

ORIGINAL

# OFFICIAL TRANSCRIPT PROCEEDINGS BEFORE

NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

**DKT/CASE NO.** 50-247 SP and 50-286 SP  
**TITLE** CONSOLIDATED EDISON COMPANY OF NEW YORK  
(Indian Point Unit 2) - POWER AUTHORITY OF  
THE STATE OF NEW YORK (Indian Point Unit 3)  
**PLACE** White Plains, New York  
**DATE** March 15, 1983  
**PAGES** 9549 - 9805

*Return original to Paul Hamilton: EPW-439*

*distribution: TR 01*

*Add me copy to: Dr. Aron  
H St-1009*

**AR**  
ALDERSON REPORTING

(202) 628-2300

TREET, N.W.

ON, D.C. 20001

8303170218 830315  
PDR ADOCK 05000247  
PDR  
T

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

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

-----	-x	
	:	
In the Matter of:	:	Docket Nos.:
	:	
CONSOLIDATED EDISON COMPANY OF NEW YORK	:	
(Indian Point Unit 2)	:	50-247 SP
	:	
POWER AUTHORITY OF THE STATE OF NEW YORK	:	
(Indian Point Unit 3)	:	50-286 SP
	:	
-----	-x	

Ceremonial Courtroom  
Westchester County  
Courthouse  
111 Grove Street  
White Plains, N.Y.

Tuesday, March 15, 1983

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

BEFORE:

- JAMES GLEASON, Chairman  
Administrative Judge
- OSCAR H. PARIS  
Administrative Judge
- FREDERICK J. SHON  
Administrative Judge



## 1 APPEARANCES:

2 On behalf of Licensee, Consolidated Edison Company  
3 of New York:

4 BRENT L. BRANDENBURG, Esq.  
5 Assistant General Counsel  
6 THOMAS J. FARRELLY, Esq.  
7 CANDIDA CANIZIO, Esq.  
8 Consolidated Edison Company of New York, Inc.  
9 4 Irving Place  
10 New York, N.Y. 10003

11 On behalf of Licensee, the Power Authority of the  
12 State of New York:

13 JOSEPH J. LEVIN, Esq.  
14 Morgan Associates, Chartered  
15 1899 L Street, N.W.  
16 Washington, D.C. 20036

17 DAVID H. PIKUS, Esq.  
18 RICHARD F. CZAJA, Esq.  
19 Shea and Gould

20 On behalf of the Nuclear Regulatory  
21 Commission Staff:  
22 DONALD HASSLE, Esq.  
23 Washington, D.C.

24 On behalf of the Federal Emergency Management  
25 Agency:

STUART GLASS, Esq.

On behalf of the Intervenor:

Council of the City of New York:

CRAIG KAPLAN, Esq.

New York Public Interest Research Group:

AMANDA POTTERFIELD  
JOAN HOLT, Esq.

## 1 APPEARANCES (Continued)

2 On behalf of Intervenors:

3

4 Parents Concerned About Indian Point:

5

6 PHYLLIS RODRIGUEZ

7

8 P.O. Box 125

9 Croton-on-Hudson, N.Y. 10520

10

11 Rockland Citizens for Safe Energy:

12

13 JUDITH KESSLER, Esq.

14

15 P.O. Box 74

16 New City, N.Y. 10956

17

18 West Branch Conservation Association:

19

20 ZIPPORAH S. FLEISHER

21

22 443 Buena Vista Road

23 New City, N.Y. 10956

24

25 Westchester County:

26

27 LAURIE VETERE, Esq.

28

29 Union of Concerned Scientists:

30

31 JEFFREY M. BLUM

32

33 Rockland County:

34

35 ERIC THORSEN

36

37

38

39

40

41

42

43

44

1	<u>C O N T E N T S</u>			
2	<u>WITNESS</u>	<u>DIRECT CROSS REDIRECT RECROSS BOARD</u>		
3	Kai T. Erikson			
	By Ms. Potterfield	9559		
4	By Mr. Czaja		9564	
	By Mr. Brandenburg		9575	
5	By Ms. Potterfield			9599
	By Mr. Czaja			9616
6	By Mr. Brandenburg			9619
	By Judge Paris			9622
7				
	Joan Harding King,			
8	Jannelise Galdone			
	By Ms. Potterfield	9635		
9	By Mr. Farrelly		9646	
	By Mr. Czaja		9649	
10	By Mr. Glass		9650	
11	Robert LeMoulllec			
	By Ms. Kessler	9660		
12	By Mr. Czaja		9666	
	By Mr. Farrelly		9669	
13	By Mr. Glass		9673	
	By Ms. Kessler			9675
14				
	<u>(Afternoon Session...9677)</u>			
15				
	Jane Courtney,			
16	Agata Craig and			
	Karen Ford			
17	By Ms. Potterfield	9578		
	By Mr. Pikus		9704	
18	By Mr. Farrelly		9715	
	By Mr. Kaplan		9716	
19	By Judge Paris			9722
20	Robert L. Morris			
	By Mr. Blum	9725		
21	By Mr. Brandenburg		9727	
	By Mr. Czaja		9760	
22	By Mr. Kaplan		9763	
	By Ms. Vetere		9778	
23	By Mr. Blum			9781
	By Judge Shon			9797
24	By Judge Paris			9799
	By Judge Gleason			9804
25				

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

C O N T E N T S (Cont'd)

E X H I B I T S

<u>NUMBER</u>	<u>IDENTIFIED</u>	<u>RECEIVED</u>
---------------	-------------------	-----------------

UCS-NYPIRG 10	9626	9631
PA-39	9667	
PA-40	9669	
UCS-NYPIRG 11	9785	

Testimony and Supplemental testimony of Mr. Erikson		page 9563
Letter from Senator Moynihan		page 9625
Testimony of Ms. Galdone		page 9638
Testimony of Ms. King		page 9645
Testimony of Mr. LeMoulllec		page 9665
Prepared Testimony of Agata Craig		page 9681
Prepared Testimony of Ms. Ford		page 9691
Prepared Testimony of Ms. Courtney		page 9701
Prepared Testimony of Mr. Morris		page 9726

RECESSES:

Morning - 9624

Noon - 9675

Afternoon - 9769

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

2                    JUDGE GLEASON: If we could proceed, please.

3                    This is a resumption of the hearing schedule  
4 dealing with contentions under Commission Questions 3  
5 and 4, and I would ask the parties to identify  
6 themselves, please.

7                    MR. BRANDENBURG: Mr. Chairman, for  
8 Consolidated Edison Company of New York, my name is  
9 Brent L. Brandenburg. Seated to my left is Thomas J.  
10 Farrelly, and to Mr. Farrelly's left, Candida Canizio.

11                    MR. LEVIN: On behalf of the Power Authority  
12 of the State of New York, my name is Joseph J. Levin,  
13 Jr. To my left, Richard Czaja. To his left, David  
14 Pikus.

15                    MR. HASSELL: My name is Donald F. Hassell,  
16 from the NRC staff. And seated to my right is Stewart  
17 Glass, from FEMA Region 2.

18                    MS. FLEISHER: For West Branch Conservation  
19 Association, Zipporah F. Fleisher.

20                    MS. POTTERFIELD: I am Amanda Potterfield. I  
21 represent the New York Public Interest Research Group.

22                    MS. RODRIGUEZ: I am Phyllis Rodriguez, from  
23 Parents Concerned About Indian Point.

24                    MR. THORSEN: Eric Thorsen, appearing for the  
25 County of Rockland.

1 MS. VETERE: Laura A. Vetere, representing  
2 Westchester County Executive.

3 MR. BLUM: Jeffrey M. Blum, for the Union of  
4 Concerned Scientists.

5 JUDGE GLEASON: All right. We have several  
6 motions, a motion, at least, that we will have to take  
7 care of at the beginning.

8 We have, as I indicated, several motions which  
9 will have to be considered at the outset relating to  
10 witnesses scheduled for today's proceeding. Are you  
11 having trouble already, Mrs. Rodriguez.

12 MS. RODRIGUEZ: Yes.

13 MS. POTTERFIELD: We all are, Judge.

14 (Whereupon, a discussion was held off the  
15 record.)

16 MS. KESSLER: I would like to announce my  
17 presence for the record, please. Judith Kessler,  
18 representing Rockland Citizens for Safe Energy.

19 JUDGE GLEASON: We have, as I indicated  
20 before, several motions which will have to be taken up  
21 prior to proceeding with the witnesses scheduled for  
22 today. The first motion is a motion by Consolidated  
23 Edison to strike all of the intervenors' testimony under  
24 Questions 3 and 4.

25 The basis for that motion is that the

1 intervenors had not identified the witnesses until March  
2 the 11th, and that because the licensees have only been  
3 able to depose three out of 170 potential witnesses, and  
4 because the intervenors did not make any effective  
5 effort to reduce the number of witnesses to a realistic  
6 number, they have in effect been denied their rights to  
7 discovery.

8           The Board denies that motion, and on the basis  
9 that the list of witnesses at least has been available  
10 since June of 1982, and the licensees could have  
11 utilized many opportunities prior to this occasion to do  
12 whatever discovery they wished to do in connection with  
13 this.

14           The next motion is a motion by both licensees  
15 to strike testimony of certain witnesses scheduled for  
16 today, and I would like to go over them, because of  
17 these various lists that are flying back and forth, to  
18 see if I have missed any. In toto, I believe the motion  
19 submitted by Consolidated Edison would strike over the  
20 next four or five days the testimony of approximately 50  
21 witnesses, and the Power Authority would move to strike  
22 the testimony of approximately 60 witnesses.

23           MS. FLEISHER: Excuse me, Your Honor. I do  
24 not have copies of either of the two motions you just  
25 mentioned.



1 JUDGE GLEASON: Mrs. Fleisher, please discuss  
2 it with the licensees, because the Board has copies, and  
3 we have to proceed.

4 JUDGE PARIS: Your Honor, if I may just  
5 clarify, the Power Authority's motion simply seeks to  
6 strike portions of these witnesses' testimony. The  
7 Power Authority's motion is directed toward striking  
8 only portions.

9 JUDGE GLEASON: I understand that, which makes  
10 it a much more difficult thing to handle in the context  
11 of where we are right now, but I understand that. I am  
12 glad to have that correction.

13 Do you now have copies, Mrs. Fleisher?

14 MS. FLEISHER: Yes.

15 (Whereupon, the Board conferred.)

16 JUDGE GLEASON: Ms. Fleisher, your  
17 organization is a part of the consolidation of the  
18 presentation of the intervenors' testimony, are you  
19 not?

20 MS. FLEISHER: We were co-lead intervenors.

21 JUDGE GLEASON: That is not my point. Ms.  
22 Potterfield, would you respond to this, please? Is her  
23 organization --

24 MS. POTTERFIELD: Yes, Judge Gleason. We have  
25 worked together, all of the intervenor groups, to

1 cooperate in presenting the schedule of our witnesses.  
2 However, we have never been consolidated, and still are  
3 not, and our witnesses each are sponsored by the lead  
4 intervenor, as is required by the Board's order. We  
5 expected that all of us would get service of these  
6 motions to strike, as was ordered by the Board, and in  
7 fact most of us did not.

8 JUDGE GLEASON: Most of you did not?

9 MS. POTTERFIELD: Well, my organization was  
10 not served.

11 MS. RODRIGUEZ: My organization, my home was  
12 served at ten until midnight last night by PASNY.

13 MS. FLEISHER: Your Honor, we were told that  
14 we would receive a notice by 10:30 last night, and we  
15 did not, and this morning when I left I saw a package on  
16 my rural mailbox, and I brought it here with me, and see  
17 the names of some of my witnesses in it. That is the  
18 amount of time I have had for preparation. Nor have I  
19 received a copy of the March 14th until this moment, and  
20 I see some of the name of my witnesses in it.

21 MS. KESSLER: I received one at approximately  
22 9:00 to 9:15 last night, and the other at some point  
23 after which I had gone to bed.

24 JUDGE GLEASON: Well, the order indicated that  
25 you were supposed to receive it yesterday, so 9:15 would

1 have been receiving it yesterday. Do you have any  
2 comment on this?

3 MR. CZAJA: Judge, we did the best we could  
4 under the circumstances. We got the list of 170  
5 witnesses late Friday afternoon. We worked all over the  
6 weekend and yesterday to come up with some sort of  
7 comprehensive motion, as we understood the Board, and we  
8 did our best. We are sorry if we disturbed people late  
9 at night.

10 MS. POTTERFIELD: I might say, Judge Gleason,  
11 that I spoke to Mr. Czaja myself at 5:00 o'clock  
12 yesterday afternoon when he returned my phone call, and  
13 he did not mention to me that a motion to strike was  
14 coming at all.

15 JUDGE GLEASON: Well, let's eliminate the back  
16 and forth discussion at the present time.

17 MS. POTTERFIELD: We are ready to proceed with  
18 our witnesses. We have a full schedule, Judge Gleason.

19 JUDGE GLEASON: I understand, Ms.  
20 Potterfield. If you would just hold for a minute.

21 MS. POTTERFIELD: I thought we might take the  
22 motions as the witnesses take the stand.

23 JUDGE GLEASON: If you would hold just one  
24 minute.

25 (Pause.)

1 JUDGE GLEASON: If I understand, if the  
2 information that the Board has is correct, your list of  
3 witnesses starts off with Erikson, followed by Ramey,  
4 followed by a panel of King and Galdone, followed by  
5 Blattstein, followed by a panel of Courtney, Ford, and  
6 Craig, followed by Burgher, Morris, and then Zelman.  
7 Isn't that correct?

8 MS. POTTERFIELD: Ms. Burgher would be part of  
9 a panel with Courtney, Ford, and Craig, Your Honor, but  
10 otherwise that is correct.

