Beverly Hills: Sage Publications, 1979. Journal of the American Planning Association (October): 484-485, 1980.

A Sociology of Organizations by J. Eldridge and A. Crombie. New York: International Publications, 1975. Contemporary Sociology 5(6): 784, 1976.

CONFERENCE PAPERS

"Earthquake prediction response: cultural comparisons between Japan and the United States," International Sociological Association, Mexico City: August, 1982.

"Influencing corporate decisions on the use of microzonation information," Third International Conference on Microzonation, Seattle: June, 1982.

"Public perception of seismic hazards," Seismological Society of America, Anaheim: April, 1982.

"Perception of growth impacts in energy impacted communities," coauthor, Rural Sociological Society, Ithaca: August, 1980.

"Planning initiatives for seismic hazard mitigation," Conference on Social and Economic Impacts of Earthquakes on Critical Lifelines, American Society of Civil Engineers, San Francisco: May, 1980. Pp. 44-53 in J. Isenberg (Ed.) Social and Economic Impact of Earthquakes on Utility Lifelines. New York: American Society of Civil Engineers.

"Interorganizational and structural determinants of decision making," coauthor, Midwest Sociological Society, Session on Complex Organizations, Milwaukee: April, 1980.

"Community growth and impacts," coauthor, Western Social Science Association, Albuquerque: April, 1980.

"Human response to earthquake prediction," Conference on Earthquake Prediction Information, Status of knowledge Session, Los Angeles: January, 1980. Pp. 36-56 in W. Hays (Ed.) Proceedings of the Conference on Earthquake Prediction Information. Menlo Park: U.S. Geological Survey.

"Perceptions of growth impacts in non-metropolitan Colorado," coauthor, Impacts Session, Conference on Regional Migration Trends, St. Louis: October, 1979.

"Resident perceptions in growth impacted western agricultural communities," senior author, Rural Sociological Society, Vermont: August, 1979.

"The epiphenomenality of organizational size," coauthor, Midwest Sociological Society, Complex Organizations Session, Milwaukee: April, 1979.

"Social factors and response to earthquake prediction," senior author, International Symposium on Earthquake Prediction, UNESCO, Paris: April, 1979.

"Factors affecting earthquake warning system effectiveness," coauthor, International Symposium on Earthquake Prediction, UNESCO, Paris: April, 1979.

"Institutional management of risk information following earthquake predictions," coauthor, International Symposium on Earthquake Prediction, UNESCO, Paris: April, 1979.

"Social aspects of earthquakes," senior author, State of the Art Session. Pp. 179-192 in Proceedings of the Second International Conference on Microzonation. San Francisco: National Science Foundation, November, 1978.

"Organizational size, complexity and decision making," senior author, American Sociological Association, Organizations Session, San Francisco: September, 1978.

"Corporate size as work," coauthor, American Sociological Association, Organization of Work Session, San Francisco: September, 1978.

"Action postulates in organization-environment relations," senior author, Midwest Sociological Society, Organization-Environment Session, Omaha: April, 1978.

"Size and organizational differentiation," coauthor, Pacific Sociological Association, Formal and Complex Organizations Session, Spokane: April, 1978.

"Correcting for the human factor in tornado warnings," senior author, American Meteorological Society, Conference on Severe Local Storms, Omaha: October, 1977.

"Organization and environment adaptation-manipulation," senior author, American Sociological Association, Organizational relations session, Chicago: September, 1977.

"The uses and abuses of scenarios in policy research," coauthor, American Sociological Association, Social Policy Session, Chicago: September, 1977.

"Organizational growth and managerial efficiency," coauthor, Pacific Sociological Association, Social Organization/Formal/Complex Session, Sacramento: April, 1977.

"Organizational manipulation and adaptation to complex environments," Midwest Sociological Society, Complex Organizations Session, Minneapolis: April, 1977.

"Size and structure in complex organizations," coauthor, American Sociological Association, Organizational Change Session, New York City: August, 1976.

"Learning theory and disaster warning response," Society for the Study of Social Problems, Issues in Environmental Analysis Session, New York City: August, 1976.

"Consequences of earthquake prediction on other adjustments to earthquakes," coauthor, Australian Academy of Science Symposium, Canberra, Australia: May, 1976.

"A methodology for future collective events," senior author, Midwest Sociological Society, Collective Behavior Session, St. Louis: April, 1976.

"Operations technology and organizational structure," coauthor, Midwest Sociological Society, Formal Organizations Session, St. Louis: April, 1976.

"Consensus perspectives for organization-environment relations," senior author, Pacific Sociological Association, Organizations Session, San Diego: March, 1976.

"Assessing the consequences of earthquake prediction," coauthor, American Association for the Advancement of Science, Social Risk Session, Boston: February, 1976.

"Technological uncertainty in organization-environment relations," American Sociological Association, Formal Organizations Session, San Francisco: August, 1975.

"A resolution of inconsistencies between size, complexity and the administrative component in organizations," senior author, Midwest Sociological Society, Formal Organizations Session, Chicago: April, 1975.

"Technology and the study of organizations," senior author, Pacific Sociological Association, Formal Organizations Session, Victoria, British Columbia: April, 1975.

"An interaction model for organization-environment relations," senior author, Midwest Sociological Society, Interorganizational Session, Omaha: April, 1975.

"A formalization of organization-environment dependencies," senior author, Pacific Sociological Association, Formal Organizations Session, San Jose: March, 1974.

"Value and role issues for the involved social scientist," coauthor, Pacific Sociological Association, San Jose: March, 1974.

"Drowning: a communications disease," American Sociological Association, Mass Communication and Public Opinion Session, New York City: August, 1973.

"Response to impending system stress," American Sociological Association, What Do We Know Session on Human Behavior and Disaster, New York City: August, 1973.

"A Paradigm and sociology of knowledge for theories of natural law," Midwest Sociological Society, Theory Session, Milwaukee: April, 1973.

"Response to hazard warnings," Organizational and Community Response to Disaster Seminar, Disaster Research Center, Ohio State University, Columbus: July, 1972.

SPEECHES AND GUEST LECTURES

"Social causes of earthquake prediction-warning response: implications for the design of California's warning system and information dissemination," Southern California Earthquake Preparedness Project, Van Nuys: October, 1981.

"An assessment of research on natural hazards: what have we learned and what problems demand further attention," Natural Hazards Research Applications Workshop, Boulder: July, 1981.

"Disaster reconstruction: patterns to guide planning," Governor's Emergency Task Force on Earthquakes, Committee on Long Range Recovery and Reconstruction, Sacramento: July, 1981.

"Socio-cultural dimensions of earthquake risk," Governor's Emergency Task Force on Earthquakes, General Assembly, Sacramento: May, 1981.

"Interorganizational relations and service delivery systems," Health Sciences Center, University of Colorado, Denver: October, 1980.

"Social response to earthquake prediction: local policy issues," Southern California Emergency Services Association, Montebello: February, 1980.

"Human response to weather-borne hazard warnings," Department of Atmospheric Science, Colorado State University: October, 1979.

"Natural hazards, disasters and social research," Department of Sociology, University of Denver: December, 1980, 1979.

"Measuring implementation of public policy for floodplain land use controls," Natural Hazards Research Applications Workshop, Boulder: August, 1978.

"Socioeconomic effects of earthquake prediction and state policy," Conference on State Policy for Earthquake Prediction Technology, Boulder: November, 1977. Pp. in Proceedings of the National Conference on Earthquakes and Related Hazards. Lexington, Kentucky: Council of State Governments, 1978.

"Population, resources and policy for social change," College of Natural Resources, Colorado State University: September, 1977; February, 1978; February, 1980.

"The behavior of government and corporate organizations in an earthquake prediction," American Society for Public Administration, Colorado Chapter, Denver: April, 1976; California State Seminar on Emergency Preparedness and Earthquake Prediction, Palm Springs: June, 1976; Emergency Preparedness Commission for the County and Cities of Los Angeles, Montebello: February, 1976.

"The social organization of hazard warning systems," Engineering Foundation Conference on Decision Making for Natural Hazards, Pacific Grove, California: March, 1976.

"Social impacts of earthquake prediction: implications for policy," California Water and Power Earthquake Engineering Forum, San Francisco: April, 1975; Governor's Conference Room, Capitol Building, Sacramento: May, 1975; General Assembly of the International Union of Geodesy and Geophysics, Grenoble, France: September, 1975; Center for Community Studies, Tokyo: September, 1975; Mayor's Conference Room, Los Angeles City Hall: October, 1975.

OTHER PROFESSIONAL SERVICE

Organizer and Presider

Session on Disasters and Cataclysms: Can Sociology Help, Pacific Sociological Association, San Diego: April, 1982; Session on Collective Behavior, American Sociological Association, New York: August, 1980; Session on Complex Organizations, Pacific Sociological Association, San Francisco: April, 1980; Session on Complex Organizations, Western Social Science Association, Tempe: 1976.

Discussant

Session on Public Response to Earth Science Information, Natural Hazards Research Applications Workshop, Boulder: July, 1980; Session on Warning Systems, National Conference on Natural Hazards, Boulder: June, 1976; Session on Warning Systems, National Conference on Natural Hazards, Boulder: July, 1975; Sessions on Disaster Relief and Warning Systems, National Conference on Natural Hazards, Estes Park: June, 1973.

Participant

Earthquake Prediction Warning Task Force Workshop, Southern California Earthquake Preparedness Project, Asilomar: December, 1981; Symposium on Earthquake Prediction, Preparedness and Human Response, San Fernando: June, 1976; Seminar on Disaster Research, Colorado State University, Fort Collins: February, 1975; Symposium on Complex Organizations: Research and Applications, Western Social Science Association, El Paso: April, 1974.

Editorships

Corresponding editor on Hazards and Disaster, Environmental Sociology, Newsletter of the Section on Environmental Sociology of the American Sociological Association, 1981-date; guest editor, special issue on Environmental Stress, Threat and Social System Response, Mass Emergencies 1(4): 247-346, 1976.

Legislative Testimony

Senate Subcommittee on Science, Technology and Space in the matter of the Earthquake Hazards Reduction Act, Washington, D.C.: April, 1980; Nuclear Regulatory Commission in the matter of emergency planning at the Diablo Canyon nuclear reactor, San Luis Obispo: January, 1982; Nuclear Regulatory Commission in the matter of the impact of floating nuclear plants on tourist behavior, Bethesda: May, 1977 and July, 1978; California State Legislature in the matter of Senate Bill 1950 on liability of the State and Governor in an earthquake prediction, Sacramento: June, 1976.

Legislative Reviews

Final Regulations for floodplain management and protection of wetlands, Federal Emergency Management Agency, Federal Register 176(45): 59520-59538, 1980.

Program Reviews

Earthquake Hazards Reduction Program, U.S. Geological Survey, 1982; Applied Research Evaluation, National Science Foundation, 1979, 1978.