11 JUDGE GLEASON: All right. Bring your first  
12 witness on, please.

13 MS. POTTERFIELD: Dr. Kai Erikson.  
14 Whereupon,

15 KAI T. ERIKSON  
16 was called as a witness, and having been first duly  
17 sworn, took the stand, was examined, and testified as  
18 follows:

19 DIRECT EXAMINATION

20 BY MS. POTTERFIELD:

21 Q Dr. Erikson, do you have before you two  
22 documents, one entitled Testimony of Kai T. Erikson, and  
23 the second entitled Supplemental Testimony of Kai T.  
24 Erikson?

25 A (WITNESS ERICKSON) Yes, I do.

1 Q Do those two documents represent the testimony  
2 you wish to submit before the Atomic Safety and  
3 Licensing Board?

4 A (WITNESS ERICKSON) I would like to make two  
5 additions to the first document mentioned, because it  
6 was prepared a good time ago.

7 Q What are those additions?

8 A (WITNESS ERICKSON) I would like to add at the  
9 bottom of the first paragraph on Page 1 the following:  
10 "I am now one of two candidates for the position of  
11 president of the American Sociological Association."

12 Q And the second addition, Dr. Erikson?

13 A (WITNESS ERICKSON) The second addition would  
14 be near the top of Page 2, after the sentence that ends,  
15 "Nuclear Regulatory Commission," on Line 7, "In January,  
16 1982, I testified on matters relating to emergency  
17 planning before the licensing board of the Nuclear  
18 Regulatory Commission considering a start of the Diablo  
19 Canyon reactor, and in January, 1983, I testified before  
20 the Suffolk County Legislature on emergency planning as  
21 it relates to the Shoreham nuclear power station."

22 Q With those additions and corrections, is your  
23 testimony true and accurate to the best of your  
24 information and belief?

25 A (WITNESS ERIKSON) Yes, it is.

1 MS. POTTERFIELD: Your Honor, I move the  
2 admission of Dr. Erikson's testimony into evidence as if  
3 read.

4 JUDGE GLEASON: Is there objection?

5 MR. CZAJA: Judge, we have moved to strike Dr.  
6 Erikson's supplemental papers or supplemental testimony,  
7 and the reasons are in our papers.

8 MR. BRANDENBURG: Con Edison has moved  
9. similarly, Judge.

10 MS. POTTERFIELD: I believe all the parties  
11 have been served with our opposition to PASNY's motion,  
12 although we did not get Con Edison's motion until late  
13 last night.

14 JUDGE GLEASON: Dr. Erikson, what was the role  
15 that you played in the study that your supplemental  
16 testimony refers to in connection with the Shoreham  
17 reactor?

18 WITNESS ERIKSON: I was a member of the  
19 radiological emergency response plan steering committee  
20 of Suffolk County, and in that capacity commissioned the  
21 study by Steven Cole of Social Data Analysts, was a part  
22 of the group that framed the questions in the first  
23 instance, reviewed with Dr. Cole the results of the  
24 pretest, and changed some of the questions as a result  
25 of it, reviewed the results of the survey as it came



1 off, reviewed the first draft of the report, and  
2 received the final draft, received it for Suffolk  
3 County.

4 I could add that Dr. Cole's first draft  
5 report, dated October, 1982, on Page 44, includes the  
6 following. "The questionnaire used in the study was  
7 prepared by Dr. Steven Cole, president of Social Data  
8 Analysts, Incorporated, in consultation with Dr. Kai  
9 Erikson, professor of sociology at Yale University. Dr.  
10 James J. Johnston, Jr., assistant professor of  
11 geography at UCLA, also provided comments on the first  
12 draft of the questionnaire. After this meeting, Dr.  
13 Cole constructed the first draft of the questionnaire,  
14 which was sent to Drs. Erikson and Johnston.

15 "After Drs. Erikson and Johnston commented on  
16 the questionnaire, an additional draft was prepared,"  
17 and then after a break he talks then about a pretest  
18 that was taken, and he says, "Based upon this pretest, a  
19 final draft was prepared after consultation with Dr.  
20 Erikson."

21 (Pause.)

22 JUDGE GLEASON: Does the staff have any  
23 comments they want to make on this motion?

24 MR. HASSELL: No, we do not.

25 JUDGE GLEASON: The Board will deny the motion



1 to strike the testimony on the basis that there is  
2 enough connection with this study, that Dr. Erikson is  
3 an expert witness and can testify to it.

4 [The testimony and supplemental testimony of  
5 Mr. Erikson follow.]

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

## TESTIMONY OF KAI T. ERIKSON

My name is Kai T. Erikson. I have been a Professor of Sociology and American Studies at Yale University since 1966, and Editor of the Yale Review since 1979. I received a B.A. in sociology from Reed College in 1953 and both an M.A. in 1955 and Ph.D. in 1963 from the University of Chicago. I held a joint appointment in the Departments of Psychiatry and Sociology at the University of Pittsburgh from 1959 to 1963, and a similar appointment at Emory University from 1963 to 1966. I am a Fellow of the American Sociological Association and served as an elected member of its governing Council from 1974 to 1977. I am the immediate past President of the Eastern Sociological Society, and I was President of the Society for the Study of Social Problems in 1970-1971.

In recent years my professional work has focused increasingly on human responses to emergencies. Between 1973 and 1976 I did an intensive study of the Buffalo Creek flood of 1972, and I wrote a book on the topic which in 1977 won the Sorokin Award of the American Sociological Association for the best book written in sociology during the preceding year as well as a Nomination for the National Book Award. Since that time I have done a briefer study of the effects of mercury contamination on an Ojibwa Indian Band in Northwest Ontario, and I have written on general problems of toxic waste disposal with particular reference to the situation at Love Canal in upstate New York and on the bombings of Hiroshima and Nagasaki in 1945. In the past two years I have kept abreast

of research dealing with human reactions to the incident at Three Mile Island, and I testified on related matters before the Licensing Board of the Nuclear Regulatory Commission considering a restart of TMI-1. Since that time, I've been invited to participate in a workshop on psychological stress at Three Mile Island by the Mitre Corporation on behalf of the Nuclear Regulatory Commission. I have lectured widely on the general subject of human emergencies, including the principal address to the Red Cross National Convention in Miami, Florida, in 1977. In the course of the various activities described above, I have read a substantial part of the available literature on responses to disaster from both a sociological and psychiatric standpoint.

I have recently reviewed the Radiological Emergency Response Plans for the State of New York and the four counties in the 10 mile Emergency Planning Zone around the Indian Point Nuclear Power Plant. These plans are quite vague in detail. It is clear, nonetheless, that they include a number of assumptions about the way residents of the area are likely to respond in the event of a radiological emergency. These assumptions are without foundation, in my opinion; and until such time as we have more information about the social and psychological dispositions of the people who are expected to play a role in carrying out local emergency plans, we can have no confidence in the feasibility of those plans.

Unfounded assumptions in the Indian Point emergency plans

fall under two general headings:

- 1) An assumption that residents within and outside the EPZ will follow directions in the event of an emergency regardless of where they are at the time; and
- 2) An assumption that emergency workers will report to the posts assigned them regardless of their other responsibilities as members of families.

Let me begin by noting that any accident serious enough to require evacuation of the area surrounding the power plant is likely to be traumatic for a number of local residents, and final emergency plans should take into account what has been learned in other crisis situations about the way people typically respond to moments of severe stress. I cannot deal now with the full range of social and psychological reactions described in the available studies, but I would like to note three that may be of particular relevance here.

Crisis situations involving the risk of radiation or some other form of contamination are different from the typical run of natural disasters and human accidents. Most emergencies, whether they result from acts of God (such as floods, storms, earthquakes) or acts of men (such as accidental explosions or deliberate bombings), have a clear beginning and a clear ending. Sooner or later the flood waters recede, the winds abate, the smoke clears, the bombers leave; an "all clear" is sounded both literally and figuratively to indicate that the incident is over and the source of danger is gone. But when an invisible threat hangs in the air or is lodged in the tissues of the body for an indeterminate amount of

time, and the survivors have no sure way of knowing how much damage has been done or is yet to be done, the event is never quite over. The cause for alarm never quite disappears. This has been the situation, for example, in such diverse places as Hiroshima and Nagasaki, Seveso, Minamata, the Love Canal and Three Mile Island -- all of them places where residents have reason to fear that they and their children yet unborn have been contaminated in one way or another. Events of this kind often provoke a deeper and more lasting form of anxiety than ordinary disasters.

It is probable that a substantial number of people who are exposed to an immediate peril will over-react. They will evacuate before being advised to, will move longer distances than advised, and in general, will respond to their own feelings of alarm by doing more than is required and doing it earlier than required. This tendency has been noted in many different emergencies and has been called "hyper-vigilance," "the counter-disaster syndrome," "the evacuation shadow phenomenon," and so on. At the same time, however, it is also likely that another substantial number of people exposed to an immediate peril will under-react, for one very common reaction to moments of crisis is to become immobilized, to go numb, to freeze. This tendency has also been noted in many different emergencies and has been called "the disaster syndrome," "psychic numbing," and so on. It is my opinion that each of these tendencies, but especially the tendency to over-react, becomes more intense when radiation or some other contaminant is involved

because people do not know what the dangerous substance looks like or feels like, how far it can reach out into the countryside, or how long its effects can last. Many more people evacuated the regions around Three Mile Island than were advised to, for example, and those who did so drove many more miles on the average than was necessary. Both the tendency to overreact and the tendency to underreact have been ignored in the Indian Point emergency plans.

Those people expected to play helping roles in an evacuation who also are members of families will be in a situation of very marked conflict if an emergency is declared. To say that there will be conflict is not to say that we know in advance how everyone will resolve it, but it is my very strong expectation that a number of emergency workers will first go home to tend their children in the event of a crisis no matter what commitments they have elsewhere, and they will do so because they feel, as is the case with parents everywhere, that their major responsibility is to attend the needs of their own offspring. A sociologist has no professional warrant to call such behavior instinctual (although the great majority of biologists and psychiatrists would probably do so), but he is certainly in a position to point out that many research studies have found people reluctant to turn to emergency duties until such time as they have been reassured about the safety of their families.

This general finding was phrased well by James Cornell:



First, the basic unit of human life -- the family -- emerges as the single most important force influencing behavior. Survivors rapidly turn their own anxiety into concern for their kin. A person's first regard is for saving family members, often at the expense of other victims or oneself. Even officials charged with the safety of an entire community find their first allegiance is to their family. As Ralph Linton has written, "In Götterdämmerung...the last man will spend his last hours searching for his wife and child."

An evacuation plan that takes for granted the readiness of local emergency workers to report for duty, regardless of family obligations, runs a high-- and in my opinion unacceptable-- risk of failure.

Those are among the general findings from the social and behavioral sciences against which the particular plans drawn for the areas around Indian Point must be measured. It is one thing to estimate how rapidly human traffic could drain out of a danger zone, or how many emergency workers would be required to carry out essential activities of one kind or another; but it is another thing to take for granted that people will in fact behave in the way the planners assume.

The plans assume, for example, that emergency workers who reside within the danger zone can be counted on to report for duty whether or not their own families have assembled and evacuated, and this assumption is problematic for all the reasons noted above. It may be reasonable to take for granted that police officers as well as physicians, nurses, and other medical personnel will report as expected. But a very large number of other people figure in the plan as well -- people to drive school buses and to accompany the children who ride them, people to staff the communications



centers and to register evacuees, people to monitor the spread of radiation and set up check points of one kind or another and work with decontamination teams, people to drive ambulances and tow trucks and whatever other vehicles are brought into play to transport the disabled and people without working vehicles, people to repair roads and establish traffic control checkpoints and maintain reception centers and handle necessary food and water supplies and, in general, carry out the hundreds of other tasks that might, in a real emergency, be required. As things presently stand, we have no way of knowing what all of those people are likely to do in the event of a serious crisis (although it may be instructive to note that many of the emergency workers who are expected to aid evacuation if yet another accident should strike Three Mile Island -- fire fighters among them -- have let it be known that their families would come first).

We need to know what proportion of the emergency work force has family obligations that might prove to be a source of conflict, and how members of that force are likely to resolve that conflict.

The emergency plans for Indian Point also assume that the emergency workers who reside outside the danger zone will move into it if asked to do so, and that assumption, too, is problematic. Police could presumably be relied upon, but it is not certain that others who make up the emergency work force-- truck drivers, heavy equipment operators, laborers, volunteer firemen -- will be willing to leave

places of relative safety and expose themselves to hazard, especially if they are expected to arrive equipped with dosimeters, exposure records, protective gear, and other reminders that the work they are about to perform may prove very dangerous indeed. Additionally, emergency workers who live a few miles outside the perimeter of the danger zone may not feel confident that their families are safe and may themselves try to evacuate.

The plans for Indian Point further assume that parents of school-age children will be willing to evacuate without first-hand reassurances that their offspring are being safely conveyed out of the area. It may turn out that the residents of the area will feel comfortable with an arrangement by which children are removed by bus to reception centers but given what social scientists have learned about the closeness of family ties and the anxieties of most parents concerning the safety of their children, it would seem foolhardy to take that view for granted. If a fair number of parents insist, upon questioning, as I would expect them to, that they might drive to the school themselves, then there would be substantially more traffic on the roads than the present estimates seem to allow for.

The plans assume, finally, that vehicular traffic will drain out of the danger zone along assigned evacuation routes. For one thing, the plans seem to call for some traffic to move toward the power plant for at least a short time even though it is not at all unlikely that people will balk at being ordered to take what may seem at first to be an illogical and perhaps even dangerous route. Moreover, the plans assume that drivers will all vacate the danger zone along the given evacuation routes, but it is likely that some of them will have particular destinations in mind -- the home of a relative or friend, say. If, for either of those reasons, vehicles enter the road network moving in the "wrong" direction or cause congestion at intersections in an effort to do so, the evacuation of the area might very well be adversely affected.

In short, the emergency plans for Indian Point are full of vague directives, but whether or not they can be implemented depends to a very large extent on the attitudes, intentions and emotional reflexes of the people charged with carrying them out. Surveys gathering information on these attitudes have been begun in Suffolk County, where the Shoreham nuclear plant is located, and in Westchester County. A large scale study will soon be underway in the Three Mile Island area as well.

Until we know a great deal more than we do now about these matters, we dare not assume that the present emergency evacuation plans provide any protection to the public.

Kai T. Erikson  
Department of Sociology  
Yale University  
New Haven, Connecticut

Born in Vienna, Austria, 1931  
U.S. citizen (derivative, 1937)  
Married, two children

#### EDUCATION

1949-1950 University of California, Berkeley  
1950-1953 Reed College (B.A.)  
1953-1955 University of Chicago (M.A.)  
1955-1963 University of Chicago (Ph.D.)

#### POSITIONS

1954-1955 Research Fellow, Family Study Center, University of Chicago  
1955-1957 Social Science Technician, Walter Reed Army Institute of Research, Walter Reed Army Medical Center (while on active duty, U.S. Army)  
1959-1963 Instructor to Assistant Professor, Departments of Psychiatry and Sociology, University of Pittsburgh  
1963-1966 Associate Professor, Departments of Psychiatry and Sociology, Emory University  
1966- Associate Professor to Professor, Department of Sociology and American Studies Program, Yale University  
1968-1969 Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, California  
1969-1973 Master, Trumbull College, Yale University (Chair, Council of Masters, 1970-1973)  
1974-1977 Chair, American Studies Program, Yale University  
1979- Editor, The Yale Review

## SELECTED PUBLICATIONS

### Books

Wayward Puritans: A Study in the Sociology of Deviance (New York: John Wiley, 1966)

Everything in Its Path: Destruction of Community in the Buffalo Creek Flood (New York: Simon & Schuster, 1976)

### Articles

"The Confirmation of the Delinquent," Chicago Review, Winter, 1957 (with Erik H. Erikson)

"Patient Role and Social Uncertainty: A Dilemma of the Mentally Ill," Psychiatry, 20:263-274, 1957

"The Functions of Deviance in Groups," Social Problems, 7:98-107, 1959 (with Robert A. Dentler)

"Impressions of Soviet Psychiatry: Some Travel Notes," Psychiatric Communications, 5:1-12, 1962

"Notes on the Sociology of Deviance," Social Problems, 9:307-314, 1962

"A Return to Zero," American Scholar, 36:134-146, 1966

"A Comment on Disguised Observation in Sociology," Social Problems, 14:366-373, 1967

"Sociology and the Historical Perspective," American Sociologist, 5:331-338, 1970

"Introduction," In Search of Common Ground: Conversations with Erik H. Erikson and Huey P. Newton (New York: Norton, 1973)

"Loss of Communitarity on Buffalo Creek," American Journal of Psychiatry, 133:302-306, 1976

"On Teaching Sociology," New England Sociologist, 1:35-40, 1979

"A Report to the People of Grassy Narrows," in Christopher Vecsey and Robert W. Venables, editors, American Indian Environments: Ecological Issues in Native American History (Syracuse, N.Y.: Syracuse University Press, 1980) (with Christopher Vecsey)

SELECTED PUBLICATIONS (continued)

Book Reviews

American Journal of Sociology  
American Scholar  
American Sociological Review  
Contemporary Sociology  
New York Times Book Review  
Transaction  
Yale Law Journal

HONORS

McIver Award, American Sociological Association, 1967  
Sorokin Award, American Sociological Association, 1977  
Nominee, National Book Awards, 1977

PROFESSIONAL MEMBERSHIPS

American Sociological Association (Chair, Committee on Professional Ethics, 1971-1973; Council, 1974-1977; Committee on Executive Office and Budget, 1978-1981)  
Society for the Study of Social Problems (President, 1970-1971)  
Eastern Sociological Society (President, 1980-1981)



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
CONSOLIDATED EDISON COMPANY OF NEW YORK	)	Docket Nos. 50-247 SP
(Indian Point Unit 2)	)	50-286 SP
POWER AUTHORITY OF THE STATE OF NEW YORK	)	
(Indian Point Unit 3)	)	February 21, 1983

SUPPLEMENTAL TESTIMONY OF DR. KAI T. ERIKSON, PROFESSOR OF SOCIOLOGY,  
YALE UNIVERSITY, ON THE EVACUATION PLAN FOR INDIAN POINT

In my original statement, I testified that radiological emergencies are different in kind from the ordinary run of natural disasters and human accidents. Because that is so, I further testified, it is reasonable to assume that, in the event of an emergency at Indian Point involving evacuation, (a) considerably more people will evacuate than asked to do so, seriously complicating an already difficult situation, and (b) many people now being relied upon to perform one or another kind of emergency work will be unavailable because they feel a compelling need to see to the safety of their own families instead.

In that testimony, I noted that two studies had been commissioned by the County of Suffolk, Long Island, of the people living in the general vicinity of the Shoreham Nuclear Power Plant. I was instrumental in designing those studies and in analyzing the results as a consultant to the County and as a member of the Suffolk County Radiological Emergency Response Plan Steering Committee. The results of those studies are now available. They relate to many of the concerns that have been expressed in the Indian Point hearings.



The first study conducted in the Shoreham area dealt with the number of residents who might evacuate in the event of an emergency at the Shoreham plant. The study was administered to a stratified random sample of 2,595 persons, and it indicated the following. If a minor emergency were declared at the Shoreham plant but no one in the immediate vicinity was advised to evacuate, some 215,000 families would leave anyway -- roughly 25% of the local population. If a small-scale emergency were declared and a limited evacuation was called for of those residents who live within 5 miles of the power plant, roughly 2,700 families, more than 289,000 families would leave instead -- 33% of the population. If total evacuation were called for within a 10-mile radius of the plant, a measure that should affect 31,000 families, fully 430,000 families from all over Long Island would try to leave -- 50% of the general population.

The second study conducted in the Shoreham area dealt with volunteer firemen and school bus drivers, two groups of people that are expected to play important roles in the local evacuation plan. In the first part of the study, 291 interviews were conducted by telephone with members of the five fire departments immediately surrounding the Shoreham plant. Approximately 60% of the members of those departments were involved. The research indicates that as many as two-thirds of the firemen would not be available on an immediate basis in the event of an emergency involving evacuation because they would look first to the safety of their families. In the second part of the study, 246 school bus drivers who work in the five school districts within ten miles of the Shoreham plant were also interviewed, this time by a self-administered questionnaire. Virtually all of the school bus drivers in the five-district area were contacted. The drivers were asked essentially the same question as had been posed to the firemen, and it is clear from their responses that 69% would not report to emergency duty until they were assured that their families were safely out of the evacuation zone.

These are striking and important findings. They indicate in the sharpest way that the number of people who can be expected to evacuate in the event of even a minor emergency is far larger than any previous estimates have allowed for, and they further indicate that large numbers of people presently counted on to perform emergency duties of one kind or another in the event of an emergency will simply not be available.

But can the findings from Suffolk and Nassau Counties be used to predict what might happen in the neighborhoods surrounding Indian Point? Quite obviously, the best and most reliable procedure would be for the affected counties to commission a study along the lines of the one conducted by Suffolk County. In the absence of such studies, however, the data from Long Island form the best single indicator available anywhere of how the people living around Indian Point are likely to respond. For one thing, what people on Long Island say they are likely to do in the event of a future crisis matches almost exactly what the people living in the vicinity of Three Mile Island did in fact during a past crisis. In that emergency, some 2,500 people were advised to evacuate from neighborhoods within a 5-mile radius of the plant, but, instead, 144,000 people from all over the countryside left. This suggests a more general pattern: if the neighborhoods surrounding Three Mile Island and the neighborhoods surrounding Shoreham are alike in their reactions and their fears, it is only prudent to assume that the neighborhoods surrounding Indian Point are similar -- especially since the evidence of what happened at Three Mile Island, and the evidence available from the Suffolk County studies, are the only relevant sources of information to be found anywhere.

Moreover, testimony already presented at the Indian Point hearings shows clearly that local officials are quite doubtful that emergency personnel will report to duty immediately, exactly because they will be concerned about their families. Experienced school bus drivers and volunteer firemen have testified to that effect, as well as a number of local officials, including the Commissioner of the Department of Social Services of Westchester County, the Chief of Police

of the Village of Haverstraw, the Deputy Commissioner of Transportation of Westchester County, the Commissioner of the Department of Public Works of Westchester County, the Captain of the Ossining Volunteer Ambulance Corps, the Program Coordinator of the Putnam Association for Retarded Citizens, the Director of Camp Rainbow at Croton, the Director of the Croton Recreation Department Day Camp, and the Senior Recreation Leader of the Town of Clarkstown.

The weight of the evidence available to date leaves no other conclusion possible: any evacuation plan that fails to take into account (a) the number of people who are likely to over-react in the event of an emergency, and (b) the number of emergency personnel who will help their families evacuate rather than report to duty, has to be regarded as sorely -- and dangerously -- inadequate.

1 MS. POTTERFIELD: The witness is available for  
2 cross examination.

3 JUDGE GLEASON: I might say that in the  
4 interest of making as much time available to the parties  
5 as possible during the hearing of these Contentions 3  
6 and 4, we are not going to permit summary statements of  
7 testimony, simply because it just takes more time.

8 All right. Who wants to proceed?

9 MR. CZAJA: May I proceed, Your Honor?

10 JUDGE GLEASON: All right.

11 CROSS EXAMINATION

12 BY MR. CZAJA:

13 Q Dr. Erikson, in your opinion, can parallels be  
14 drawn between human response to non-radiological  
15 emergencies and human response to radiological  
16 emergencies?

17 A (WITNESS ERIKSON) I think for most planning  
18 purposes it is dangerous to assume that the experience  
19 drawn on non-radiological emergencies can be useful in  
20 emergencies that do involve radiological emergencies.

21 Q Well, Dr. Erikson, in your testimony presented  
22 to the Board today, are you not in large part drawing on  
23 your research in connection with the Buffalo Creek  
24 disaster?

25 A (WITNESS ERIKSON) Only in certain

1 particulars. I would not regard what happened at  
2 Buffalo Creek as a proper example on which one can  
3 generalize about radiological emergency, no.

4 Q Dr. Erikson, of the research discussed in your  
5 testimony before the Board, other than the Buffalo Creek  
6 research, did you conduct any of that research  
7 personally?

8 A (WITNESS ERIKSON) I can't recall whether I  
9 refer in my testimony to a case of a methyl mercury  
10 poisoning that took place in northwest Ontario, at a  
11 place called Grassy Narrows. If I did refer to that, I  
12 did engage in the research referred to.

13 Q Would you consider that situation one in which  
14 one could draw parallels from that emergency to a  
15 radiological emergency?

16 A (WITNESS ERIKSON) I would think one comes  
17 closer when one is talking about emergencies that  
18 involve widespread contaminants to situations that  
19 involve radiation because contamination radiation is a  
20 form of contamination in that sense.

21 Q Dr. Erikson, as I understand your direct  
22 testimony, and some of the additions you made today, you  
23 have testified on a number of occasions with regard to  
24 your views on whether emergency plans for radiological  
25 emergencies are reasonable in terms of making

1 assumptions about human behavior. Is that correct?

2 A (WITNESS ERIKSON) Yes, it is.

3 Q And could you tell me on which occasions you  
4 have so testified?

5 A (WITNESS ERIKSON) I testified before the  
6 licensing board at Three Mile Island hearing testimony  
7 about the restart of Reactor 1. I testified before the  
8 licensing board at Diablo Canyon in San Luis Obispo  
9 County, California, on the start there. And most  
10 recently, I testified before, as I -- I just added to my  
11 testimony, I just testified before the Suffolk County  
12 Legislature on matters involving emergency planning for  
13 the Shoreham nuclear power station.

14 Q Now, at the bottom of Page 9 of your direct  
15 testimony, the last two lines on that page, you state,  
16 "We dare not assume that the present emergency  
17 evacuation plan provides any protection to the public."  
18 Was that the same view you took of the plans that you  
19 testified about at Three Mile Island, at Diablo Canyon,  
20 and before the Suffolk County Legislature?

21 A (WITNESS ERIKSON) Had I to write this  
22 sentence again, I would substitute the word "sufficient"  
23 for the word "any." But with that qualification, my  
24 testimony before Three Mile Island was given at a time  
25 when I had not reviewed the emergency evacuation plan



1 that was then in the making. My testimony on Diablo  
2 Canyon was to the effect that under the present  
3 circumstances, that the emergency plans in particular --  
4 in general, and the evacuation plans in particular were  
5 insufficient, and that was -- and my testimony before  
6 the Suffolk County Legislature was essentially of the  
7 same sort.

8 Q So Diablo Canyon and Suffolk County, you have  
9 the opinion that as in the present case, the plans are  
10 insufficient to protect the public? Is that correct?

11 A (WITNESS ERIKSON) The plans at the time I  
12 testified, yes.

13 Q Have you studied the plans since that date?  
14 Have you changed your opinion?

15 A (WITNESS ERIKSON) Well, the opinion I  
16 expressed at Suffolk County was a matter of a few weeks  
17 ago. So I don't think there have been any changes in  
18 the plan since then. I have not seen any plans, any  
19 changes, if indeed they have taken place in the  
20 emergency plans for San Luis Obispo County.