Proposal Reviews

Sociology Program, National Science Foundation, 1981; Civil and Environmental Engineering Program and Earthquake Hazards Mitigation Program, National Science Foundation, 1981; Division of Problem Focused Research, National Science Foundation, 1980; Division of International Programs, National Science Foundation, 1978; Division of Advanced Environmental Research and Technology, National Science Foundation, 1978, 1977, 1976.

Article Reviews

Sociology and Social Research, 1981, 1979, 1978, 1976; Social Forces, 1980; The Social Science Journal, 1981, 1980, 1979, 1978, 1977; Sociological Focus 1980; Human Relations, 1978, 1977; Mass Emergencies, 1978, 1976, 1975; Policy Analysis, 1978; The Sociological Quarterly, 1975.

Department/University Service

Department Self Evaluation Committee, 1982; Department Executive Committee, 1980, 1979, 1978, 1977; Department Graduate Comprehensive Examination Committee, 1982, 1981, 1980, 1979, 1978, 1977, 1976, 1975; Departmental Evaluation of Independent Study Courses, 1978; University Committee on Ethnic Studies, 1976, 1975, 1974; University Committee on Latin American Studies, 1975, 1974.

Courses Taught

Graduate: Advanced Quantitative Analysis, Research Methods I, Research Methods II, Demography and Population, Complex Organizations; Undergraduate: Introduction to Sociology, Complex organizations, Sociology of Natural Hazards, Research Methods, Demographic Processes and Social Change.

VITA ADDITIONS: Dennis S. Milet (1982)

The Three Mile Island Incident: A Study of Behavioral Indicators of Human Stress. Senior author with Donald Hartsough and Patti Madson. Washington, D.C.: Shaw, Pittman, Potts and Trowbridge.

"A bibliography for graduate research methods," pp. 249-255 in Russel Schutt, Alan Orenstein and Theodore C. Wagenaar (eds.) Research Methods Courses: Syllabi, Assignments and Projects. Washington, D. C.: American Sociological Association.

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"Determinants of planning in organizations," coauthor with David Gillespie, Administrative Science Review X(3):21-32, 1980.

"Intra and interorganizational determinants of decentralization," senior author with Doug Timmer and David Gillespie, Pacific Sociological Review 25(2):163-183, 1982.

"Structure and process in the implementation of public policy," Political Science Review 21(1982): accepted and forthcoming.

Book Review, Unequal Care: A Case Study of Interorganizational Relations in Health Care by Murray Milner, Jr. New York: Columbia University Press, 1980. Social Forces 60(3):943-944, 1982.

"Technology and the study of organizations: an overview and appraisal," coauthor with David Gillespie, Academy of Management Journal 2(1):6-19, 1977. Reprinted in J. Kelly and U. U. Baba (eds.) Readings on How Managers Manage. Englewood Cliffs, New Jersey: Prentice-Hall, 1982.

Contributing Editor, Environmental Sociology, Newsletter of the American Sociological Association's Section on Environmental Sociology, 1981-date; column on Natural Hazards and Disasters 28(Winter):6-8, 1981; 30(Summer):10-12, 1982.

"Earthquake prediction response: cultural comparisons between Japan and the United States," International Sociological Association, World Congress of Sociology, Session on the Sociology of Disasters, Mexico City: August, 1982.

"Earthquake prediction and warnings: the human equation," Conference on Hazards Research, Policy Development, and Implementation Incentives: Focus on Urban Earthquakes, Policy Research Center, University of Redlands, Redlands, California: June, 1982.

"Public perceptions of seismic hazards," Seismological Society of America, Symposium on the Decision Making Process in Siting Critical Facilities, Anaheim, California: April, 1982.

Presentation, "Natural hazards, disasters and public policy," the Environmental Management Institute, University of Southern California, Los Angeles: April, 1982.

Speech, "Myths of disaster response," Earthquake Planning Conference for Business and Industry, Los Angeles: May, 1982.

Participant, Earthquake Prediction Warning Communications Workshop, Southern California Earthquake Preparedness Project, State of California, Asilomar, California: December, 1981.

Chairperson, Session on Earthquake Hazard Reduction: Is The National Earthquake Hazard Reduction Program Meeting Its Congressional Mandate. Seventh Annual Workshop on Natural Hazards Research and Applications, Boulder, Colorado: July, 1982.

Member, Review Panel for the Task Group on Socioeconomic Aspects of Earthquakes: National Academy of Sciences, National Research Council, Commission on Sociotechnical Systems, Washington, D. C.: 1982.

Member, Elections Committee, Pacific Sociological Association, 1982-83.

Organizer, Session on Disasters and Cataclysms: Can Sociology Help, Pacific Sociological Association, San Diego: April, 1982.

Participant, Review of the U.S. Geological Survey's Earthquake Hazards Reduction Program, Asilomar, California: April, 1982.

Member, Study Team, Committee on Natural Disaster, Commission on Sociotechnical Systems, National Research Council, National Academy of Sciences, Washington, D.C.: 1982-date.

Member, Executive Committee, Department of Sociology, Colorado State University, 1982-83.

Reviewer, Program for Sociology proposal, National Science Foundation, Washington, D.C.: March, 1982.

Reviewer, The Environmental Professional and Bulletin of the Seismological Society of America, 1982.

Reviewer, Study on Earthquake Hazards Information Dissemination: A Study of Charleston, South Carolina, U.S. Geological Survey, March, 1982.

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16-10

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1 MR. CHURCHILL: Your Honor, I believe at this
2 time it might be appropriate for voir dire, if anybody
3 has any.

4 JUDGE WOLFE: Mr. Turk.

5 VOIR DIRE

6 BY MR. TURK:

7 Q Dr. Mileti, have you testified at any other
8 NRC proceedings?

9 A Yes, I have.

10 Q Could you identify the proceedings in which
11 you testified?

12 A I participated first in a proceeding in
13 reference to the fear associated with floating nuclear
14 power plants. I don't recall how long ago that was.

15 In addition to that, I testified recently
16 at the Diablo Canyon hearings in reference to Pacific
17 Gas & Electric Company's emergency plan.

18 Q Those are the only two proceedings in which
19 you testified?

20 A Yes.

21 Q And was the area of your testimony in those
22 proceedings concerned with the individual or organizational
23 response to risk? Or how would you describe the general
24 subject of the testimony which you gave?

25 A My testimony for Offshore Power Systems was in

16-11

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1 reference to the impacts of a floating nuclear power
2 plant off of a coastal community. That was in reference
3 to how basically the tourist community might perceive and
4 respond to the presence of such a plant.

5 For Diablo Canyon I spoke to the effectiveness
6 of the emergency plan and the emergency warning system,
7 and that touched on both individuals' roles in that emer-
8 gency plan and individuals' response in that emergency
9 plan and organizational involvement as well, organizational
10 involvement in terms of preparedness for dealing with
11 an emergency.

12 Q Was your testimony accepted in those pro-
13 ceedings as the testimony of an expert witness?

14 Maybe I can rephrase that. Were you quali-
15 fied -- found to be qualified as an expert witness in
16 those proceedings?

17 A Yes.

18 MR. TURK: I have no further questions.

19 JUDGE WOLFE: Mr. Cassidy.

20 MR. CASSIDY: Thank you.

21 JUDGE WOLFE: This is voir dire.

22 MR. CASSIDY: Yes, I'm aware of that. Thank
23 you, Judge.

24 /

25 /

VOIR DIRE

1
2 BY MR. CASSIDY:

3 Q Dr. Mileti, on -- I believe it's Page 3 of
4 your vitae, the top of the page is an article apparently
5 that you're in the process of writing, "Implementation of
6 Land Use Policy for Hazard Reduction: Lessons from the
7 National Flood Insurance Program."

8 A Yes.

9 Q Who are you under contract with for that
10 article, if anybody?

11 A It had been through Battelle Research In-
12 stitute to Lexington. And the process of negotiating
13 that is being conducted by the person I'm working with,
14 and his name is Ronald Perry, a sociologist working for
15 Battelle in Seattle.

16 Q That's not the Ronald Perry that has testi-
17 fied at these proceedings?

18 A No, it's not.

19 Q Who is the contract -- Who does Battelle
20 have the contract with?

21 A It's my understanding in talking to Ron
22 about it that Lexington and Battelle have negotiated a
23 series of some half dozen texts. And as part of that
24 general contract, this is one of the ones that they're
25 considering for inclusion.

1 Q Is one of the contracts with the Federal
2 Emergency Management Agency?

3 A I don't know that. It may or may not be.

4 Q Are you aware that the Federal Emergency
5 Management Agency runs and operates the National Flood
6 Insurance Program?

7 A Yes, I am.

8 Q Again, with regard to the monograph captioned
9 "Analysis of Adoption and Implementation of Community
10 Land Use Regulations for Flood-plains," was that done
11 under contract with a federal agency?

12 A I'm sorry. I don't see the one you're talking
13 about.

14 Q Under your heading on the same page entitled
15 "Monographs" --

16 A Yes.

17 Q The second monograph you have listed --

18 A Yes. Now I see it.

19 Yes. That was the result of a piece of work
20 funded from the National Science Foundation.

21 MR. CASSIDY: I have no further questions.

22 JUDGE WOLFE: Mr. Groesch, voir dire?

23 /

24 /

25 /

VOIR DIRE EXAMINATION

BY MR. GROESCH:

Q Dr. Mileti, on Page 6 of your Vita, on the third line down -- third citation, it's got, "The Three Mile Island Incident and Restart: Stress, Impacts and Mitgation."

Are you involved in the restart hearings at Three-Mile Island?

A I haven't been to date, but I'm working with two attorneys through Shaw, Pittman, Potts & Trowbridge in reference to Three-Mile Island, and I have been just about since the accident.

Q The firm Shaw, Pittman, Potts & Trowbridge is the same firm that is representing Louisiana Power & Light here today; is that correct?

A Yes, it is.

Q And they are also representing General Public Utilities in the Three-Mile Island restart hearings; is that correct?

A I believe that that's the case, yes.

Q Is this case in front of the Supreme Court, to the best of your knowledge?

A I believe that it is, yes.

Q The PG&E reactor that you testified for, or you -- Let me just get this straight. You were just

1 hired by PG&E to talk about a floating powerplant?

2 A. No, that's not the case.

3 Q. Okay. Would you explain that a little bit more
4 to me, why this utility hired you?

5 A. My work for Pacific Gas & Electric Company was
6 to conduct assessment and review of their emergency plan,
7 as -- both onsite and offsite emergency plans, and the
8 county plan and to make judgments about how it could be
9 improved, and I made those judgments, conducted that
10 review, gave those judgments to the attorneys, the utility
11 and then gave testimony on the plans at the hearings.

12 JUDGE JORDAN: But that was Diablo, was it not?

13 THE WITNESS: Yes, it was.

14 BY MR. GROESCH:

15 Q. Not a floating powerplant?

16 A. No, certainly not.

17 Q. I see. Were you in the employ of Shaw, Pittman
18 at that time, or were you employed by the Pacific Gas &
19 Electric?

20 A. I certainly was working for Shaw, Pittman at
21 the time. However, it was not Shaw, Pittman who brought me
22 together with Pacific Gas & Electric Company.

23 My encounter with Pacific Gas & Electric
24 Company was through another organization.

25 Q. Dr. Mileti, have you ever designed an evacuation

7-3

1 brochure?

2 A. No, I have not.

3 Q. Are you aware of methods to assess the stress
4 level of a written document?

5 A. No, I am not.

6 Q. You have never assessed the stress level on
7 a human being of a document of any sort?

8 A. Not in reference to a document, no.

9 Q. Do you have any expertise in the physiological
10 consequences of stress?

11 A. No, I do not.

12 Q. Do you have any expertise in -- Have you taken
13 psychology courses, Doctor?

14 A. I have taken social psychology courses, but
15 not psychology courses.

16 Q. No psychology courses whatsoever in your
17 academic career?

18 A. None.

19 Q. In these social psychology courses that you
20 took, are any of these courses relating to coping
21 behavior?

22 A. To the extent that that might have been a
23 relevant topic to discuss in reference to how human
24 beings respond to warnings about disaster or warnings
25 about risks and hazards, because some of my classes covered

7-4 1 those topics.

2 That topic may have been covered, but it
3 certainly was not the major part of the course.

4 Q Have you ever taught any social psychology
5 courses?

6 A Yes, I have. I teach a social psychology
7 course in the Department of Sociology at Colorado State
8 University about once every three semesters. It's
9 called the Sociology of Natural Disasters -- I'm sorry,
10 the Sociology of Disasters, and it includes a great deal
11 of social psychology.

12 I also include social psychology in my
13 general sociology class that I teach to freshmen.

14 Q What textbook do you use in the course
15 entitled Sociology of Psychology?

16 A I don't teach a course entitled Sociology of
17 Psychology.

18 Q I must have gotten that wrong. The major
19 course that you teach, the course that you teach once
20 every three semesters is entitled?

21 A The Sociology of Disasters.

22 Q Disasters. I'm sorry.

23 What is the textbook?

24 A I do not use a textbook in that course. Rather,
25 I use a collection of monographs and journal articles,

7-5

1 half of which are my own.

2 Q Have you ever taken any courses of the social
3 and cognitive determinants of stress?

4 A No, I've not taken a course entitled that.
5 However, topically, certainly, that's been covered in a
6 course I can remember having.

7 Q Can you kind of summarize your research, the
8 primary focus of your research (you have a great number of
9 documets)? Could you give me the kind of major thrust of
10 your research?

11 A The major thrust of the research that I do
12 centers on how one goes about establishing emergency
13 preparedness plans in order to address how warnings are
14 issued to communities when low-probability risk events
15 are about to occur.

16 The kinds of research topics that one might
17 address in that area, for example, include the prediction
18 of an earthquake, the occurrence of a flash flood or an
19 accident at a nuclear power plant.

20 In general, how human beings receive that
21 information, how they process the information, how they
22 take the information that they receive at the time, the
23 interpretations that they make, and the definitions of the
24 situation that they form at the time, and how they actually
25 respond and behave.

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7-6

1 So my research encompasses the gambit of time
2 frame in reference to what one would go about doing now
3 to organize and get ready for such events, how those
4 schemes of organization affect what actually happens and
5 the information and warnings that are given at the time of
6 the event, and then how people actually respond when an
7 actual emergency does occur.

8 I'd say that's just about the gist of it.

9 Q Have you taken courses or taught courses in
10 communications?

11 A No, I have not.

12 Q So you, therefore, have no expertise in the
13 psychology of communications nor in the behavioral or
14 physiological consequences of stress?

15 A Those are two questions and I disagree with
16 your answer to the first one.

17 I do claim expertise in the social psychology
18 or psychology or sociology of communication during periods
19 of threat and risk, and one certainly can become expert by
20 reading, by having experiences, as well as by taking
21 classes in universities.

22 In reference to the second part of your
23 question, I thought you may have been right, but I've
24 forgotten what the second part was.

25 Could you repeat it, please?

7-7 1 Q The second part was are you expert in the
2 physiological consequences of stress?

3 A No, I am not.

4 Q And you say that you are an expert in the
5 communications process, although you have never taught a
6 course nor taken a course in communications?

7 A Well, certainly, the course that I teach in
8 reference to the sociology of disasters includes topically
9 what I consider to be my main research interest, and that
10 is warning systems and emergency information systems,
11 and so I topically do cover what you might consider
12 social psychological, sociological and psychological aspects
13 relating to emergency communications.

14 Q Have you ever taken a course in emergency
15 communications?

16 A No, I have not, but when I was in graduate
17 school, I did take the course that covered a slight
18 amount of that topic, but it certainly wasn't a course on
19 that topic.

20 Q So you have gained your expertise by a lot of
21 reading; is that correct?

22 A In addition to gaining expertise by doing a
23 lot of reading, by doing a lot of research on the topic,
24 including my dissertation, starting with my dissertation,
25 and then performing several major National Science

7-8

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1 Foundation grants successfully, I might add, that address
2 that topic.

3 Indeed, I think that I've participated in
4 generating some of the basic knowledge in the area.

5 Q So now you are saying that the reason that you
6 had not taken the subject is because you have basically
7 created the subject?

8 A That's not true, no. I've contributed to the
9 subject matter and I've contributed to the knowledge base.

10 I did not take formal courses in the communica-
11 tion of -- or psychology of communication when I was in
12 graduate school, and I have not enrolled in any since.

13 Q Therefore, your expertise in communication would
14 be rather severely limited to the subject of emergency
15 communications?

16 A My expertise is on communications in
17 emergencies. Indeed, that is indeed what it is centered
18 on, yes.

19 Q Would you say that part of what you do is
20 centered around what people think at the time of disasters?

21 A It's almost impossible to explain how people
22 respond to risky situations without trying to look at and
23 measure what people are thinking at the time.

24 So yes, what I do does include trying to
25 assess and measure what people's perceptions are when they

7-9 1 are making decisions about how they will behave in an
2 emergency.

3 Q Do you, therefore, measure levels, the same
4 kind of thought process of people around a hazard, whatever
5 hazard before that low probability event occurs?

6 A It would be possible for me to measure people's
7 perceptions of risk in reference to almost anything at
8 almost anytime, yes.

9 The question is whether or not I would want to
10 do such a thing, depending, of course, on why I am doing
11 the research and gathering that data.

12 Q Have you ever done that, measure people's
13 level of perception prior to an event and then during the
14 event?

15 A Yes, in some sense, and I have to go back to
16 my doctoral dissertation to discuss it; and, again, in
17 reference to the earthquake hazard and talk about that.

18 In Rapid City, what happened was that a set
19 of flood warnings were issued. A catastrophic flood
20 occurred, causing a great disaster in the community.

21 About ten days later another set of flood
22 warnings were issued for a comparable flood and I
23 measured people's perceptions, or tried to measure
24 people's perceptions of risk in reference to the first
25 set of flood warnings and then tried to measure them

7-10
1 again in reference to the second set of flood warnings.

2 So one could say that in reference to the
3 second set of flood warnings I had a baseline measure that
4 was associated to the first set.

5 Then in reference to my work in how people
6 perceived the earthquake hazard, we did some measurements
7 of people's perception of risk in reference to the
8 earthquake hazard in northern and southern California and
9 in North Carolina, and in those three places also measured
10 perceptions of risk of organizations, but in reference to
11 organizations we also gathered the same sort of data in
12 Tokyo and Kawasaki.

13 We were waiting in our design to see if an
14 earthquake might occur, and then go and measure those
15 same perceptions, hoping to see some relationship to how
16 people behaved.

17 However, in the design and length of our
18 study an earthquake that would warrant gathering that
19 data again did not occur.

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1 BY MR. GROESCH:

2 Q Did you measure in your doctoral dissertation --
3 did you measure perceptions or behavioral intentions?

4 A I measured people's perceptions in reference
5 to a variety of different variables and asked people what
6 they recalled their behavior was during the flood acci-
7 dent.

8 I guess you could call that a behavioral
9 recollection, if there were such a term.

10 Q Well, let's talk a little bit about these
11 earthquakes -- perception studies that you have done.
12 Did you measure in this perceptions or behavioral in-
13 tentions?

14 A I measured perceptions, how people perceive
15 the earthquake risk. I didn't ask them to speculate
16 about how they thought they might behave in the future.

17 Q Have you ever done any of these perception
18 tests similar to the earthquake tests around the Water-
19 ford 3 facility?

20 A First, let me say I wouldn't call them
21 tests. I'd call them measurements.

22 Q Measurements. I'm sorry.

23 A Secondly, no, I have not done them around
24 the Waterford 3 facility.

25 Q Therefore, the only data that you have at this

18-2

1 time of people and their ideas around low probability events
2 would be the earthquake data that you have at this point?

3 A. No, that's not the case.

4 Q. That's not the case.

5 A. My ideas or assumptions or opinions about how
6 human beings behave in emergencies is based on much more
7 than the data that I have gathered. It's also based on the
8 data that others who have investigated emergencies have
9 gathered.

10 In fact, the National Academy of Sciences began
11 investigating how people and organizations behave in
12 emergencies back in the mid-fifties. The research was first
13 turned to largely because the nation was concerned about
14 the threat of a cold war and folks wanted to know how
15 people in our country would respond if Russia ever attacked
16 with nuclear weapons.

17 And so we started studying natural hazards and
18 how people responded to warnings --

19 Q. We -- Excuse me. When you say "we," does
20 that mean yourself?

21 A. I'm sorry. I meant the community of colleagues
22 with whom I identify, the people who had been involved in
23 research on emergencies.

24 Q. I'm really only interested at this point in
25 what measurements that you have taken.

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306 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 You know, I'm sure that the history of this is
2 very interesting. You know, I really am interested in what
3 you have done. The information -- the perception levels
4 that you have measured, that you had -- you're waiting for
5 an earthquake to happen. Is that --

6 MR. CHURCHILL: Your Honor, the question --
7 He was being responsive to the question. The question was
8 stated: Is that the only reason -- Is that the only
9 basis for your knowledge in this area?

10 And, of course, it wasn't; and he proceeded to
11 explain it.

12 MR. GROESCH: Well, I --

13 MR. CHURCHILL: We can have the question --
14 Could we have the question read back again, Your Honor,
15 because I believe the answer was being responsive to
16 the question.

17 (The question and answer were read back by
18 the reporter as follows:

19 "QUESTION: Therefore, the only data that you
20 have at this time of people and their ideas around
21 low probability events would be the earthquake data
22 that you have at this point?

23 "ANSWER: No, that's not the case.

24 "QUESTION: That's not the case.

25 "ANSWER: My ideas or assumptions or opinions

18-4 1 about how human beings behave in emergencies is
2 based on much more than the data that I have
3 gathered. It's also based on the data that others
4 who have investigated emergencies have gathered.
5 In fact, the National Academy of Sciences began
6 investigating how people and organizations behave
7 in emergencies back in the mid-fifties. The..." --

8 JUDGE WOLFE: Okay, Mr. Churchill.

9 MR. CHURCHILL: When I asked to have the
10 question restated, I don't think that -- it was a fairly
11 long answer up to that point; and I wanted to save her
12 the task of reading the entire answer, because I think that
13 indeed that was the question that was asked. It wasn't
14 limited to his own data, and he was being responsive.