21 Q And in Three Mile Island, at the time you  
22 testified, you had not reviewed the plans at all. Is  
23 that correct?

24 A (WITNESS ERIKSON) I had not.

25 Q Have you subsequently reviewed those plans?

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

2 Q At any time during the course of your work  
3 experience, have you studied, evaluated, or researched  
4 an emergency response to a nuclear incident of any  
5 sort?

6 A (WITNESS ERIKSON) I would think at this point  
7 that I would regard my review of the emergency plan at  
8 San Luis Obispo County as thorough enough to qualify as  
9 a study.

10 Q Now, Doctor, you have to focus on my  
11 question. My question is, response to a nuclear  
12 incident. As I understand it, there was no nuclear  
13 incident in San Luis Obispo. Is that correct? Is that  
14 your understanding?

15 A (WITNESS ERIKSON) Yes.

16 Q And my question is simply whether during the  
17 course of your work experience you have studied,  
18 evaluated, or researched an emergency response to a  
19 nuclear incident of any sort.

20 A (WITNESS ERIKSON) No, I haven't.

21 Q Dr. Erikson, would you agree with the  
22 proposition that in emergencies panic is more often  
23 observed in films than in everyday life?

24 A (WITNESS ERIKSON) Yes, I would.

25 JUDGE GLEASON: I can't hear you.

1           MR. CZAJA: I am sorry, Mr. Chairman. The  
2 question was whether Dr. Erikson agrees with the  
3 proposition that in emergencies panic is more often  
4 observed in movie films than in everyday life, and I  
5 believe the response was, he agrees with that  
6 proposition.

7           WITNESS ERIKSON: Yes. With the qualification  
8 that panic is very often observed in emergency  
9 situations where people are in a contained space.

10          BY MR. CZAJA: (Resuming)

11          Q     Dr. Erikson, am I correct in saying that you  
12 have not studied the Three Mile Island incident?

13          A     (WITNESS ERIKSON) I have not conducted a  
14 survey, but I have kept abreast of all of the surveys  
15 that have been done and other information available, and  
16 whether that constitutes a study for the purposes of  
17 your question I don't know.

18          Q     Well, as you understand the word "study" as it  
19 is used in sociological circles, have you conducted a  
20 study of the Three Mile Island situation?

21          A     (WITNESS ERIKSON) My answer would be as I  
22 just gave it. I have reviewed the studies.

23          Q     Have you conducted a study yourself?

24          A     (WITNESS ERIKSON) I have not conducted a  
25 survey.

1 Q Do you know Dr. Russell Dynes?

2 A (WITNESS ERIKSON) Yes, I do.

3 Q And would you be prepared to concede that Dr.  
4 Dynes knows a good deal about the Three Mile Island  
5 incident?

6 A (WITNESS ERIKSON) Yes, I would.

7 Q Am I correct in saying, Dr. Erikson, that your  
8 position is that studies of disasters show that there is  
9 no shortage of emergency response personnel?

10 A (WITNESS ERIKSON) I am sorry. Could you  
11 repeat that?

12 Q Am I correct in saying that your position is  
13 that studies of disasters show that there is no shortage  
14 of emergency response personnel?

15 A (WITNESS ERIKSON) Is your question whether I  
16 testified to that effect?

17 Q I am asking you first whether that is your  
18 position, Doctor.

19 A (WITNESS ERIKSON) It is not my position.

20 Q In what respects is it not your position?

21 A (WITNESS ERIKSON) I would say that in the  
22 great majority of disaster emergencies of which we have  
23 record, that there were a sufficient number of emergency  
24 personnel, but there have been occasions at which there  
25 were not, so I would not like to generalize on the basis

1 of even the majority of the cases.

2 Q Now, am I correct that it is also your  
3 position that in some cases prior to the time when  
4 emergency workers report in an emergency, they want to  
5 assure themselves that their families are safe. Is that  
6 correct?

7 A (WITNESS ERIKSON) Yes.

8 Q But is it further your position that rescue  
9 workers do not have to physically go to see that their  
10 families are safe and that this can be accomplished by  
11 other methods, for example, a colleague checking, by  
12 radio communication, by telephone communication, or by  
13 some other means?

14 A (WITNESS ERIKSON) I don't think it is  
15 possible to answer that question without saying that it  
16 would be my position that people need to be reassured  
17 that their families are safe, but one can't anticipate  
18 in advance what will reassure them. So whether they are  
19 reassured by a phone call remains to be seen.

20 Q Well, is it true that it is often the case  
21 that this could be accomplished by a phone call or some  
22 other method?

23 A (WITNESS ERIKSON) I would think, and I am  
24 only guessing here, that large numbers of people would  
25 be reassured by a phone call if it came from the right

1 person or had the right information in it.

2 JUDGE PARIS: Mr. Czaja, we are having  
3 difficulty understanding you. Try pulling the mike a  
4 little closer.

5 MR. CZAJA: I am sorry, Judge.

6 BY MR. CZAJA: (Resuming)

7 Q Turning to Page 8 of your testimony, Dr.  
8 Erikson, on the bottom five lines of that page, you  
9 state, "If a fair number of parents insist upon  
10 questioning, as I would expect them to, that they might  
11 drive to the schools themselves, then there would be  
12 substantially more traffic on the roads than the present  
13 estimates seem to allow for."

14 Is that observation essentially a common sense  
15 observation on your part?

16 JUDGE GLEASON: Excuse me. Is that  
17 observation -- I am having a very difficult time. If  
18 you will just slow up your questions.

19 MR. CZAJA: I am sorry.

20 BY MR. CZAJA: (Resuming)

21 Q Is that observation essentially a common sense  
22 observation on your part as opposed to one based upon  
23 expertise in traffic engineering or evacuation time  
24 estimating?

25 A (WITNESS ERIKSON) Well, I think there are two



1 observations in this sense, and I think the first is a  
2 guess as to how parents would respond, which is based  
3 upon more than a common sense observation. As to  
4 whether or not an influx of parents on the roads would  
5 substantially increase the traffic, yes, that is a  
6 common sense observation.

7 Q Do you have any opinion as to the effect of  
8 that increased traffic on the roads on evacuation time  
9 estimates?

10 A (WITNESS ERIKSON) No, I don't.

11 Q I take it then that you are not familiar with  
12 Dr. Thomas Urbanek's testimony in this proceeding.

13 A (WITNESS ERIKSON) I don't recall it by that  
14 name in any event.

15 Q Well, did you read any testimony in this  
16 proceeding to the effect that if parents were to go to  
17 the schools themselves to pick up their children,  
18 decreased evacuation times would result?

19 A (WITNESS ERIKSON) No, I haven't.

20 Q Dr. Erikson, I believe you testified in  
21 response to Judge Gleason's questions that your role in  
22 the Shoreham study came about because of your membership  
23 on the radiological emergency response plan steering  
24 committee of Suffolk County. Is that correct?

25 A (WITNESS ERIKSON) In part, yes. I was also a

1 consultant to the County in my capacity as a  
2 sociologist, so I would say both of those capacities  
3 were at issue here.

4 Q And what was the task of the radiological  
5 emergency response plan steering committee of Suffolk  
6 County?

7 A (WITNESS ERIKSON) The main task, as I  
8 understood it, was to review the existing emergency  
9 plans and to aid in the formulation of a new one, and to  
10 advise the county executive on other matters pertaining  
11 to the position he ought to take in regard to the  
12 nuclear power plant.

13 Q And was the survey that appears in your  
14 supplemental testimony commissioned as part of that  
15 process of reviewing an existing emergency response plan?

16 A (WITNESS ERIKSON) Yes, it was.

17 Q And what was your conclusion with regard to  
18 that existing emergency response plan?

19 A (WITNESS ERIKSON) I am missing a link in the  
20 logic here. My response to the two pieces of research  
21 that were done --

22 Q No, no, your response to that existing  
23 emergency response plan that you were reviewing, and in  
24 the course of that review you commissioned the survey  
25 which is next to your supplemental testimony.

1           A       (WITNESS ERIKSON) Actually, at the time the  
2 steering committee was formed, there were two pieces,  
3 two sets of documents that could be described as  
4 emergency plans, and the first was an on-site plan  
5 prepared by the Long Island Lighting Company which was  
6 the first thing that we reviewed, and the second was an  
7 emergency plan that had been drawn up by the Suffolk  
8 County Department of Health, I believe. It was the  
9 conclusion of the steering committee that further  
10 research was required in order for a third plan to be  
11 drawn, which the county also commissioned.

12           Q       Did you ever review a plan, an off-site plan  
13 prepared by the Long Island Lighting Company?

14           A       (WITNESS ERIKSON) I don't think I did.

15           MR. CZAJA: I have no further questions.

16           JUDGE GLEASON: Mr. Brandenburg.

17                               CROSS EXAMINATION

18           BY MR. BRANDENBURG:

19           Q       Dr. Erikson, you have had no formal training  
20 in psychiatry, have you?

21           A       No, I haven't.

22           Q       You have similarly had no formal training in  
23 emergency planning or emergency response, have you?

24           A       (WITNESS ERIKSON) That is correct.

25           Q       Now, you responded to a question asked by Mr.

1 Czaja, and I believe you amended your direct testimony  
2 to reflect that you had testified in the Diablo Canyon  
3 licensing proceeding. Is that correct?

4 A (WITNESS ERIKSON) Yes.

5 Q On whose behalf did you testify in that  
6 proceeding?

7 A (WITNESS ERIKSON) I can't remember the name  
8 of the group. It was citizens who lived in San Luis  
9 Obispo county, represented by a law firm located in Los  
10 Angeles, and I can neither remember those names, the  
11 citizen group nor the name of the law firm.

12 Q Now, did the party on whose behalf you  
13 testified have a point of view as to whether or not  
14 effective emergency planning could occur at the site of  
15 that plant?

16 A (WITNESS ERIKSON) I am not sure that I am  
17 aware that the group had a point of view on the  
18 emergency plan at all.

19 Q Well, was the thrust of your testimony in that  
20 proceeding similar to the thrust of your testimony here?

21 A (WITNESS ERIKSON) Yes, it was.

22 Q Now, in the Diablo Canyon case, were there  
23 other experts on behavioral sciences and emergency  
24 planning that were testifying against the positions  
25 which you took in that proceeding? Or contrary to the

1 positions which you took?

2 A (WITNESS ERIKSON) I am only aware of the  
3 testimony that was given on the hours that I was in the  
4 courtroom myself. But there were a sociologist named  
5 Dennis Milleti testifying in a way that I thought was  
6 different than mine.

7 Q Are you aware of whether or not the licensing  
8 board in the Diablo Canyon case has issued a decision or  
9 opinion on the emergency planning issues which you  
10 addressed in your testimony there?

11 A (WITNESS ERIKSON) No, I am not aware of what  
12 has happened subsequently.

13 Q Now, you also indicated your testimony in the  
14 Three Mile Island proceeding and also before the Suffolk  
15 County Legislature in connection with the Shoreham  
16 proceeding, I believe. Are there other nuclear power  
17 plant proceedings in which you have given testimony  
18 other than those and this one, of course?

19 A (WITNESS ERIKSON) No.

20 Q I think you indicated the positions you took  
21 in the Diablo Canyon case were similar to the ones that  
22 you have taken here. Would the same be true for the  
23 positions you took in your testimony in the Three Mile  
24 Island proceeding and before the Suffolk County  
25 Legislature? Would the general contours of your

1 position taken in those hearings be the same as you have  
2 taken in your testimony here?

3 A (WITNESS ERIKSON) Well, I think I would need  
4 to put it this way. The position I am taking here and  
5 the position I took for the Diablo Canyon plant and the  
6 position I took in Suffolk County were very similar  
7 because the emergency plans that I was reviewing in  
8 those three cases were very similar. My testimony at  
9 Three Mile Island was of a somewhat different sort,  
10 because I was not describing -- I was not responding to  
11 a particular emergency plan.

12 Q I think you said that the emergency plans that  
13 you reviewed for Diablo Canyon were very similar to  
14 those that you reviewed for Indian Point. Did you  
15 similarly review plans for the Three Mile Island  
16 proceeding? These, of course, would be plans that would  
17 be contemplated for the restart of the Three Mile Island  
18 1 reactor. Have you had any occasion to review those  
19 plans?

20 A (WITNESS ERIKSON) No, I haven't.

21 Q But you have reviewed the Diablo Canyon plans  
22 and Indian Point plans. Is that correct?

23 A (WITNESS ERIKSON) Yes.

24 Q Have you reviewed any other nuclear power  
25 plant emergency preparedness plans other than Indian



1 Point and Diablo Canyon?

2 A (WITNESS ERIKSON) Suffolk County.

3 Q And is it your view that all of those plans  
4 are essentially similar with regard to the assumptions  
5 they make about human response, to the extent that you  
6 addressed them?

7 A (WITNESS ERIKSON) At the time that I saw  
8 them, they were similar in two major respects, that they  
9 did not take sufficiently into account the number of  
10 people who might evacuate who were not called upon to do  
11 so, and they failed to take into account the possibility  
12 that large numbers of emergency personnel might feel  
13 unable to report to duty because they felt a higher duty  
14 to their families.

15 Q And do you believe that the failure to  
16 adequately anticipate these two phenomena that you have  
17 just referred to is a common fault with respect to the  
18 Suffolk, Diablo Canyon, and Indian Point plants which  
19 you have reviewed?