15 I'm sorry. Perhaps I was being presumptuous.
16 I was trying to save the reporter the task of reading the
17 entire long answer to date.

18 (Lench conference.)

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ed
1 JUDGE WOLFE: I think he was being responsive,
2 Mr. Groesch. I will allow the witness to continue.

3 If perhaps you think that you want to go
4 forward with the next question and say, "Limit your
5 answer to what you personally have done," all right.

6 But I think I'll let the witness proceed.
7 Go ahead. Finish your answer.

8 THE WITNESS: The academy first funded the
9 original 18 or 19 studies that were done in the area of
10 disaster research.

11 When those studies were completed, it decided
12 that it would vest the major reports from that work at
13 the Ohio State University at what is now called the
14 Disaster Research Center.

15 Since then that organization has investigated
16 several hundred different sorts of technological and
17 natural emergencies and looked for what they all have in
18 common.

19 At the same time the University of Colorado
20 started in its Natural Hazards Center investigations of
21 risks and hazards.

22 The investigations and studies that have been
23 done from these two groups, as well as others across the
24 globe, which include organizations in Australia and London,
25 for example, produced a rich body of both data and

9-2 1 knowledge about and how and why human beings respond in
2 emergencies.

3 The data I personally collected contribute a
4 small bit to that whole and helped reinforce that knowledge
5 base from which I draw my conclusions about how people
6 and organizations behave in technological and natural
7 emergencies.

8 BY MR. GROESCH:

9 Q It is my understanding that tests that were
10 delivered by yourself, or at least measurements that were
11 delivered by yourself and gathered by you personally or
12 a group that you were working with personally, but you
13 working directly with the group, have gathered information
14 in only two cases, and that is in the case of the Rapid
15 City flood and the earthquake case; is that correct?

16 A No, that's not correct. I've gathered more
17 data than that.

18 The data that I've gathered includes yes, some
19 300 individual interviews with individuals in Rapid City,
20 South Dakota; some 1,000 interviews in reference to the
21 earthquake project, again in southern and northern
22 California and in North Carolina and in Kawasaki and in
23 Tokyo.

24 In reference to the land use study, I did --

25 Q Pardon me, the what study? I'm sorry.

9-3

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1 A The land use --

2 Q Land use.

3 A -- study I did on the National Flood Insurance
4 Program when it was still in the Federal Insurance
5 Administration, I might add, assessed about 50 organizational
6 and community level interviews.

7 I've also gathered information, not interviews,
8 but information about how people responded to the incident
9 at Three-Mile Island.

10 That was not based, I might add, on sample
11 data. That was done on the entire population in the ten-
12 mile radius around the plant.

13 So although that wasn't interviews, that
14 certainly is data on how those people behaved.

15 I'm sure I've collected other sorts of data
16 that I don't recall at this time.

17 Q This land use data, that was in relation to
18 a possible low probability event?

19 A Yes, indeed, the nation's flood hazards.

20 Q Oh, floods. I see.

21 And Rapid City was also a flood event; is that
22 correct?

23 A Yes. However, that was limited to just one
24 type of flood, flash flood --

25 Q Flash flood.

9-4 1 A -- whereas the National Flood Insurance Program
2 includes many types of flooding.

3 For example, riverine floods, flash floods,
4 storm surge, et cetera.

5 Q And the other event is the earthquake event,
6 the thousand people that you interviewed in these various
7 cities?

8 A No, sir, not a thousand people. I did one --
9 my group, our research project, did 1,000 interviews, some
10 of which were with people.

11 Some were with organizations. For example,
12 government organizations and private businesses and
13 corporations.

14 Of course, when you talk to a corporation, you
15 talk to people.

16 Q It's usually easier, yes.

17 So the land use studies dealt exclusively with
18 organizations. I have 50 organizations. Maybe I'm
19 misunderstanding you.

20 A No, you're not. We interviewed --

21 Q Fifty organizations?

22 A We interviewed organizations, yes, and tried
23 to measure a variety of different things, including
24 people's perception of the flood risk in those
25 organizations.

9-5

1 Q Yes, I understand that. Right.

2 What percentage of the thousand interviews
3 that you did concerning this earthquake and possible
4 earthquake dealt with organizations?

5 A We interviewed approximately, and this was
6 back in 1975 and '76, so my recollection must be
7 approximate only, 35 local southern California government
8 organizations, and we interviewed each of these, I might
9 add, twice.

10 We also interviewed approximately 60
11 national corporations that were at the forefront of
12 business in the State of California, and we interviewed
13 each of them twice.

14 We interviewed different relevant congressional
15 committees once, and I don't recall how many.

16 We interviewed different state-level
17 legislative committees.

18 We interviewed local and non-local government
19 organizations.

20 I'm going to start my count over, I've lost
21 track. Thirty in southern California and thirty in
22 northern California.

23 We interviewed approximately 30 non-local
24 government organizations in California.

25 We interviewed approximately 20 federal level

9-6 1 organizations that even though it didn't seem obvious might
2 be involved in response to an earthquake prediction in this
3 nation.

4 Then we interviewed about a dozen national
5 and state-level news media organizations.

6 That's all I recall at this time, and again,
7 we interviewed each organization approximately twice.

8 Q How many -- Let me start this again.

9 In the thousand interviews you did, how did
10 you pick what people, what organizations that you would
11 interview?

12 A We picked the people --

13 MR. CHURCHILL: Excuse me.

14 Your Honor, this is dragging on quite -- much
15 more extensively than I had thought.

16 I am sure by now it must be obvious to everyone
17 in the courtroom that this is one of the most qualified
18 and foremost people in this field in the country, if not
19 the most, and I am not sure that I see the point of this
20 continued voir dire.

21 I wonder if we could request that Mr. Groesch
22 try to shorten it or draw it to a close.

23 There's no question that this man is
24 qualified.

25 JUDGE WOLFE: I think we've heard enough now.

9-7

1 You can make known whether you question the expertise of
2 this witness, Mr. Groesch.

3 MR. GROESCH: I'm just trying to get a sense
4 of how many studies that he has done and dealt with --

5 JUDGE WOLFE: Listen to my question.

6 You should be now in a position to advise the
7 Board whether or not you question the expertise of this
8 witness.

9 Now, you could go on and ask a hundred more
10 questions of this witness. By now you should have a pretty
11 good idea of whether he's an expert witness or not.

12 Do you challenge his competence and expertise
13 and qualifications? If not, let's cease with the voir
14 dire and get into his testimony and let's get on with
15 cross-examination.

16 MR. GROESCH: Frankly, I don't know what his
17 testimony is, and I have a feeling that if I would say
18 fine, let's let this guy testify, and then I go back later
19 and try to ask him some of these questions, that you are
20 going to say, "Mr. Groesch, you should have asked these
21 things on voir dire," and then we will be simply out of
22 luck.

23 I have some more voir dire and I would like to
24 finish it.

25 JUDGE WOLFE: What do you mean you don't know

9-8 1 what this witness is going to testify to?

2 You don't know with any precision explicitly
3 what he is going to say, but I had understood his
4 rebuttal was directed to the direct testimony of
5 Dr. Hunter, and certainly, you know what Dr. Hunter spoke
6 to, correct?

7 MR. GROESCH: That's absolutely correct.

8 JUDGE WOLFE: Now, with that in mind and with
9 what you have examined on voir dire, aren't you now in a
10 position to say whether or not you challenge his
11 expertise to comment in rebuttal to Dr. Hunter's
12 testimony?

13 We don't want to waste time.

14 MR. GROESCH: I don't want to waste time,
15 either. It's not pleasant for me, so I'm simply trying to
16 do the job as best I can.

17 JUDGE WOLFE: All right. Go ahead. Continue
18 with your voir dire.

19 BY MR. GROESCH:

20 Q Dr. Mileti, would you say that the focus of
21 your studies personally, that the focus of your work that
22 you have personally done has been directed toward
23 organizations primarily, since your doctoral dissertation?

24 A Shall I answer that question before or after
25 the question you asked me about sampling in the earthquake

9-9

1 study?

2 Q I was thrown off my questioning.

3 I don't remember the question on the
4 earthquake study. I was interrupted by Mr. Churchill.

5 I would like to have the question read back to
6 me, if that's possible.

7 JUDGE WOLFE: Do you remember the question,
8 Doctor?

9 THE WITNESS: Yes, I do.

10 JUDGE WOLFE: Would you repeat it, to the
11 best of your recollection, and then we'll take it from
12 there?

13 BY MR. GROESCH:

14 Q Could you possibly paraphrase it, and then
15 I could --

16 A As I recall, you asked me how I picked the
17 people and organizations that we interviewed in the
18 earthquake study.

19 Q Yes, that would be fine.

20 A We picked approximately 360 to 400 families
21 to interview in the earthquake study. We were selecting
22 them from the Santa Clara County area.

23 In fact, we decided we wanted a probability,
24 that is, representative sample of that community.

25 We decided in order to be able to generalize

9-10 1 our findings and conclusions to the entire community, that
2 the sample would most appropriately be a stratified
3 disproportionate random sample.

4 A stratified disproportionate random sample,
5 which is the technique we used to pick those folks,
6 required that we stratify the community into the relevant
7 different segments that we wanted to sample.

8 We decided we wanted to insure representation
9 of minority groups that lived in Santa Clara County, and
10 under-represent in terms of proportionate selection the
11 number of Anglos in the community.

12 We therefore stratified the Santa Clara County
13 area into Mexican-American population, an Anglo population
14 and a black population, and selected a number that would
15 get our total sample frame up to 360 or 400 (I've for-
16 gotten which the level was), and selected from a list,
17 I believe, a list of folks with telephone numbers, that
18 had listed telephone numbers, the appropriate number of
19 people in each strata.

20 We, therefore, proceeded, once those folks
21 were selected, to interview each of those 360 or 400
22 families twice, given the sample design that we had.

23 We selected the organizations for inclusion
24 in that sample in a very curious way. It was a non-
25 probability way, but we tried to --

9-11 1 JUDGE FOREMAN: Excuse me. May I make a
2 suggestion?

3 Did you want an answer in that detail? It
4 didn't seem to me your question called for that much
5 detail.

6 MR. GROESCH: Well, I would prefer his summing
7 up, but, you know, I would hate to slow him down if he
8 thinks that this is necessary.

9 JUDGE FOREMAN: Perhaps you could adjust your
10 answer, Dr. Mileti, in view of all things considered.

11 THE WITNESS: Yes, I will.

12 We selected organizations in a way most
13 appropriate to represent how organizations would respond
14 were there a credible earthquake prediction in the State
15 of California.

16 BY MR. GROESCH:

17 Q Dr. Mileti, do you research -- Does your
18 research touch on the topic of how an individual prior to
19 a low probability event could avoid being harmed by
20 that event?