20 A (WITNESS ERIKSON) With the same  
21 qualification, at the time I reviewed them, yes.

22 Q Now, Dr. Erikson, are you familiar with the  
23 Nuclear Regulatory Commission's emergency planning  
24 regulations which were issued subsequent to the Three  
25 Mile Island accident? I believe they became effective in

1 August of 1980 or thereabouts. Are you familiar with  
2 those? In truth, if it helps you, Doctor, they have not  
3 been amended since then.

4 A (WITNESS ERIKSON) In truth, I don't  
5 remember.

6 Q Are you familiar with the document?

7 JUDGE GLEASON: Excuse me. Did you ask him,  
8 Mr. Brandenburg, if he was familiar with the  
9 Commission's regulations on emergency planning?

10 MR. BRANDENBURG: I asked him if he had ever  
11 reviewed them, Mr. Chairman.

12 JUDGE GLEASON: And he indicated he had not?

13 MR. BRANDENBURG: That is correct.

14 JUDGE GLEASON: Thank you.

15 BY MR. BRANDENBURG: (Resuming)

16 Q Dr. Erikson, are you familiar with the  
17 document entitled NUREG-0654, the title of which is  
18 Criteria for Preparation and Evaluation of Radiological  
19 Emergency Response Plans and Preparedness in Support of  
20 Nuclear Power Plants, which was published in November of  
21 1980?

22 I have a copy here, if you would like to look  
23 at it.

24 (Whereupon, counsel handed the witness the  
25 document.)

1 (Pause.)

2 A (WITNESS ERIKSON) The best answer I can give  
3 is that I don't ever recall looking at this document in  
4 its entirety. Some of the early pages of it look  
5 familiar enough for me to suspect that I have seen  
6 mimeographed portions, but I can't say that for sure.

7 Q Dr. Erikson, have you ever made a systematic  
8 comparison or even a casual one, actually, of how the  
9 Diablo Canyon, the Indian Point, or the Shoreham  
10 radiological emergency plans stand up against any of the  
11 planning standards set forth in that document or in  
12 other documents which set forth the requirements for  
13 radiological emergency response plans?

14 A (WITNESS ERIKSON) No, I haven't.

15 Q Now, regarding the Suffolk County study which  
16 is next in your supplemental testimony, I believe you  
17 state in your supplemental testimony at Page 3, and I  
18 think you even underscored it, that given the current  
19 state of research and study in this area, that the  
20 Suffolk study forms -- I believe these are your words;  
21 you underscored them -- the "best single indicator  
22 available anywhere" of how people around the Indian  
23 Point site would respond to an accident. Do you see  
24 that passage, sir?

25 A (WITNESS ERIKSON) Yes, I do.

1 Q Now, would the Suffolk study similarly be the  
2 best indicator or the single best indicator, to use your  
3 phraseology, of how people around the Connecticut Yankee  
4 plant, which is not too far from New Haven, would act in  
5 the event of a radiological emergency, in your opinion?

6 A (WITNESS ERIKSON) Yes, it is important that  
7 the whole phrase that is underlined -- it is not the  
8 best single indicator. It is the best single indicator  
9 available, which is a different matter. And I would say  
10 that this is the only data of its kind that is  
11 available, and therefore, for that reason alone, it is  
12 the best available data for the people who live around  
13 any nuclear power plant.

14 Q Now, later on on that page, Dr. Erikson, you  
15 state that -- this is the other underscored passage on  
16 that page -- that the post-Three Mile Island evidence  
17 coupled with the Suffolk County study in your opinion  
18 comprise the only relevant sources of information to be  
19 found anywhere on response to a radiological emergency.  
20 Do you see that passage?

21 A (WITNESS ERIKSON) Yes, I do.

22 Q Now, laying aside just for the moment the  
23 post-Three Mile Island studies, and concentrating  
24 exclusively on the Suffolk County study, do you in  
25 effect assume in making the statement that you make here

1 towards the bottom of Page 3 of your testimony that what  
2 the people who responded to the Suffolk County poll  
3 stated that they would do in emergency situations such  
4 as was postulated in the poll is just what they would  
5 really do if such an emergency actually arose?

6 A (WITNESS ERIKSON) I wouldn't put it as  
7 strongly as that. I would say it is the best available  
8 indicator of what they are likely to do in the event of  
9 an emergency.

10 Q As an expert in this area, Dr. Erikson, do you  
11 believe that there is a leap of faith of some magnitude  
12 involved in inferring from what people say they will do  
13 in an emergency to what they would actually do if the  
14 postulated emergency were to actually arise?

15 A (WITNESS ERIKSON) I think if the only data  
16 available is the way people respond to a question, that  
17 it requires a fairly substantial leap of faith, but a  
18 smaller leap of faith than any other conclusion that one  
19 could come to, but I would add to this, I know that you  
20 have asked me to leave out Three Mile Island --

21 Q We will get back to that in a minute.

22 A (WITNESS ERIKSON) -- but it would be a part  
23 of the answer to this question that the fact that the  
24 response to an actual event at Three Mile Island was so  
25 similar to the projected event in Suffolk County would

1 add substantially to lengthening -- to just making  
2 shorter the amount of faith that is required to judge  
3 from it.

4 Q Now, Dr. Erikson, are you aware of any studies  
5 in the literature in the area of disaster emergency  
6 response, and I am including now hurricanes, forest  
7 fires, any type of emergency response situation, where  
8 the study sought to contrast what people say they will  
9 do in emergencies on the one hand compared to what they  
10 actually do in the actual emergency on the other? Are  
11 you aware of such studies?

12 A (WITNESS ERIKSON) I don't know of such a  
13 study offhand.

14 Q Now, I believe that you have indicated and  
15 testified you had been a consultant in connection with  
16 the preparation of the questionnaire, if you will, in  
17 the Suffolk study. Did you consider in connection with  
18 that poll whether or not to ask the people who would be  
19 responding whether or not they had ever previously been  
20 in an emergency situation and how they responded in that  
21 situation?

22 A (WITNESS ERIKSON) I can't recall whether that  
23 came up or not.

24 Q Why did the survey, if it was only on  
25 attitudes and not on behavior in this area, if you know?



1           A       (WITNESS ERIKSON) Well, if we were at this  
2 moment now considering placing such a question as that  
3 in the questionnaire instrument that we did administer,  
4 I would argue against it on the ground that the biggest  
5 leap of faith of all would be to ask people what they  
6 intended to do some months before an event which has  
7 happened in the past.

8                   I think experience of surveys of this kind is  
9 that people reconstructing what they felt before an  
10 intervening event is very difficult to have reliance  
11 on.

12           Q       Well, I guess what I am asking is whether in  
13 your judgment the results of the Suffolk study might  
14 have been more reliable if they had inquired whether or  
15 not the people who were responding to that survey had  
16 ever previously been in a situation that they would  
17 characterize as an emergency situation and not how they  
18 felt then, but rather how they responded. Do you think  
19 that such questioning or such a line of questioning as a  
20 part of the Suffolk survey would have made the results  
21 of that survey more reliable in your opinion?

22           A       (WITNESS ERIKSON) The only question that  
23 would have made me feel more comfortable about the  
24 results would have been a question that asked about  
25 their response to a radiological emergency of a

1 magnitude at least something like the one we were  
2 talking about in that questionnaire.

3           So, if there had been people on Long Island  
4 who happened to live in Middletown at the time of the  
5 accident at Three Mile Island, I would be very  
6 interested to know what their response was, but  
7 otherwise, I don't think that the addition of that  
8 question would have added appreciably to the amount of  
9 confidence I had in the results.

10           Q     Let me make sure I understand your answer,  
11 Doctor. Is your testimony that information that might  
12 have been supplied by some of the several thousand, I  
13 think it was, people responding to the Suffolk study  
14 that had inquired as to whether or not -- as to what  
15 their response had been on a prior occasion, if any, in  
16 a non-nuclear emergency would not have been valuable  
17 information to you in connection with that survey?

18           A     (WITNESS ERIKSON) It would not have been  
19 valuable enough to justify the expense of putting it on  
20 the questionnaire, the reason being that how people  
21 would respond in a radiological emergency could not be  
22 predicted in my judgment from how they would respond in  
23 a non-radiological emergency.

24           Q     Based upon that premise that you make, Doctor,  
25 is not the Buffalo Creek experience and the Grassy Knoll

1 experience and other experiences in non-nuclear  
2 situations similarly of no value in trying to infer what  
3 the response would be to a nuclear incident, based upon  
4 the distinction you have just made?

5 A (WITNESS ERIKSON) I do not think that what  
6 happened in Buffalo Creek has very much predictive power  
7 as to how people will respond to an evacuation from a  
8 radiological emergency.

9 Q Doctor, I would like to turn to, keeping with  
10 this line of distinguishing or exploring your  
11 distinction, rather, between non-nuclear and nuclear  
12 situations, if I understand your testimony correctly,  
13 one of the main reasons that you give for presuming a  
14 different response to a nuclear emergency rather than a  
15 non-nuclear emergency is the fact that radiation cannot  
16 be perceived by the senses. That is the first point, if  
17 I understand your testimony, you make, and the other is  
18 that the other types of disasters have clear ending, and  
19 so forth. The milestones are clearly demarcated. Is  
20 that correct? Are those the two principal differences,  
21 the rationale, rather, for the differences you draw  
22 between nuclear and non-nuclear emergencies?

23 A (WITNESS ERIKSON) That is true, but I would  
24 describe them as two halves of the same whole.

25 Q Now, are you aware of any studies in the

1 literature of human response to other large-scale  
2 threats which cannot be perceived by the human senses,  
3 such as chemicals, poisonous gas spills, things of that  
4 sort?

5       A       (WITNESS ERIKSON) The only disaster  
6 situations that come to my mind now involve a toxic  
7 cloud that settled over a town called Sevaso in Italy,  
8 the deposits of toxic waste that seeped up from  
9 underground at the Love Canal, which has been heavily  
10 studied. Incidents of methyl mercury poisoning in  
11 Minamata, Japan, and in northwest Ontario, Canada.

12       Q       Well, except for the first of these events,  
13 the Italian situation, these were not situations where  
14 there was an exigency in the sense of urgency about it  
15 In the Love Canal and the other longer-term situations,  
16 are they not? In the Love Canal and in the other  
17 environmental toxic poisoning cases there wasn't the  
18 requirement to respond quickly and evacuate and things  
19 of that sort, was there?

20       A       (WITNESS ERIKSON) It depends how you mean  
21 it. The people in Love Canal, once they came to feel --  
22 once they had come to realize that they had been exposed  
23 to dioxin, felt the urgency of evacuating very strongly,  
24 and did so. But the event itself didn't have the short  
25 beginning that most disasters do.

1 Q Now, let's take the Italian poisonous gas  
2 event. That was one where there was a cloud, and the  
3 need to get out quickly, and that sort of thing, was it  
4 not?

5 A (WITNESS ERIKSON) Yes.

6 Q Now, in your experience or in your judgment,  
7 Doctor, based upon your review of the literature  
8 surrounding that event, have there been conclusions  
9 reached that there was substantial difference in the way  
10 people responded to that event in terms of the rapidity  
11 with which they were able to remove themselves from the  
12 area that the studies concluded were attributable to the  
13 ability to -- for sensory perception of the peril  
14 there?

15 Maybe my question is not as clear as it might  
16 be. As I understand it, one of the principal reasons  
17 that you attempt to distinguish human response to  
18 non-nuclear on the one hand versus nuclear is the fact  
19 that the latter cannot be perceived by the senses, and I  
20 think you identified this Italian event as one similarly  
21 where the peril was not -- could not be perceived by the  
22 senses.

23 And I am asking you whether studies that you  
24 are aware of conducted of that event attribute a  
25 difference in human response to that event, Number One,

1 and to the extent that they find any, did those studies  
2 conclude that that was due to the fact that the peril  
3 there could not be perceived by the senses?

4 A (WITNESS ERIKSON) I would have to circle back  
5 to add the following, that the reason why I think the  
6 invisibility of a hazard in this case contributes to the  
7 problem is that people --

8 JUDGE GLEASON: In which case?

9 WITNESS ERIKSON: In the case of invisible  
10 contamination and radiation in particular.

11 JUDGE GLEASON: In the Italian case?

12 WITNESS ERIKSON: In the Italian case. Is  
13 that people don't know when the event is over, and don't  
14 know when the agent that is creating the harm has  
15 disappeared. That continued to be the case in Sevaso.  
16 I have no information as to whether or not anybody has  
17 done a study as to how important a matter that was in  
18 that situation.

19 BY MR. BRANDENBURG: (Resuming)

20 Q Now, with respect to the second basis upon  
21 which you seek to distinguish between nuclear and  
22 non-nuclear situations, Dr. Erikson, which is the lack  
23 of a clear ending, if I can put it that way, what can  
24 you tell us about human response to other crises of a  
25 non-nuclear nature while the threat is still impending?



1 And I am not talking about the aftermath, if you will,  
2 such as you addressed in Buffalo Creek, but rather, when  
3 the peril is still threatening, if you will. Do you  
4 draw in that early phase, if you will, of the emergency  
5 response, do you posit a distinction between human  
6 response to a nuclear and a non-nuclear situation when  
7 the peril is still present, if you will?

8 A (WITNESS ERIKSON) The problem in answering  
9 the question is that most of the natural disasters or  
10 human accidents of which we have sufficient record,  
11 floods and fires and explosions and earthquakes and  
12 tornadoes and so on, have the character that the  
13 damaging agent comes and goes with such rapidity that  
14 there are very few occasions for people to engage in  
15 rescue work of the kind we are talking about here during  
16 the event itself.

17 And I don't think that there is a very large  
18 literature on what happens in the middle of a hurricane,  
19 what happens in the middle of a tornado, what happens in  
20 the middle of a fire that would suggest that the  
21 response is that different from the one we have been  
22 describing.