21 A I would hope that the point of all the
22 research I do is to avoid harm from low probability risking
23 events.

24 The point is to make those findings useful and
25 mitigate loss in the future.

9-12
1 Q But your studies don't necessarily hit on the
2 topic of how an individual prior to an event could use
3 certain actions, do certain actions in order to avoid
4 harm during that event?

5 A I believe that some of the work I do does in
6 fact address that.

7 For example, one could investigate the
8 relationship between living in a flood plain before a
9 flood and what factors are cause for a person moving out
10 of the flood plain prior to that flood, which certainly
11 would reduce the risk involved to that individual.

12 Q So this one example that you have given would
13 be how an individual could do an action prior to the
14 low probability event in order to avoid being harmed?
15 I'm making a distinction, not actions during an event.

16 In other words, if you moved out, you would
17 move out at some time before the low probability event.

18 It wouldn't be as an evacuation. That's not
19 what you're talking about, moving out.

20 You are just saying you are living on a
21 flood plain. You could possibly be flooded. Why don't
22 we move?

23 That's what people would say, and not that the
24 water is coming, let's get out.

25 A I'm sorry, I --

Q Let me try to restate this.
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1 MR. CHURCHILL: Your Honor, I am not sure
2 this is proper voir dire. I don't know what the relevance
3 of that question is to this man's qualifications.

4 Perhaps we should hear Mr. Groesch's restated
5 question, and I'll withdraw my objection since he is
6 going to restate it.

7 MR. GROESCH: No, I --

8 JUDGE WOLFE: To be frank with you, Mr.
9 Churchill, what he was trying to get at was the best part
10 of his voir dire, even though he wasn't getting at it
11 quite directly.

12 Rephrase your question.

13 BY MR. GROESCH:

14 Q Dr. Mileti --

15 A Yes.

16 Q One example that you gave to show that your
17 research deals with helping individuals avoid harm during
18 low probability events really did not speak to that be-
19 cause the example that you gave was simply the feelings
20 people had about moving out of a flood plain, not during
21 the event of the flood, but before the flood; is that not
22 correct?

23 A That was one example among many that I could
24 have given. I was trying to keep my answer brief.

25 Indeed, I have done research and have prepared

1 many documents and reports and have strong opinions that I
2 believe are sound about things that can be done to help
3 human beings when they experience emergencies, in terms
4 of helping them come to do the best possible thing that
5 they could do at the time.

6 Q Dr. Mileti, how do you validate the retro-
7 spective measures of what people have done after a low
8 probability event? Are not their perceptions distorted?

9 MR. CHURCHILL: Objection. This is cross-
10 examination.

11 JUDGE WOLFE: I agree. Sustained.

12 MR. GROESCH: Your Honor, I have no further
13 voir dire.

14 JUDGE WOLFE: Do you challenge the expertise
15 of this witness?

16 MR. GROESCH: No, Your Honor.

17 JUDGE WOLFE: You do not?

18 MR. GROESCH: No.

19 JUDGE WOLFE: All right. Anyone?

20 MR. TURK: No.

21 MR. CASSIDY: No, Your Honor.

22 JUDGE WOLFE: Proceed, Mr. Churchill.

23 FURTHER DIRECT EXAMINATION

24 BY MR. CHURCHILL:

25 Q Dr. Mileti, are you familiar with the testimony

20-3

1 of Dr. Saundra Hunter in this proceeding?

2 A Yes, I am.

3 Q Dr. Hunter's basic premise seems to be that
4 the purpose of the brochure is to persuade individuals
5 to evacuate in an accident at Waterford 3. Do you agree
6 with that premise; that is, that that indeed is the
7 purpose of the brochure?

8 A No, I don't. I believe that the motivation
9 people receive to do what they do during an emergency
10 is situationally determined. I believe that on the basis
11 of research, evidence that has been accumulated in terms
12 of investigating why it is that people come to behave the
13 way they do in actual emergencies.

14 I think that evidence is conclusive, and it
15 is my opinion that those in my research area know why and
16 how people come to behave the way they do in emergencies,
17 and we possess the means to implement that knowledge.

18 MR. TURK: May I make a request that the wit-
19 ness try to speak a little slower so it's easier to hear
20 his answer to the question?

21 JUDGE WOLFE: Doctor, can you slow down a
22 bit?

23 THE WITNESS: I certainly can, yes.

24 JUDGE WOLFE: All right. It all comes out
25 the same on the transcript, but we have to sort of take

20-4 1 it word by word, phrase by phrase. Okay.

2 BY MR. CHURCHILL:

3 Q If the role of the brochure is not to persuade
4 persons to take certain actions at the time of an emer-
5 gency, what do you believe is the appropriate role of the
6 emergency public information brochure with respect to
7 motivational behavior?

8 A It's my opinion that the role of pre-
9 emergency education, including things like brochures, is
10 informational rather than motivational. I believe that
11 the key to understanding why it is people behave the way
12 they do in emergencies is the situational perceptions of
13 risk that they possess during the emergency.

14 The emergency brochure helps prime people to
15 better be able to more readily and easily understand a
16 future emergency, should they ever go through one.
17 It is not to motivate that future behavior.

18 The emergency brochure should provide in-
19 formation about three things: that is, risk that people
20 may encounter in the future, information about the
21 emergency information they may receive in the future
22 and information about the range of options for response
23 that they may be asked to partake in in the future.

24 Q With respect to the first of those items,
25 information about the risk, do you believe that the

20-5

1 Waterford 3 brochure provides information about the
2 character of the risk that would be involved?

3 A I think in terms of trying to give people
4 information about the risk that would be relevant to
5 understanding why they do what they do should an emer-
6 gency arise, the brochure addresses some of the most
7 important things that they might need to know.

8 For example, it clearly illustrates that the
9 risk is in the air. That's something that was not known,
10 for example, at Three Mile Island by all the people who were
11 going through the accident.

12 It also illustrates that the plant -- or tells
13 that the plant cannot explode. That's another mis-
14 perception that permeates -- or permeated, for example,
15 what people thought at Three Mile Island.

16 I think the things that it addresses are
17 somewhat and relatively adequate.

18 Q The second category you mentioned, the kinds
19 of information that persons could receive at the time of
20 an emergency, is that addressed in the Waterford 3 bro-
21 chure?

22 A Yes, it is. Again, it over -- It states
23 many times that the thing to do is turn to the radio.
24 And more important than that, it helps people understand
25 that the radio would be their source of official

20-6

1 information.

2 Q And, finally, the third item you mentioned
3 I believe was that it describes the range of protective
4 responses that people might be called upon to take. Does
5 the brochure address that subject?

6 A Yes, it does. It talks about three significant
7 behaviors that would be appropriate in some future
8 emergency. They are, first, to seek additional informa-
9 tion; second, sheltering; and third, evacuation.

10 Q Dr. Miletic, do you agree or are you in agree-
11 ment with the general principles cited by Dr. Hunter
12 regarding the role of fear levels in persuasive communica-
13 tion?

14 A In general, I do agree, yes.
15 However, only in general. In particular, I
16 disagree. It's my opinion that motivation or fear or
17 whatever you might want to call it is not appropriate for
18 explaining how it is that people come to behave in an
19 emergency.

20 I think that paradigm is applicable for ex-
21 plaining some sorts of behavior. I think it's in-
22 applicable for explaining why it is people come to behave
23 the way they do in an actual emergency.

24 The motivations or the determinants -- whatever
25 it is you might want to call them -- that cause people to

1 behave as they will in an emergency are situational and
2 come from a better paradigm and perspective than the fear
3 paradigm or perspective.

4 Q When you say situational, you mean the in-
5 formation at the time rather than pre-information, such as
6 that in the brochure?

7 A Absolutely. The information and a variety
8 of other factors that exist at the time centering on that
9 information at the time.

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1 Q Do you believe that it might be harmful and
2 counterproductive to attempt to convey fear levels in the
3 emergency brochure or to attempt to persuade people in
4 that brochure to take a certain course of action?

5 A Yes, I do. I think that there is significant
6 danger in providing people motivation for some future
7 behavior or response in some future emergency, if we were
8 able to do it in a safety information booklet for the
9 following reasons: Behavior in an emergency is not a
10 dichotomy. It's not like quitting smoking, and it's not
11 like stopping being nervous. It's very different. It's
12 on a continuum.

13 The most appropriate behavior in a future
14 emergency may well be to shelter rather than evacuate.
15 Yet if we provided or could provide motivations in a pre-
16 emergency brochure that motivated folks to evacuate and
17 the proper decision or behavior was to shelter, we might
18 be sorry that we did in that future emergency, if the
19 response that those people took was the inappropriate
20 one.

21 Q Do you agree with Dr. Hunter's recommendation
22 that a study be conducted to determine fear levels within
23 the ten-mile EPZ, and that different brochures be prepared
24 reflecting varying fear levels?

25 A No, I do not. And the reason I do not is

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1 that I do not believe that it is the role of the brochure
2 to motivate future behavior. Nor, I might add, do I
3 believe that a safety information brochure could moti-
4 vate future behavior.

5 And on that basis, I don't see any reason for
6 assessing different fear levels in that that knowledge
7 would be used for future motivation of behavior in a
8 brochure.

9 Q Dr. Mileti, do you think that the brochure,
10 taken as a whole -- perhaps I should ask a preliminary
11 question first.

12 You are familiar with the Waterford 3 bro-
13 chure? You have read it?

14 A Yes.

15 Q In fact, were you not asked to comment on it
16 and to help in its preparation?

17 A Yes.

18 Q Now, Dr. Mileti, do you believe that the bro-
19 chure, taken as a whole, will cause people to take a
20 radiological accident or protective actions less seriously
21 than they should, such that their ability or willingness
22 to take the needed protective actions might be compro-
23 mised?

24 A No, I do not. By virtue of its very existence
25 it suggests that an accident can happen.

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1 Q Do you believe that the inability of some
2 people to read the brochure will compromise that of the
3 ability to carry out effective evacuation?

4 A No, I do not. And I don't for the following
5 reasons: As I've already said, people's response in an
6 emergency, despite what some of us may think, is deter-
7 mined by what's going on during that emergency. And if
8 a few folks have not read the brochure and come to that
9 emergency without the knowledge contained in that bro-
10 chure, and the information that they're provided with at
11 the time is sound -- for example, things like sirens going
12 off, which is certainly information, or seeing activity
13 around them, or people engaging in their natural ten-
14 dency in these sorts of emergencies, and that is, to seek
15 information on their own, for example, turning to the
16 media -- those sorts of things determine their actual
17 behavior in that emergency.

18 Indeed, one could have the most elaborate
19 public education campaign ever mounted in this nation,
20 and botch up the warning information during an emergency;
21 and the public would not behave well.

22 By the same token, one could have a good public
23 warning information system during an emergency in a place
24 where there was no prior education and things could go
25 very well.

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1 In fact, we have examples of where that has
2 been the case.

3 Q You mean where there was no pre-information?

4 A Where there was no emergency preparedness,
5 as well as no public education and information. For
6 example, the Missisagwi evacuation that happened a few
7 months back.

8 Q Do people in an emergency tend to seek con-
9 firmation by turning on the radio or the TV?

10 A One of the basic communication processes that
11 has been documented in study after study is that people
12 don't behave like robots. People tend not to believe when
13 they first hear information that something is wrong, that
14 it's going to happen to them.

15 One of the things that has to happen is that
16 that information is psychologically confirmed for them.
17 And one of the ways to have that information be confirmed
18 so they come to perceive that there's a risk so that they
19 will evacuate is to make that information as consistent
20 as possible.

21 The natural tendency in seeking out informa-
22 tion in an emergency is to seek out news and information
23 and turn to the media.

24 Q Dr. Miletic, have there been studies on the
25 effectiveness of pre-emergency or educational materials

20-12 1 on the ability or the effectiveness of the response to
2 an emergency?

3 A Yes, there have. And all of them have reached
4 the same conclusion.

5 However, before I tell what that conclusion
6 is, I want to say very carefully that I know of no expert
7 in this field that would suggest that it is not warranted
8 to do public education. Everyone deeply believes that
9 public education and information is needed and must be
10 pursued.

11 However, the results of the technical studies
12 engaging the effect of public information and education
13 in reference to low probability events, in terms of how
14 people actually behave when an emergency occurs, all
15 conclude that public information and education seems not
16 to alter response or help.

17 Q Would you say, Dr. Mileti, that if any given
18 individual within the ten-mile EPZ could not or would not
19 or for whatever reason did not read the public information
20 brochure that in the event of an emergency at Waterford
21 3, that particular individual would be at greater risk
22 than the rest of the community?

23 A Not because they hadn't read the brochure. If
24 there was good emergency warning information at the time
25 of the emergency, my answer is no.

1 MR. GROESCH: I object to that answer, Your
2 Honor, because the question or the answer concerned the
3 efficacy of other information that will be used to
4 communicate information around the Waterford facility.

5 That is not the focus of these hearings, which
6 has been reined in very tightly by you to just the
7 efficacy of the public information brochure, and has no
8 bearing at all on the other communication methods that
9 will be employed around the Waterford facility.

10 Therefore, I would ask to strike the answer
11 and the question as leading and the answer as being
12 outside the scope of this hearing.

13 MR. CHURCHILL: Your Honor, the warning system
14 at the time, the immediate warning system at the time,
15 has been litigated in this proceeding, is on the record.

16 Dr. Mileti's answer made no comment about the
17 adequacy or inadequacy of that.

18 He simply made the supposition in answer to
19 my question, if the informational system at the time of
20 the accident is sufficient, that individual would not be
21 at greater risk than the rest of the community.

22 Moreover, in view of the fact that the Joint
23 Intervenors have placed a great deal of emphasis on what
24 happens to the few individuals who might not be able to
25 read the brochure, I would think that the Board would be

1 enormously interested in Dr. Mileti's opinion in this
2 matter.

3 JUDGE WOLFE: That's right, Mr. Churchill.

4 Objection overruled.

5 Had you finished your answer, Doctor?

6 THE WITNESS: Yes, I had.

7 JUDGE WOLFE: Mr. Churchill?

8 BY MR. CHURCHILL:

9 Q Dr. Mileti, does the fact that the brochure
10 states on its face that it was prepared by state and
11 parish governments have any effect on its credibility?

12 A People who have researched the role of
13 credibility have concluded that information that comes
14 from officials enhances credibility in reference to how
15 people behave in emergencies.

16 I would suggest, therefore, that if it comes
17 from officials increases its credibility.

18 Q What about the informality and friendliness of
19 the brochure which Dr. Hunter referred to?

20 Do you think the fact that it's informally
21 written and friendly enhances its credibility?

22 A It's also well documented that familiarity
23 enhances credibility, not detracts from it.

24 Q Is there anything inconsistent about government
25 officials acting friendly and informally? That is, would

1 the fact that the brochure is both official and
2 friendly and informal in any way tend to diminish its
3 credibility?

4 A I would have to conclude on the basis of the
5 evidence that I'm familiar with, in reference to
6 familiarity and that it comes from officials, that having
7 both of those variables in the plus column could only
8 enhance its credibility.

9 I don't see, therefore, that those two
10 variables might be there would detract from credibility.

11 Q In reviewing the brochure, do you see anything
12 on its face that would indicate untrustworthiness or a
13 lack of credibility?

14 A I saw nothing by reading the brochure that
15 suggested it was non-credible.

16 Q Would you agree with Dr. Hunter that a survey
17 should be done in the area to determine the credibility of
18 the brochure?

19 A Despite the fact that it's hard for me as a
20 sociologist to say that we shouldn't do a survey, I do
21 disagree, and don't think that a survey is warranted.

22 I saw no indicator in the brochure to suggest
23 that it was not a printable document. I don't believe
24 that the document is designed nor should be one that
25 motivates behavior; and, therefore, I don't see why a survey

21-4 1 would be needed.

2 I see no purpose that it could accomplish in
3 that the purpose of the brochure is informational, not
4 motivational.

5 Q Now, Dr. Mileti, let's turn for a moment to
6 an area which I promised you you wouldn't have to talk
7 about, practice evacuations.

8 Do you agree with Dr. Hunter's recommendation
9 that a practice evacuation should be conducted?

10 A Absolutely not. In fact, I think a practice
11 evacuation in and of itself could be dangerous.

12 If the purpose of our meeting here and having
13 an emergency plan is to help people evacuate the area if
14 there ever is a real emergency, and the reason is straight-
15 forward.

16 It's well established in the literature,
17 extensively established in the literature, that people
18 tend to be significantly influenced by past experiences
19 with risks and hazards and disasters in terms of their
20 future behavior.

21 If we had a practice evacuation, it could
22 happen that folks might engage in the practice and
23 evacuate, and in a future accident, should one occur,
24 evacuation may be an inappropriate response, and that
25 might be cause for some people to evacuate when they

21-5 1 needn't evacuate.

2 At the risk of giving an undue long answer,
3 let me give an example. I move to Colorado from Los
4 Angeles right after the San Fernando earthquake.

5 I did the wrong thing during the San Fernando
6 earthquake. I stayed in bed. I should have gotten up
7 and filled pots with water so that I could have fresh
8 water, because soon after an earthquake, the water goes
9 bad.

10 When I was in Colorado, which is subject to
11 a high wind hazard, hurricane velocity winds began blowing
12 against my apartment. Roofs were being torn off next to
13 me and windows were being blown out.

14 What I did was fill pots with water. What I
15 should have done was put tape on the window.

16 Now, I'm apprehensive about my next emergency
17 because I'm sure I'll put tape on the window.

18 All I'm suggesting is that what people do in
19 a prior emergency or what they perceive afterwards is
20 appropriate behavior in a prior emergency can affect what
21 they do in a future emergency.

22 If we practice everybody to evacuate, we might
23 be increasing the chance that people will evacuate when
24 they shouldn't, will evacuate prematurely; we could
25 possibly increase the probability or possibility of

1 something called -- it's been bouncing recently in my
2 discipline -- the shadow effect.

3 There are a variety of ways that we can lose
4 by engaging in a practice evacuation.

5 If we have those resources, I'd rather see
6 them invested into steps to guarantee that if there is an
7 emergency, we can get the good kind of information out at
8 that time that we need to.

9 I do apologize for that long answer.

10 JUDGE WOLFE: We'll have a ten-minute recess.

11 (Brief recess taken.)

12 JUDGE WOLFE: All right. On the record.

13 As soon as we finish with the direct testimony
14 of the witness, we can adjourn for an hour and then come
15 back and proceed with cross at that time.

16 All right. We will discuss it after we
17 complete the direct.

18 MR. CHURCHILL: Your Honor, I only have a
19 few more questions.

20 JUDGE WOLFE: All right.

21 BY MR. CHURCHILL:

22 Q Dr. Mileti, is the experimental social
23 psychology approach of Leventhal, which is cited by
24 Dr. Hunter, is that approach used by scholars who seek to
25 explain and predict public emergency behavior?

1-7 ✓
1 A About a decade ago, that approach was assessed
2 for its utility, and as it turned out, the -- at the risk
3 of getting too technical -- behavior modification approach
4 was abandoned as a useful one to explain why those people
5 behave as they do in emergencies.

6 It was replaced with another social
7 psychological approach referred to as symbolic inter-
8 actionism, which basically says that what is real for
9 people in their minds, what they perceive reality is,
10 becomes reality for them, and that determines their
11 response in emergencies.

12 That is a more appropriate approach and
13 the behavior modification approach that deals with events
14 like better health habits has been abandoned.

15 Q Can you generalize findings about such things
16 as dental hygiene or getting an inoculation, can you
17 generalize them to public response to radiological
18 emergencies?

19 A No, and the reason is that what reality
20 is at the time of an emergency is determined largely by
21 the emergency.

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BY MR. CHURCHILL:

Q Is there any comparability between stress in the everyday routines of life and stress of public response to a radiological emergency?

A No. By definition emergencies are non-routine. And factors that we might turn to to alter or determine routine behavior, for example, like decreasing nervousness or Type A behavior, are not the same as the factors that we turn to to explain and look to for predicting behavior in emergencies.

Those factors are indeed situational factors. An individual's behavior, I might add, versus mass emergencies, which are, for all practical purposes, the behavior of publics are also two different things.

MR. GROESCH: Behavior of publics?

JUDGE WOLFE: Did you miss something, Mr. Groesch?

MR. GROESCH: I didn't understand a word. "Behavior of publics"? What was the last word you said?

THE WITNESS: Yes. The behavior of publics.

MR. GROESCH: P-u-b-l-i-c-s?

THE WITNESS: Yes. The public.

MR. GROESCH: Oh.

THE WITNESS: People in emergencies tend to

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1 behave not as individuals, but rather in groups.

2 MR. CHURCHILL: Thank you, Dr. Miletic.

3 Your Honor, that concludes this witness'
4 direct testimony on rebuttal.

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EVENING SESSION

6:00 p.m.

JUDGE WOLFE: All right. It's now 6:00.
Does everyone want to try to go out for dinner and be
back by 7:00?

MR. CHURCHILL: We are willing to continue
on. My question earlier was merely a request to know
what the Board had in mind. I wasn't specifically re-
questing that we did break.

JUDGE WOLFE: We have nothing in mind. We
will proceed at the convenience of the parties. If they
want an hour for dinner, fine; if not, we'll proceed now
with cross.

All right.

MR. GROESCH: All right what?

JUDGE WOLFE: We'll proceed with cross. I
haven't heard anything else.

Mr. Groesch, are you --

MR. GROESCH: Yes, I understand.

Your Honor, there is an enormous amount of
material here, most of it in direct contradiction to
the work of Dr. Hunter.

The witness has referred to an enormous number
of documents, mostly in general terms. There is simply
no way that I can proceed with the cross-examination at

1 this time on this witness.