23 Q Dr. Erikson, would you expect to find a  
24 different behavior in the face of an advancing forest  
25 fire, let's say, than you would expect to see prior to

1 the possible release of radiation from a nuclear power  
2 plant accident? And I am excluding now the confined  
3 space situation where I think we can all agree that  
4 there is a different situation, but assuming that exit  
5 pathways are present and things of that sort, would you  
6 expect to see a different behavior in those two  
7 situations?

8 A (WITNESS ERIKSON) I would expect on the first  
9 hand that people would evacuate if their senses tell  
10 them that they are in the path of an oncoming fire. I  
11 would expect in the second that they would conduct the  
12 evacuation with a good deal less fear, because they  
13 would know themselves when they are in the throes of the  
14 fire and when they are not, which would not be the case  
15 necessarily in a radiological emergency.

16 Q Now, Dr. Erikson, turning to the phenomena of  
17 emergency workers seeking confirmation of the safety of  
18 their families before attending to emergency response  
19 duties, has that phenomena been observed in connection  
20 with non-nuclear disasters?

21 A (WITNESS ERIKSON) Most of the work that I am  
22 aware of about emergency personnel in disasters  
23 describes the behavior of people who engage in rescue  
24 work after they are sure that their families are safe  
25 and after the dangerous agent itself has disappeared. I

1 am aware of very few studies describing the behavior of  
2 emergency workers during an ongoing emergency.

3 There are studies of some professional  
4 emergency workers like police officers, professional  
5 firemen, and so on, but there are very few studies that  
6 I am aware of that are concerned with whether -- the  
7 degree to which people of a more volunteer sort report.

8 Q Dr. Erikson, are you aware of any studies of  
9 emergency response which have concluded that the  
10 phenomena of emergency workers seeing to the safety of  
11 their families has seriously hampered the initial  
12 emergency response tied into evacuations and things of  
13 that sort, traffic control? I am not talking about the  
14 recovery phase now. I am excluding that. But just the  
15 initial response.

16 A (WITNESS ERIKSON) That is hard for me to say,  
17 because I have testified that for most people the  
18 initial response only occurs after the dangerous agent  
19 has disappeared. The response of emergency workers  
20 after a hurricane or after a storm or after a fire is  
21 subsequent to the danger itself.

22 Q Now, are you familiar, Dr. Erikson, with a  
23 period in an emergency response that is called an  
24 inventory period when a community is sort of taking  
25 stock of what is going on, and talking to neighbors and

1 family, and listening to radios, and things of that  
2 sort? Are you familiar with the term "inventory  
3 period?

4 A (WITNESS ERIKSON) I have heard the term, yes.

5 Q Now, are you aware of any studies that have  
6 concluded that emergency response workers do not perform  
7 their functions during this inventory period, if you are  
8 comfortable with that?

9 A (WITNESS ERIKSON) I am not familiar with any  
10 studies that deal directly with that, no.

11 JUDGE GLEASON: Mr. Brandenburg, just so we  
12 keep our time straight here, I might say that Mr. Lewis  
13 is our timekeeper, so any complaints will be directed at  
14 him personally. You have now used up your half-hour.

15 MR. CZAJA: Yes, I should have said that I  
16 will give Mr. Brandenburg my remaining time.

17 MR. BRANDENBURG: With that remaining time, I  
18 think I have 12 or 13 minutes left, and I would hope to  
19 finish in that time.

20 JUDGE GLEASON: Please proceed.

21 BY MR. BRANDENBURG: (Resuming)

22 Q Now, I think you, a couple of answers ago, Dr.  
23 Erikson, sought to distinguish between the response you  
24 might expect to see between a fireman or a policeman,  
25 someone who confronts personal peril in their

1 professional lives every day, and other emergency  
2 response workers. I would like to ask you a question  
3 about the Three Mile Island experience. You have some  
4 conversancy, I believe, with studies that have been made  
5 of performance of various people in that situation. Is  
6 that correct?

7 A (WITNESS ERIKSON) Yes.

8 Q At Three Mile Island, Dr. Erikson, in fact, at  
9 the early stages of that accident, did not teachers stay  
10 in the schools with their students, and not abandon  
11 their posts?

12 A (WITNESS ERIKSON) In general, that is  
13 correct. The nature of that evacuation was very  
14 different, though, than the one that is contemplated in  
15 an emergency plan of the sort we are talking about  
16 here.

17 Q Now, Dr. Erikson, are you aware of any  
18 disaster studies which found a shortage of people  
19 responding to the need for rescue help?

20 A (WITNESS ERIKSON) Yes.

21 Q Do you recall being asked in the course of  
22 your cross examination in the Three Mile Island case  
23 whether you were aware of any disaster studies which  
24 found a shortage of people responding to the need for  
25 rescue help?

1           A     (WITNESS ERIKSON) Are you asking if I recall  
2 that sentence?

3           Q     Yes.

4           A     (WITNESS ERIKSON) No, I don't.

5           Q     Do you recall responding on that occasion that  
6 you were not aware of any disaster studies which found a  
7 shortage?

8           MS. POTTERFIELD: Judge, I request that Mr.  
9 Brandenburg show the witness the statement and a copy of  
10 the transcript if he has it. The witness has said he  
11 doesn't remember being asked the question, so it is  
12 unlikely that he will remember the response.

13          MR. BRANDENBURG: I am about to do that, Mr.  
14 Chairman.

15          JUDGE GLEASON: Let's refresh his memory,  
16 because he has already responded that he doesn't recall  
17 the statement.

18                 (Pause.)

19                 (Whereupon, counsel handed the witness a  
20 document.)

21                 (Pause.)

22          BY MR. BRANDENBURG: (Resuming)

23          Q     Dr. Erikson, I believe you have now had a  
24 chance to peruse your testimony in the Three Mile Island  
25 case at Page 21,764. Could you explain to us the



1 question and answer from that proceeding as you now  
2 understand it?

3 A (WITNESS ERIKSON) The conversation that is  
4 reported in the transcript immediately before that  
5 answer suggests that I was reading from a list, and it  
6 asks, which of the items on that list have the character  
7 that you were just describing, and I said that none of  
8 them did, but in the same paragraph above I made an  
9 allusion to the Buffalo Creek study, which I would now  
10 say -- which I would now add is a study in which there  
11 was a shortage of emergency personnel during the crisis  
12 itself. It apparently was not on the list at that  
13 time.

14 Q Dr. Erikson, I think you testified at Page 3  
15 of your supplemental testimony that you have reviewed  
16 some of the testimony already presented in the Indian  
17 Point hearings. That is the first line in the last  
18 paragraph on Page 3 of your supplemental testimony.  
19 Have you read the testimony of Dr. Russell Dynes or Dr.  
20 Sidney Lecker?

21 A (WITNESS ERIKSON) Yes, I have.

22 Q Do you consider them persons who are  
23 experienced in the study of human response to emergency  
24 situations?

25 A (WITNESS ERIKSON) Well, I know as a matter of

1 general information that that is true of Dr. Dynes. Dr.  
2 Lecker I was unaware of until I saw his testimony.

3 Q Now, you state here on the bottom of Page 3 of  
4 your supplemental testimony that, "Testimony already  
5 presented at the Indian Point hearings shows clearly  
6 that local officials are quite doubtful that emergency  
7 personnel will report to duty immediately..." Are the  
8 two witnesses that we just referred to, Dr. Lecker and  
9 Dr. Dynes, doubtful that emergency personnel would  
10 report to duty?

11 A (WITNESS ERIKSON) The sentence you just made  
12 reference to talks about local officials, and neither  
13 Dr. Lecker nor Dr. Dynes would fit that character.  
14 Neither of them, so far as I remember their testimony,  
15 are doubtful that they would report, no.

16 MR. BRANDENBURG: Mr. Chairman, I have no  
17 further questions of this witness, and I am delighted to  
18 note that I was able to complete my examination within  
19 the time period allotted.

20 JUDGE GLEASON: So are we, Mr. Brandenburg.  
21 Mr. Hassell?

22 MR. HASSELL: The staff has no questions.

23 JUDGE GLEASON: Any adversarial type questions  
24 from the state representatives?

25 MS. VETERE: I have none, Your Honor.

1 JUDGE GLEASON: Any redirect, please?

2 MS. POTTERFIELD: Yes, I have a few questions.  
3 I understand that Mr. Kaplan made a special request that  
4 he be permitted to do his cross examination when he  
5 arrives after his class this morning, which was to be  
6 about 11:00 o'clock.

7 JUDGE GLEASON: I don't have a request, Ms.  
8 Potterfield.

9 MS. POTTERFIELD: I thought he told me that he  
10 submitted it with his cross examination plans.

11 JUDGE GLEASON: I haven't seen his cross  
12 examination plans.

13 (Pause.)

14 JUDGE GLEASON: We don't have it. Let's  
15 proceed with your redirect.

16 REDIRECT EXAMINATION

17 BY MS. POTTERFIELD:

18 Q Dr. Erikson, you were questioned on cross  
19 examination about your awareness of any studies that  
20 have been done about emergency response to a  
21 radiological incident. I think the question was a  
22 nuclear incident. What studies do exist about an  
23 emergency response to a nuclear incident?

24 A (WITNESS ERIKSON) The only studies I am aware  
25 of, if we exclude Three Mile Island, that could be

1 called radiological emergencies are a fire in a nuclear  
2 waste dump in San Antonio, of the derailment of either a  
3 truck or a railroad car containing nuclear waste, and I  
4 don't know much about it, but I do know there was an  
5 emergency contained within a plant using nuclear  
6 materials that at least endangered some of the workers  
7 there.

8           Those are the ones I am aware of.

9           Q     You testified that you are familiar with the  
10 testimony submitted in this proceeding by Dr. Russell  
11 Dynes, did you not?

12          A     (WITNESS ERIKSON) I did, yes.

13          Q     Do you have a copy of that testimony in front  
14 of you?

15          A     (WITNESS ERIKSON) Yes, I do.

16          Q     On Page 10 of Dr. Dynes' testimony is the  
17 statement near the bottom of the page, "Empirical  
18 evidence suggests that responses to radiological agents  
19 follow similar patterns to those involving other  
20 non-radiological agents." Do you see that on the page?

21          A     (WITNESS ERIKSON) Yes, I do.

22          Q     Is it your testimony then that the empirical  
23 evidence -- that you know of no empirical evidence apart  
24 from the incidents that you just described to us?

25          A     (WITNESS ERIKSON) I don't recall whether I

1 mentioned Three Mile Island in my answer to your last  
2 question. If I didn't, then it should be added as  
3 empirical evidence of the sort that is being described  
4 here.

5 Q And apart from Three Mile Island and the other  
6 incidents that you described for us in response to my  
7 last question, are you aware of any other empirical  
8 evidence?

9 A (WITNESS ERIKSON) I am not, no.

10 Q Now, you were asked on cross examination, Dr.  
11 Erikson, about your understanding or your familiarity  
12 with the requirements set forth by the Nuclear  
13 Regulatory Commission for emergency planning.

14 A (WITNESS ERIKSON) Yes.

15 Q Do you have any understanding of those  
16 requirements apart from your familiarity with the  
17 regulations?

18 A (WITNESS ERIKSON) The only answer I can give  
19 you, I think, that is acceptable is, I think so, because  
20 I really am not sure how much of that particular  
21 document I am aware of.

22 Q My question, though, goes, apart from your  
23 familiarity with the documents themselves, whether or  
24 not you have an understanding of requirements for  
25 emergency planning set forth by the Nuclear Regulatory

1 Commission.

2 A (WITNESS ERIKSON) At best, a very general  
3 understanding.

4 Q Will you tell us what it is?

5 A (WITNESS ERIKSON) I have seen -- I have  
6 either seen or heard about requirements set by the  
7 Nuclear Regulatory Commission about the size of the EPZ,  
8 and other matters having to do with the character, with  
9 the size of the territories that would be regarded as in  
10 danger in the event of a nuclear emergency at a power  
11 plant.

12 Outside of that, my memory would have to be  
13 refreshed before I could add.

14 Q You testified that you have reviewed the  
15 emergency response plans for several areas apart from  
16 Indian Point, and that your testimony related to the  
17 insufficiency of those plans as well as the Indian Point  
18 plans to protect the population. What do you look for,  
19 what have you looked for in your review of those  
20 emergency plans to enable you to reach that conclusion?

21 A (WITNESS ERIKSON) Well, the main things I  
22 would look for when I review an emergency plan would be  
23 whether or not the expectation is that school children  
24 will be evacuated by bus in the event that they are in  
25 school at the time the emergency occurs, whether



1 emergency personnel are counted on in the plan in any  
2 large numbers, whether what is known as the evacuation  
3 shadow effect is taken into account, that being the  
4 finding at Three Mile Island and strongly hinted at in  
5 the material available from Suffolk County that many  
6 more people will evacuate in the event of an emergency  
7 than are advised to do so.

8 I would also look to see whether and how  
9 emergency personnel are identified, are notified, are  
10 trained, and are consulted.

11 Q With regard to your review of the emergency  
12 plans around Indian Point, can you tell us what it is  
13 about those plans that led you to your conclusion with  
14 regard to the factors that you were looking for that you  
15 have just testified to?

16 A (WITNESS ERIKSON) At the time I saw the  
17 plans, they all counted on evacuation from schools being  
18 conducted by regular school bus drivers, the children  
19 being taken to relocation centers where the expectation  
20 was that their parents would pick them up. My  
21 reservations about that are, first of all, whether, as I  
22 testified, whether or not failure to abide by that plan  
23 would increase the traffic on the roads themselves, and  
24 second, whether or not school bus drivers, large numbers  
25 of whom are themselves parents, could be counted on to

1 perform their duty as bus drivers before they were  
2 assured of the safety of their own children.

3 Q Was there anything unique about the Indian  
4 Point plans which you studied which distinguish them  
5 from the other plans that you have studied?

6 A (WITNESS ERIKSON) The only thing that I can  
7 think of offhand is that I don't think I have seen  
8 another emergency evacuation plan that calls for school  
9 bus drivers to return into the EPZ after having  
10 discharged their first load of passengers to pick up  
11 additional people.

12 Outside of that, both the provisions -- either  
13 the provisions in those plans for the transportation of  
14 the children and for emergency personnel are very  
15 similar in general to the other plans I have seen.

16 Q What significance would that unique factor  
17 have in your conclusion about the plans?

18 A (WITNESS ERIKSON) I would think it would  
19 complicate an already complicated situation, because in  
20 addition, then, to the fact that school bus drivers are  
21 being asked to resolve a serious conflict on their part  
22 in favor of reporting for duty, it also is going to ask  
23 them to -- it is going to ask them once they have left a  
24 zone that has been officially described as dangerous,  
25 asking them to return to it voluntarily.

1 Q You were questioned on cross examination about  
2 other disasters involving a danger that one's senses  
3 could not perceive. Are you familiar with the  
4 Mississauga evacuation?

5 A (WITNESS ERIKSON) Yes, I am.

6 Q Is that such a disaster?

7 A (WITNESS ERIKSON) No, it is not. At issue  
8 there was a chemical spill of a chemical that is very  
9 acrid and can be smelled for great distances.

10 Q You testified, Dr. Erikson, that you were not  
11 aware of any studies of the degree to which volunteer  
12 emergency workers have responded. Is that also true of  
13 your testimony about the Three Mile Island incident?

14 A (WITNESS ERIKSON) The Three Mile Island  
15 accident is relevant to these purposes -- is not  
16 relevant to these purposes in the sense that there was  
17 not at that time an emergency evacuation plan to which  
18 people were responding. There is one relevant finding  
19 from Three Mile Island, which is that a relatively large  
20 number of hospital personnel on the Friday and Saturday  
21 after the advisory to evacuate did not report for their  
22 shifts.

23

24

25

1 Q Are hospital personnel the kind of volunteer  
2 emergency workers that you testified about when you  
3 testified about the difference between police workers,  
4 police officers, and volunteer emergency workers?

5 A (WITNESS ERIKSON) On the whole, I would be  
6 less concerned about the behavior of health  
7 professionals than I would of other people who were  
8 called upon to play roles in the emergency plans that I  
9 have seen. Moreover, the people who failed to report on  
10 Three Mile Island were people reporting for their  
11 regular work shift rather than people reporting to an  
12 emergency duty. It was just that the rate of people  
13 calling in sick was very high on those two days.

14 Q Will you tell us, then, give us some examples  
15 of volunteer emergency workers whom you contrasted with  
16 professional emergency workers like police officers?

17 A (WITNESS ERIKSON) Well, the evacuation plans  
18 I have seen for the four counties in one form or another  
19 call upon a large number of people who would not be  
20 professional in the sense that they are trained to  
21 respond to emergencies of one kind or another. They  
22 would be people to staff the communications centers, to  
23 provide radiation monitoring, to man traffic control  
24 check points, to run the reception centers, to supply  
25 crowd control at the bus pickup points, to distribute

1 dosimeters and other kinds of equipment that would be  
2 required in the case of an emergency, to evacuate, to  
3 drive the buses, to maintain and repair the roads, to  
4 keep vital public works operating, and so on.

5           It is not clear in those plans that I have  
6 seen who those people are, how they are going to be  
7 called upon, but I would take it that they must be  
8 people on the payroll of the Public Health Department  
9 and on the Public Health -- Works Department and other  
10 volunteers like volunteer firemen, and those are the  
11 people about whom I have the greatest concern, in part  
12 because we don't know how they are going to respond. I  
13 take it that they haven't been asked in any great  
14 numbers. And people, some of whom, at least, would be  
15 unusually subject to role conflict because of having  
16 children at home or other dependents whose protection  
17 they would take very seriously.

18           Q     Now, you have been asked on cross examination  
19 about the basis for the distinction that you draw  
20 between a radiological emergency and other kinds of  
21 emergencies. Will you tell us the literature upon which  
22 your distinction is based, if any?

23           A     (WITNESS ERIKSON) Well, using the word  
24 "literature" in its broad sense, I would say that there  
25 are three general kinds of information which suggest

1 very strongly that radiological emergencies are  
2 different than other kinds of emergencies, because  
3 people in general respond to radiation with much greater  
4 degrees of fear than they do other kinds of hazardous  
5 situations and other kinds of hazardous materials.

6           There are a number of relatively small-scale  
7 empirical studies and discussions that deal with that  
8 now, the most important of which is a set of studies  
9 done by Paul Slovik and his associates, I think, in the  
10 state of Washington, which indicate very strongly that  
11 generally speaking people's fear of radiation is so  
12 great that it ought to be considered a class apart from  
13 other kinds of general hazard. It ranks third in the  
14 human list of perils behind nuclear war and terrorism.

15           There are also clinical observations made by  
16 people who are experienced in these matters, and I would  
17 mention here Dr. Robert J. Lifton, who has done a lot of  
18 work with people who either have been exposed or have a  
19 fear of being exposed to various kinds of radiation, and  
20 I would also cite Dr. Robert DuPont, who appeared here  
21 as an expert in phobic fears and testified that public  
22 fears of nuclear power are, and I am quoting,  
23 "widespread, crippling, unique, and resistant to  
24 rational arguments."

25           And then, I would say, third, if you can count



1 reports of surveys as literature, which I think is  
2 legitimate, that one can see the fear that people have  
3 about nuclear power reflected in the way they behaved in  
4 a past radiological emergency or in the way they expect  
5 to behave in a projected radiological emergency, and  
6 there are at least half a dozen studies done of Three  
7 Mile Island indicating that many more people evacuated,  
8 on a ratio of something like 50 to one, than were  
9 advised to do so, which I would take as an index of a  
10 pretty high fear.

11           And that the Suffolk County surveys of which I  
12 have spoken themselves indicate a pretty high level of  
13 fear, and there has been also a survey which I have seen  
14 only recently by Roger Seasonwine and his associates in  
15 this neighborhood -- I am not sure I can be more  
16 particular than that -- who interviewed a sample of 500  
17 people by phone and asked the people who lived outside  
18 the ten-mile EPZ what they would do if people inside the  
19 ten-mile EPZ were asked to evacuate. And of those, 44  
20 percent of those asked said they would remain where they  
21 were, which is what they would be advised to do, and 53  
22 percent indicated that they would move further away,  
23 which is to say that they would join the stream of  
24 evacuees already on its way out of the ten-mile EPZ, and  
25 I would take that, too, to be an indication of pretty

1 widespread fear.

2 Q Well, then, do I understand your testimony  
3 that fear is a third element apart from the two that Mr.  
4 Brandenburg asked you about, the inability to perceive a  
5 radiological emergency with your senses and the lack of  
6 a definite end to the emergency? Is fear a third reason  
7 why you would distinguish radiological emergencies from  
8 other emergencies, or have I misunderstood?

9 A (WITNESS ERIKSON) No, I think I would respond  
10 this way. I responded to him that those first two are  
11 the two halves of a whole, and maybe now I would amend  
12 that to say the three thirds of a whole, because I would  
13 testify that the fear issue is at least in part -- the  
14 fear occurs at least in part as a result of the  
15 invisibility of the hazard, and both of those together  
16 then contribute to, add to, and it is for both of those  
17 reasons that the event appears to those who experience  
18 it as being without an obvious end, a distinct end.

19 Q You testified, did you not, that you were  
20 familiar with the testimony submitted in this proceeding  
21 by Dr. Sidney Lecker?

22 A (WITNESS ERIKSON) Yes.

23 Q Do you recall that Dr. Lecker's conclusion is  
24 an exact contradiction of yours, his conclusion being on  
25 Page 3 of his testimony, that human response to an

1 emergency does not depend upon the type of emergency  
2 involved? Can you account for this contradiction  
3 between you and Dr. Lecker?

4       A       (WITNESS ERIKSON) Well, I disagree with him  
5 sharply, and I would say that if I recall his testimony  
6 correctly, that he began by stating two general  
7 principles, the first of which is that adults would  
8 respond obediently to leaders, and that children would  
9 respond equally obediently to adults, and one of, and  
10 perhaps the only emergency situation that he referred to  
11 was Three Mile Island, which violates that first  
12 principle by a margin so great that I find it difficult  
13 to understand, because there 2,500 people were advised  
14 by authorities to evacuate, and 144,000 people in fact  
15 did, which is not a high measure of obedience to  
16 authority.

17       Q       Now, you are aware that Dr. Dynes in his  
18 testimony before this proceeding also reaches the same  
19 conclusion that radiological emergencies are like other  
20 emergencies in terms of the response, are you not?

21       A       (WITNESS ERIKSON) He reached that conclusion,  
22 yes.

23       Q       And you testified on cross examination that  
24 Dr. Dynes was -- I have forgotten the characterization,  
25 but somehow very familiar with Three Mile Island?

1           A       (WITNESS ERIKSON) He was a member of the  
2 President's Commission looking at the accident at Three  
3 Mile Island, yes.

4           Q       So my question to you is, then, how do you  
5 account for that difference between yourself and Dr.  
6 Dynes, since you base your distinction on Three Mile  
7 Island and you have testified that Dr. Dynes has done a  
8 considerable amount of study about Three Mile Island?

9           A       (WITNESS ERIKSON) I think when he concludes  
10 as he does that he takes the very minor radiological  
11 emergencies that we talked about earlier as an  
12 indication of how people would respond in a major  
13 radiological emergency, and maybe he thinks that Three  
14 Mile Island is the exception -- I'm not sure -- but in  
15 any event, the behavior at Three Mile Island would not,  
16 in my opinion, fit his conclusion.

17          Q       You testified that your study of Three Mile  
18 Island, that you thought that that was somewhat  
19 different than your study in areas that have emergency  
20 plans. Will you tell us in what way it was different or  
21 is different? Did I understand your testimony?

22          A       (WITNESS ERIKSON) I don't know if I testified  
23 that behavior was different. Then I should correct  
24 myself, because I have no real way of knowing whether  
25 behavior is different.

1           Q     My question wasn't clear. My notes indicate  
2 that on cross examination you testified that the studies  
3 of TMI are different than studies of the present plans,  
4 because it is a different situation there, and I  
5 wondered if you would tell us how it was different.

6           A     (WITNESS ERIKSON) I see. At Three Mile  
7 Island, at the time of the accident, there were not in  
8 place widely publicized evacuation plans, so that the  
9 evacuation was more free-lance. It was a more  
10 improvised, and people left along routes that suited  
11 them rather than routes that had been provided for them  
12 by some kind of a plan, and clearly, they left in  
13 numbers that hadn't been provided for by any plan.

14          Q     And so that is the respect in which you meant  
15 that it was different?

16          A     (WITNESS ERIKSON) I just meant that as a  
17 historical matter, that there was not a plan in effect  
18 at the time.

19          Q     Now, still with regard to Three Mile Island,  
20 do you have any opinion whether the response of workers  
21 about whom you have testified, the teachers and the  
22 police officers, et cetera, would have been different  
23 there if the public had been given different information  
24 about the severity of the accident at Three Mile  
25 Island?

1           A       (WITNESS ERIKSON) I just don't know.

2           Q       But do you have an opinion about the role of  
3 public information in alleviating the fear that you have  
4 indicated is one-third of the whole of the difference  
5 between radiological and non-radiological emergencies?

6           A       (WITNESS ERIKSON) Well, there is evidence  
7 available that public education reduces fear, and there  
8 is contrary evidence available that it increases fear.  
9 There is more evidence of the former kind than of the  
10 latter kind, but I guess I would testify that it  
11 wouldn't surprise me greatly if the amount of fear were  
12 reduced by an educational campaign on condition that the  
13 people who conducted the campaign were themselves  
14 trusted by the people who were being educated by them,  
15 and on condition that it really is true that more  
16 information about nuclear power reduces one's fear about  
17 it.

18          Q       In your opinion, what would make the  
19 difference, if you have an opinion, about whether or not  
20 public information about radiological emergencies would  
21 increase or reduce fear?

22          A       (WITNESS ERIKSON) I am sorry, could you  
23 repeat that?

24          Q       Yes. Do you have an opinion as to what  
25 factors might result in the increase of fear about a



1 radiological emergency as opposed to the reduction of  
2 fear?

3 A (WITNESS ERIKSON) My opinion would be that  
4 nothing increases fear quite so greatly as accidents,  
5 and nothing would reduce it more greatly than their  
6 absence.

7 Q My question was really directed to the nature  
8 of the public information that might be available, and I  
9 wondered if you had any opinion on the way in which  
10 public information might act to increase fear as opposed  
11 to reduce it, speaking strictly, now, public information  
12 and -- public information given about the possibility of  
13 an accident, and the response to that accident.

14 A (WITNESS ERIKSON) Those studies which  
15 indicate that the amount of fear has gone up after an  
16 educational campaign has been mounted suggest that the  
17 reasons are that they bring into awareness the object of  
18 people's fears more than they were before. Outside of  
19 that, I am not familiar enough with those studies to  
20 have a further opinion.

21 MS. POTTERFIELD: I don't have any further  
22 redirect.

23 MR. CZAJA: Judge, I have a couple of  
24 questions on recross.

25 JUDGE GLEASON: All right. You had better

1 make it very limited.