2 JUDGE WOLFE: What do you have in mind?

3 MR. GROESCH: Well, you know, it was --

4 It took, you know, almost two weeks to prepare for the
5 other cross-examination; and I think that it's --

6 It's going to be -- It's going to take, I think, two
7 or three weeks to prepare for this cross-examination.

8 JUDGE WOLFE: Well, I'm going to settle that
9 right now. I told you we were closing proof tomorrow
10 on this limited issue.

11 If you wish -- and so ask -- I will give you
12 overnight to prepare your cross-examination of this
13 witness.

14 If you're unable to do it, then you waive your
15 cross-examination of this witness, and we proceed with
16 the other parties' cross-examination, and we will excuse
17 the witness and go to the next witness.

18 Now you can save us time. If you're not going
19 to prepare for tomorrow, why we'll just go to the other
20 cross-examiners and that will be it.

21 MR. GROESCH: Well, I --

22 JUDGE WOLFE: Do you want overnight or
23 not? That's my question. I'll give you overnight to
24 prepare your cross-examination of this witness, but no
25 more.

1 MR. GROESCH: It would be impossible to pre-
2 pare an adequate cross-examination in a one-night period.

3 JUDGE WOLFE: All right. You're unprepared
4 now; you would be unprepared tomorrow. Is that correct?

5 MR. GROESCH: I'm unprepared because --

6 JUDGE WOLFE: Is that --

7 MR. GROESCH: I'm unprepared because I simply
8 do not have enough time to prepare an adequate cross-
9 examination in order to protect my clients.

10 JUDGE WOLFE: And I'm saying that all I will
11 give you is overnight to prepare tomorrow's cross-
12 examination at 9:00 a.m.

13 Now, if you don't want time to -- that much
14 time to prepare -- and ordinarily, parties are not given
15 that time -- much time, they're given an hour or fifteen
16 minutes or whatever. You're expected to be competent and
17 prepared enough to conduct cross-examination upon re-
18 buttal.

19 Granted, it's difficult. But you're expected
20 to do it. And it comes late in the day for you to say
21 now, "I need three weeks." We're not going to give you
22 three weeks.

23 At best we're going to give you overnight.
24 Now do you want to take advantage of that, or you just
25 waive your cross-examination.

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300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 MR. GROESCH: Well, I believe that -- you know,
2 if I'm forced to make this choice, I would rather not
3 even begin cross-examination of this witness. I believe
4 that the Joint Intervenors' case will be done grievous
5 harm, and I would like to ask that this Board, if they all
6 three agree that Joint Intervenors have only those two
7 choices, right now or tomorrow morning, then I would ask
8 that this panel recuse themselves.

9 I believe that Joint Intervenors' case has
10 been done -- would be done grievous harm. We would be
11 shown great prejudice.

12 JUDGE WOLFE: Well --

13 MR. GROESCH: And I would ask that a master
14 be brought in here to decide this particular point.

15 JUDGE WOLFE: There are certain procedures
16 that must be followed to move that the panel be recused --
17 or recuse itself. You haven't followed those procedures.

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1 JUDGE WOLFE: I direct your attention to
2 10 CFR Section 2.704. You can read the section for your-
3 self, but you haven't followed it, and accordingly, your
4 motion for recusal is denied.

5 I put it to you again, you were given notice
6 that there would be rebuttal testimony. You should know
7 your own case well enough, and Dr. Hunter is by your
8 side there.

9 Once again, I'm going to give you, if you so
10 request it, overnight in which to prepare cross-examination
11 of Dr. Mileti.

12 If you don't want to take advantage of it,
13 that's your choice, and we will proceed now to the
14 cross-examination by the other witnesses and you will
15 have effectively waived your right of cross-examination.

16 MR. GROESCH: Let me confer with Dr. Hunter
17 just a moment.

18 JUDGE WOLFE: All right.

19 (Discussion off the record.)

20 JUDGE WOLFE: The other Board members have
21 suggested that we proceed with the cross-examination by
22 the other parties, and at the conclusion of their
23 cross-examination you can then advise us whether you waive
24 your right of cross-examination or that you wish that we
25 recess at that time so that you adequately can prepare

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1 your cross-examination for tomorrow morning.

2 MR. GROESCH: That's fine.

3 JUDGE WOLFE: Suppose we do that.

4 MR. GROESCH: That's fine.

5 MR. CHURCHILL: Your Honor, just a thought
6 while the consideration is going on.

7 If cross-examination begins tomorrow morning
8 on Dr. Mileti, we have to allow enough time for Dr. Klare
9 to come on; and, therefore, we would probably have to set
10 some kind of a time limit.

11 My guess is that in order to allow adequate
12 time for cross-examination of Dr. Klare, he would have to
13 go on no later than mid-day tomorrow.

14 JUDGE WOLFE: What do you suggest, that as soon
15 as we've finished, at least, with Mr. Turk's and
16 Mr. Cassidy's cross-examination of Dr. Mileti, that he
17 step down and that Dr. Klare be called and we proceed to
18 the extent possible with him yet until 9:00 o'clock?

19 MR. CHURCHILL: Yes, sir, I would very much --
20 I think that would be the safest course of action, to put
21 Dr. Klare on tonight and then all day tomorrow would be
22 available for cross-examination of whichever witnesses.

23 JUDGE WOLFE: All right. We'll see what
24 happens. Conceivably -- well, we'll see what Mr. Groesch's
25 decision is at the conclusion of Staff and FEMA's

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

3-3 1 cross-examination.

2 All right. We'll now have cross-examination
3 by Mr. Turk.

4 CROSS-EXAMINATION

5 BY MR. TURK:

6 Q Dr. Mileti, my name is Sherwin Turk. I
7 represent the NRC Staff in this proceeding.

8 In direct examination you stated that you had
9 some role in preparing the emergency information brochure
10 which is before us.

11 Would you please describe what your activities
12 were in that regard?

13 A Yes. I reviewed a prior version of the
14 brochure from the point of view to see if from my
15 perspective all the significant bases in the brochure
16 were covered, and I looked at it for three things.

17 I looked at it to see if it gave people what
18 seemed like an adequate amount of information about risk,
19 if it gave people an adequate amount of information about
20 emergency information in the future, and I looked at it
21 in terms of if it gave people enough information about
22 response.

23 I concluded that it didn't. So I made several
24 recommendations for changes, and all those recommendations
25 were included in the brochure, and it was only then that

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300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 I agreed to participate in hearings.

2 Q Have you -- Before -- Let me withdraw that.

3 After you submitted your comments and you
4 stated they were incorporated into this brochure which is
5 now Exhibit 13, after you had done that, did you again
6 read Exhibit 13?

7 A Yes, I did. Now, mind you, I didn't word my
8 recommended changes. I don't know how well to word
9 things for emergency brochures.

10 I suggested concepts that needed to be
11 addressed and ideas that needed to be addressed, and even
12 one that I thought should be left out, and then it's my
13 understanding after giving that information to the
14 attorneys, that Dr. Klare did the actual wording of what
15 my suggestions were.

16 Q Were all your suggestions taken?

17 A Yes. For example, one of the recommended
18 actions that used to appear in the brochure was that
19 people turn off their heating systems if their heating
20 systems brought in air from the outside.

21 I suggested that most people don't know if
22 their heating system brings in air from the outside and
23 that would just add more confusion at the time.

24 I suggested that the brochure be worded in such
25 a way that everybody was asked to turn off their heating

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1 system.

2 That's one example. There are several others.
3 Would you like to know what they are?

4 Q Yes.

5 A A few others were information about risk. I
6 feel responsible for the brochure addressing the notion
7 that plants don't explode and for addressing what I
8 consider to be the prime risk notion, that the risk is in
9 the air.

10 You would be surprised how many people at
11 Three-Mile Island didn't know that, and people in all
12 sorts of hazards don't know what the risk actually is.

13 There was one other, and I'm sorry, I've
14 forgotten what it is at the time, right now.

15 MR. TURK: I have no further questions.

16 JUDGE WOLFE: Mr. Cassidy?

17 CROSS-EXAMINATION

18 BY MR. CASSIDY:

19 Q Dr. Mileti, in your examination by
20 Mr. Churchill, he asked you -- and I'm paraphrasing now --
21 whether you had an opinion about the adequacy of the
22 brochure, and your statement was that you felt that it
23 was somewhat and relatively adequate.

24 That was the phrase that you used. Are we
25 to conclude from that phrase that you find it somewhat

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1 inadequate?

2 A Absolutely not. What I meant to do by that
3 clause or adjective was to suggest that I'm not qualified
4 to speak to all significant dimensions of that brochure.

5 I don't know about how things are readable or
6 not except to the extent as to whether or not I can read
7 it and understand it.

8 So I can't judge the readability aspect of the
9 brochure. I can only judge in terms of my expertise about
10 what I know such a brochure might address, if it were going
11 to elicit or help folks in terms of preparing for a future
12 emergency response, whether or not those three significant
13 bases that I've already covered were indeed covered by
14 the brochure.

15 In that regard I think the brochure is
16 adequate.

17 Other evaluations of the brochure that might
18 be necessary I'm not qualified to make.

19 Q Those three significant bases, as I understand
20 them, or your use of that term, were the identification of
21 the risk, the emergency information and responsive
22 information; is that correct?

23 A Yes.

24 Q Okay. Are you familiar with NUREG-0654,
25 FEMA Reg. 1?

3-7 1 A I'm familiar with a white bound document with
2 red lettering on it. I don't remember things by federal
3 numbers.

4 The one you are holding is indeed one I've
5 seen, yes.

6 Q That is one you've seen, and are you familiar
7 with the criteria that's contained therein for public
8 education and information brochures?

9 A Yes. In fact, I re-read it again yesterday.

10 Q With regard to that standard, when you were
11 talking about your definition of the role of pre-emergency
12 public information documents, is it your understanding
13 that what this document requires, NUREG-0654, is the same
14 as what you were indicating the role of the public
15 information brochure is?

16 A No. My perception of what the public
17 information brochure should be is based on my expertise, and
18 I offered that judgment independent of what it is that
19 that document called for the brochure to legally be.

20 I wasn't making a judgment about whether it
21 was in legal compliance with that regulation or not;
22 rather, in terms of whether or not it was in compliance
23 with the state of the art and knowledge about what it
24 might should address.

25 Q So, again, going back to your conclusion about

3-8 1 it being somewhat relatively adequate, your basis for
2 adequacy is premised on your definition of the -- or your
3 concept of the role of a pre-emergency document, as
4 opposed to what's in NUREG-0654; would that be correct?

5 A It's based on my judgment that it is
6 extremely adequate in terms of covering information about
7 risk, information and response, and meant to suggest that
8 there are other significant dimensions that I imagine it
9 needs to be evaluated on, but I have no expertise in.

10 Q You made a statement in response to one of
11 the questions by Mr. Churchill dealing with -- I believe
12 at the time it was referring to one of the articles by
13 Dr. Leventhal about the behavior of the public, and you
14 made a statement about the public behaving different from
15 individual behavior.

16 I'm not quite sure I understood the concept you
17 were talking about at that time.

18 A There are different factors that affect why
19 human beings behave the way they do.

20 There are different theoretical orientations
21 that label those different perspectives and different ways
22 of explaining why people behave the way they do.

23 One of the basic ones in the field of social
24 psychology within the discipline of sociology is called
25 collective behavior, and it typically describes how it

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1 is that collectives of human beings come to behave the
2 way they do; and it, along with symbolic interactionism,
3 give a good explanation for how people behave in
4 emergencies.

5 Emergency behavior is largely group behavior,
6 not the behavior of individuals.

7 The sorts of factors that you might address to
8 change the behavior of an individual are different from
9 the sorts of factors that you would address if you wanted
10 to help a whole community make the decision to evacuate.

11 For example, people evacuate in groups. They
12 don't evacuate as individuals. We've known that for a
13 long time.
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1 MR. CASSIDY: May I have one moment, Your
2 Honor?

3 (Pause.)

4 MR. CASSIDY: I have nothing further, Your
5 Honor.

6 (Bench conference.)

7 JUDGE JORDAN: This is not a regular Board
8 question, but it was something you said that I thought
9 perhaps needed clarification.

10 You mentioned that the people at TMI were
11 mistaken because they had fear of a possible explosion.
12 Now in the case of TMI-2, was there not a hydrogen
13 bubble, and was there not radio announcements that
14 there possibly might not be an explosion? In fact,
15 didn't the NRC itself mention the possibility of an
16 explosion of the hydrogen bubble at TMI-2?

17 THE WITNESS: Sir, as far as I recall, from
18 reading the summaries of what was said during the TMI
19 incident, there was some information that went out sug-
20 gesting that there could be an explosion.

21 I don't recall the source. There was some
22 information that went out suggesting that there couldn't
23 be an explosion.

24 One of the key factors that was so con-
25 fusing to the public at Three Mile Island was the

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1 inconsistencies in the information that they were receiv-
2 ing, not the level of scare or risk, but that they were
3 concerned -- some folks were concerned that nobody knew
4 what was going to happen; and that scared them the
5 most.

6 JUDGE JORDAN: I see. All right.

7 JUDGE WOLFE: You had finished, Mr. Cassidy?

8 MR. CASSIDY: Yes, Your Honor, I was
9 finished.

10 JUDGE WOLFE: All right, Mr. Groesch.

11 MR. GROESCH: Your Honor, I believe I mis-
12 spoke myself previously when I asked the Board to recuse
13 itself because of their ruling on this particular point.

14 In fact, the -- my motion to recuse is going
15 to include a pattern of behavior throughout these hearings --

16 JUDGE WOLFE: A what, please?

17 MR. GROESCH: A pattern of behavior throughout
18 these hearings that shows extreme prejudice to the case
19 of the Joint Intervenors.

20 This last incident was simply the straw that
21 has broken the back of the Joint Intervenors. I do not
22 have a copy of the 10 CFR on me. What I would like to do
23 is use the opportunity this evening in order to prepare
24 a stilted and inadequate cross-examination tomorrow morning
25 for Dr. Mileti.

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1 And at that point I would -- will look at
2 my Code of Federal Regulations this evening and begin
3 the process that I have spoken of before.

4 JUDGE WOLFE: Well, let me ask the other
5 parties. If you disagree with the Board's ruling that
6 Mr. Groesch would not and will not have three weeks time
7 within which to prepare cross-examination of Dr. Mileti,
8 and disagree with my denial of that motion, disagree for
9 whatever reason with the direction to him that instead
10 he prepare for cross-examination overnight, with the
11 assistance of Dr. Hunter who is in the courtroom, or if
12 he chose not to, then the Board would deem that he had
13 waived his right of cross-examination.

14 Do any of the parties disagree with that
15 ruling and if so, why.

16 Mr. Turk?

17 MR. TURK: No, I don't disagree with the
18 Board's ruling.

19 JUDGE WOLFE: All right.

20 MR. TURK: I would note briefly that the same
21 type of motion was made once previously -- not a motion
22 to recuse, but a motion to allow a recess of several
23 weeks in order to prepare cross-examination -- or maybe
24 it was rebuttal testimony.

25 This took place last year, and that motion was

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1 denied at that time, as I recall. My recollection is
2 very scanty -- very vague on this. But it doesn't seem
3 like it's the first time I'm hearing it in this pro-
4 ceeding.

5 JUDGE WOLFE: Mr. Cassidy -- Had you
6 finished, Mr. Turk? I'm sorry.

7 MR. TURK: Just one other comment. I recognize
8 that Dr. Mileti has gone into different areas and that he
9 has cited generally different studies in support of his
10 statements. But given a chance to prepare cross-
11 examination overnight, I don't think prejudices the Joint
12 Intervenors.

13 JUDGE WOLFE: And why not?

14 MR. TURK: Because were I a party who was
15 interested in doing extensive cross-examination, I would
16 feel that I would have sufficient time overnight in which
17 to prepare it.

18 JUDGE WOLFE: Mr. Cassidy?

19 MR. CASSIDY: Well, I can appreciate Mr.
20 Groesch's situation. The Applicant did put all of
21 the parties on notice via their letter of January 31st
22 that Dr. Mileti would probably be called on as a rebuttal
23 witness and provided all the parties with a copy of his
24 academic vitae.

25 I think all of the parties have had ample

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1 time under the circumstances of the litigation to do
2 whatever research is necessary, or that they felt neces-
3 sary to be prepared for cross-examination of Dr. Mileti.

4 And as the Board pointed out earlier, although
5 we didn't have the substance of his testimony, we cer-
6 tainly were aware of the limited scope of his testimony.

7 I further appreciate the fact that Mr.
8 Groesch, as a non-lawyer, may not be used to this kind of
9 time pressure. He may be at somewhat of a disadvantage,
10 but I think given the time frame that he has had to work
11 in, that the Board's ruling is appropriate.

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JUDGE WOLFE: Mr. Churchill?

MR. CHURCHILL: Your Honor, I think the Board's ruling is very appropriate and generous, to allow Joint Intervenors overnight to prepare for the cross-examination of Dr. Mileti.

The ironic part of the whole situation is that the people who were surprised in the first instance was the Applicant. We had no idea about this subject matter or even the existence of Dr. Hunter prior to the time the testimony was actually submitted.

We immediately contacted Dr. Mileti, and, in fact, he came in virtually the next day or the day after, because I think we received the testimony the day -- toward the end of the week; and we met with him over the weekend.

The first thing on Monday morning we notified all parties and the Board by telephone that we had Dr. Mileti. We immediately sent out his curriculum vitae, so all the parties have had that.

Much of the research that Dr. Mileti has cited in his direct is indeed his own research, which was cited in there. The Joint Intervenors are the ones that raised this issue.

They presented the witness who raised the issues on persuasion and motivation. We responded and

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1 notified the people that we would respond, and so the
2 Joint Intervenors certainly were on notice that we would
3 have rebuttal, and they knew exactly what the rebuttal
4 would be.

5 I would also observe that Joint Intervenors'
6 expert witness, whose testimony is being rebutted and
7 whose assistance he has indicated would be used in helping
8 to prepare the cross-examination, was in the room the
9 whole time that Dr. Mileti's testimony was given.

10 I would further note that all of this was
11 known by Joint Intervenors' attorney. They do have an
12 attorney of record. He was here. He knew there would
13 be rebuttal.

14 The fact that the attorney is not here right
15 now is of their own choosing and cannot be used to
16 say that this is in any means a pro se Intervenor who
17 would not have known that obviously once the rebuttal
18 testimony came that there would have to be cross-
19 examination.

20 And, finally, Your Honor, I think that it's --
21 you've made it very clear from the outset, from the first
22 time it was scheduled that since the beginning of these
23 hearings that you were going to tightly control the
24 progress of the hearing and that it would end at the end
25 of the day on Friday.

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1 So there's no question of inadequate notice
2 on any aspect of this. Therefore, I would agree that
3 the Board's ruling on this matter is very reasonable.

4 JUDGE WOLFE: Well, from what I've heard,
5 there's no need for the Board to reconsider its ruling.

6 What is the suggestion of the parties now?
7 That we -- that Dr. Mileti step down and we hear the
8 direct testimony of Dr. Klare?

9 How long will that take?

10 MR. CHURCHILL: Your Honor, I am prepared to
11 present Dr. Klare -- in fact, I would like to and request
12 that the Board so allow it.

13 I would like a 15-minute recess, and at the
14 end of the recess I might be able to give you a little
15 more -- a little better estimate of how much time it would
16 take.

17 But excluding the voir dire, which I think
18 we can do, come to think of it, because he has already
19 been voir dired -- my estimate of the duration of his
20 testimony probably would be about 30 to 45 minutes,
21 perhaps. Maybe even that's an overestimate.

22 JUDGE WOLFE: I'm concerned about Mr. Groesch
23 having his time this evening to prepare his cross-
24 examination for tomorrow of Dr. Mileti.

25 I hope I'm not faced with another motion, Mr.

1 Groesch, that you need three weeks to cross Dr. Klare.

2 But, in any event, I do want to leave as
3 much time as possible for Mr. Groesch tonight to prepare
4 for his cross tomorrow of both witnesses.

5 Do you think that by spending a few minutes
6 with Dr. Klare, you can reduce the amount of your -- his
7 direct testimony?

8 MR. CHURCHILL: That was my intention, Your
9 Honor.

10 JUDGE WOLFE: Ten minutes.

11 (A short recess was taken.)

12 JUDGE WOLFE: The Board has been conferring.

13 We think, in order to give Mr. Groesch as
14 much time as possible to prepare for the cross-
15 examination of Dr. Mileti, that we should recess now.

16 We also think -- and this is Mr. -- or Dr.
17 Klare's rebuttal to Ms. Duplessis; is that right?

18 MR. CHURCHILL: Primarily, yes, sir.

19 JUDGE WOLFE: Yes. Ms. --

20 MR. CHURCHILL: And --

21 JUDGE WOLFE: -- Duplessis is not here to
22 assist Mr. Groesch in preparation of any cross-examination
23 of Dr. Klare.

24 Therefore, we have decided, and we will
25 recess until 9:00 a.m. We know that this is going to cut

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1 in -- and may extend our day. We had only planned to go
2 forward till 6:00. But if need be, once again we will
3 extend that time to 9:00 tomorrow night, so if we do not
4 complete -- Well, we're simply going to have to complete
5 these two witnesses' testimony by tomorrow night at
6 9:00, if need be.

7 But so be it. We'll recess until 9:00 a.m.

8 (Whereupon, at 6:55 p.m. the hearing was
9 recessed, to reconvene at 9:00 a.m., Friday, February 11,
10 1983, in the same place.)
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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

in the matter of: LOUISIANA POWER AND LIGHT COMPANY
(WATERFORD STEAM ELECTRIC STATION)

Date of Proceeding: February 10, 1983

Docket Number: 50-382 OL

Place of Proceeding: New Orleans, Louisiana

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

Mary L. Bagby

Official Reporter (Typed)

Mary L. Bagby

Official Reporter (Signature)