2 RE CROSS EXAMINATION

3 BY MR. CZAJA:

4 Q Dr. Erikson, you testified in response to Ms.  
5 Potterfield's questions, one of her questions, as to  
6 some understanding of the Nuclear Regulatory Commission  
7 regulations regarding emergency planning. Based upon  
8 your understanding of those regulations, are those  
9 regulations reasonable in their assumptions with regard  
10 to human response to emergency, in your opinion?

11 A (WITNESS ERIKSON) I am not familiar enough  
12 with them to say.

13 Q So you have no opinion as to whether those  
14 regulations are reasonable or unreasonable?

15 JUDGE GLEASON: I think he has already  
16 testified that his knowledge of the regulations is very  
17 limited.

18 MR. CZAJA: Well, let me try the one aspect  
19 which I think he did say he had some knowledge about.

20 BY MR. CZAJA: (Resuming)

21 Q Your understanding is that the regulations  
22 provide for an emergency planning zone of approximately  
23 ten miles? Is that correct?

24 A (WITNESS ERIKSON) Yes

25 Q In your opinion, is that requirement in the

1 regulations a reasonable regulation in view of your  
2 knowledge as to human response to emergencies?

3 A (WITNESS ERIKSON) I would have to qualify it  
4 in this way, that the drawing of a circle in a ten-mile  
5 radius from a nuclear power plant strikes me as sensible  
6 enough, but if the assumption is made that people who  
7 live within the EPZ will regularly act different than  
8 the people who live outside it, then I think that is an  
9 assumption that is ill-founded on the basis of the  
10 information that is available.

11 Q Well, is it your understanding that the  
12 federal regulations make that assumption?

13 A (WITNESS ERIKSON) Yes.

14 Q Now, you testified in response to another of  
15 Ms. Potterfield's questions that a counter-example to  
16 what you see as Dr. Lecker's view that adults will  
17 respond to authority in the event of an emergency was  
18 the over-evacuation at Three Mile Island. Is that  
19 correct?

20 A (WITNESS ERIKSON) Yes

21 Q Is it your understanding that there was a  
22 large group of people at Three Mile Island who  
23 evacuated, notwithstanding a specific instruction not to  
24 evacuate, or was it the case that a number of people who  
25 were given no instruction one way or the other in fact

1 evacuated?

2           A       (WITNESS ERIKSON) I would have to say that my  
3 opinion on that matter is not informed only by what  
4 happened at Three Mile Island.

5           Q       I am just limiting the question to that  
6 example, Dr. Erikson, if you would just respond to that  
7 question.

8           A       (WITNESS ERIKSON) Could you repeat the first  
9 half of your question?

10          Q       The question is, is it your understanding that  
11 what happened at Three Mile Island was that a large  
12 number of people who were given no instruction one way  
13 or the other on evacuation in fact evacuated, or was it  
14 the situation that a number of people who were told  
15 specifically not to evacuate disobeyed that instruction  
16 and in fact evacuated?

17          A       (WITNESS ERIKSON) No, in fact, the great  
18 majority of the people who evacuated without being  
19 advised to had not been advised to stay put.

20          Q       They had received no instruction one way or  
21 the other?

22          A       (WITNESS ERIKSON) They had received no  
23 instruction.

24                   MR. CZAJA: I have no further questions.

25                   MR. BRANDENBURG: I have two questions on

1 recross, Your Honor.

2 JUDGE GLEASON: All right. You know, you are  
3 adding to your own time on this, but go ahead.

4 MR. BRANDENBURG: Well, they are in response  
5 to Ms. Potterfield's redirect.

6 JUDGE GLEASON: I know, but you could have  
7 asked -- the questions just asked could have been asked  
8 on the original cross.

9 MR. BRANDENBURG: The two I will ask will not  
10 have been able to, I trust.

11 RECROSS EXAMINATION

12 BY MR. BRANDENBURG:

13 Q Dr. Erikson, you were asked in redirect  
14 examination about the Mississagua event, and I believe  
15 in your response you stated that the peril there was  
16 perceptible by the senses, whereas the peril from a  
17 nuclear power plant accident could not. In fact in the  
18 Mississagau event, did not the evacuation occur and were  
19 not emergency workers called upon to respond prior to  
20 any actual release of peril, that is to say, only when  
21 the peril was merely threatened, but had not yet  
22 occurred?

23 A (WITNESS ERIKSON) Well, I can't answer that,  
24 because there were emergency personnel called upon to  
25 put out the -- to correct the damage that had been done

1 by the derailment, and there were emergency personnel  
2 called upon to evacuate in slow stages the people who  
3 lived in Mississagua. The people in that second  
4 category were asked to inoculate people before the  
5 chemical agent reached them, yes.

6 Q Now, in the Mississagua event, was there any  
7 failure to perform emergency response functions observed  
8 among either volunteers or professionals?

9 A (WITNESS ERIKSON) I can only answer that by  
10 saying that so far as I know, there were none, but that  
11 the circumstances under which the evacuation took place  
12 in Mississagua were so ideal as to not provide a useful  
13 parallel to other kinds of situations. The accident  
14 took place late at night, or the evacuation took place  
15 during a time when almost all of the citizens were at  
16 home, so that they could evacuate as families, and the  
17 evacuation took place over a 24-hour period in a phased  
18 way, which is not a luxury that we can count on in the  
19 event of damage to a nuclear power plant.

20 Q But in any event, there was no distinction  
21 that could be drawn between the response of professional  
22 emergency response workers on the one hand and  
23 volunteers, such as volunteer firemen and the like, on  
24 the other at Mississagua, were there?

25 A (WITNESS ERIKSON) I don't think that



1 Mississagua is served by volunteer firemen. So I think  
2 there is a professional fire department there. But in  
3 any event, I am not aware of that distinction, no.

4 Q Now, with respect to the third spoke on the  
5 wheel, if you will, of your theory of why a nuclear  
6 hazard should be addressed differently than non-nuclear  
7 hazards, that is, the anxiety and the fear about  
8 radiation that you referred to, in answer to questions  
9 on redirect, Dr. Erikson, are you familiar with studies  
10 in the literature that have attempted to find fears and  
11 anxieties associated with dental x-rays and CAT scans  
12 and the like? Other situations in which individuals are  
13 given radiation exposures?

14 A (WITNESS ERIKSON) Let me say first that my  
15 response earlier was not a theory, but an opinion based  
16 upon empirical information, and then let me say, second,  
17 that the studies that I described that were done by Paul  
18 Slovik included as one of the things, as one of the  
19 items they studied a list of potential perils which were  
20 given to respondents who ranked them, and whether or not  
21 dental x-rays and the other things you mentioned were  
22 on that list, I don't know. Otherwise, I'm not aware of  
23 research of that sort.

24 Q Are you familiar with something called the  
25 Slovik study?

1           A       (WITNESS ERIKSON) That is what I am referring  
2 to.

3           Q       Do you recall that that study concluded after  
4 doing empirical research that there was no perceptible  
5 anxiety or fear associated by respondees to surveys  
6 conducted in preparation for the Slovik study to dental  
7 ex-rays or to CAT scans? Do you recall that as one of  
8 the essential findings of the Slovik study? And also to  
9 the raiium insertion for treatment?

10          A       (WITNESS ERIKSON) If you mean by that that  
11 those potential hazards ranked lower or ranked low on  
12 the list of hazards in the research, I can only say that  
13 I don't recall all of the items on that list.

14                   MR. BRANDENBURG: Nothing else. Thank you.

15                   MS. POTTERFIELD: I have no further redirect.

16                   JUDGE GLEASON: Judge Paris has some questions.

17                                   BOARD EXAMINATION

18                   BY JUDGE PARIS:

19          Q       Dr. Erikson, I failed to follow the questions  
20 and answers under recross -- or redirect, excuse me,  
21 about how the behavior at TMI failed to follow Dr.  
22 Dynes' conclusions, so could you clarify that for me by  
23 telling me what was Dr. Dynes' conclusion and how did  
24 events at TMI fail to fit?

25          A       (WITNESS ERIKSON) Dr. Dynes testified that

1 radiological emergencies -- that the evidence shows that  
2 radiological emergencies are like any other kind of  
3 emergency. The size of the evacuation at Three Mile  
4 Island was greater than anybody could possibly have  
5 expected, and was quite unlike the behavior for any  
6 other kind of recorded disaster. So that that event is  
7 a radiological emergency and runs counter to what one  
8 would expect if one looked only at the usual disaster  
9 studies.

10 Q I see. Do you have any more factual  
11 information about the circumstances surrounding the  
12 evacuation that took place at Three Mile Island? Do you  
13 know whether it was orderly or whether it was panicky,  
14 for example?

15 A (WITNESS ERIKSON) So far as I know, it was  
16 entirely orderly.

17 Q Do you know whether the people that evacuated  
18 at Three Mile Island were responding to a fear of events  
19 that had already occurred at the plant or whether they  
20 were responding to the fear that something worse was  
21 going to happen at the plant?

22 If you don't know, just say.

23 A (WITNESS ERIKSON) Well, I do know. I know  
24 part of the answer, which is, I do know that they  
25 evacuated out of fear of what had already happened.

1 Whether they also evacuated out of a fear of what might  
2 happen, I don't know.

3 JUDGE PARIS: Thank you very much.

4 JUDGE GLEASON: All right, Doctor. You are  
5 excused.

6 (Witness excused.)

7 JUDGE GLEASON: I might say to all the counsel  
8 that are here that if you intend to exercise the rights  
9 that you have to cross examine the witnesses, you are  
10 going to have to be in attendance at the time that  
11 opportunity is and in the order that it would be  
12 presented. We cannot adjust schedules to defer time  
13 even if you have requested it. So I just want to make  
14 that clear. Otherwise, we will never get through this  
15 proceeding.

16 Let's take a ten-minute break.

17 (Whereupon, a brief recess was taken.)

18

19

20

21

22

23

24

25

1 JUDGE GLEASON: Let's proceed, please.

2 Judge Paris has an announcement that he should  
3 have made this morning.

4 JUDGE PARIS: By order of the New York State  
5 Office of Fire Prevention and Control, the following  
6 must be read to all public gatherings in this room.

7 This room is designated as a ceremonial courtroom.  
8 Fire exits are located in the rear and up front to your  
9 left. They lead to corridors which in turn lead  
10 outdoors. The building has many pull stations and  
11 detectors in strategic locations which, when activated,  
12 will sound gongs located on each floor, and will  
13 activate a city box which will automatically alert the  
14 White Plains Fire Department.

15 If it becomes necessary to evacuate, you will be  
16 notified. In this event, please move in a calm and  
17 orderly fashion to the nearest exit.

18 Thank you.

19 JUDGE GLEASON: I also want to include in the  
20 record a letter that I received from Senator Moynihan  
21 dated March the 10th regarding this hearing. I won't  
22 read it, but if anybody wants to read it, the Reporter  
23 will have it. It in essence asks us to make sure that  
24 we conduct a fair hearing.

25 (The letter from Senator Moynihan follows.)

## United States Senate

WASHINGTON, D.C. 20510

March 10, 1983

Dear Judge Gleason:

I have long been concerned about the safety issues involved in the continued operation of the Indian Point nuclear facilities in Buchanan, New York. As a consequence of this concern, I was an early proponent of the creation of this special Atomic Safety and Licensing Board (ASLB), and joined with Congressmen Ottinger, Fish, Bingham and Gilman in writing to the Nuclear Regulatory Commission (NRC) last July urging it to in no way prematurely terminate or unduly restrict the scope of the Board's inquiry.

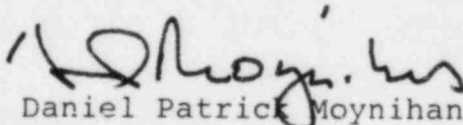
Because I believe that the controversy surrounding the safety of the Indian Point nuclear units can only be resolved by a full and extensive investigation, I was deeply disturbed by the NRC's ruling on July 27, 1982 which restricted the scope of this Board's investigation into the safety of nuclear plants located in the most populated area of the United States.

While the NRC's clarifying order on September 20, 1982 modified to some extent the restrictions placed on the hearing process, the NRC has increased the burden on the intervenors. This action has served to undermine public confidence in the fairness and integrity of the hearings.

The questions raised during the ASLB hearings must be addressed completely and openly. Anything less would fall short of what was expected when the Board was originally created and leave lingering doubts about the fairness of the investigation. It is therefore paramount that the Board make every effort to restore public confidence in the proceedings by conducting a thorough and reasoned inquiry into the issues of safety surrounding the Indian Point nuclear power reactors.

I would ask that this letter be made part of the ASLB hearing record.

Sincerely,

  
Daniel Patrick Moynihan

Judge James P. Gleason  
Chairman, The Atomic Safety  
and Licensing Board  
513 Gilmoure Drive  
Silver Spring, MD 20901



1 MS. POTTERFIELD: Judge Gleason, by permission  
2 of the Board, I want to have marked copies of the  
3 Suffolk County Radiological Emergency Response Plan,  
4 Volume 3. I had understood that this was annexed to Dr.  
5 Erikson's supplemental testimony, but in the event that  
6 it wasn't considered to be so annexed, I would like to  
7 have that marked as an exhibit. Dr. Erikson is still  
8 available to identify the document if necessary.

9 JUDGE GLEASON: What shall it be marked as?

10 MS. POTTERFIELD: The Court Reporter couldn't  
11 figure out what it would be marked as an exhibit, but I  
12 suggest it be marked as USC-NYPIRG whatever the next  
13 number is.

14 JUDGE GLEASON: We are going in order, but I  
15 think in this presentation you could just make it --

16 (Whereupon, a discussion was held off the  
17 record.)

18 JUDGE GLEASON: We will mark it as UCS-NYPIRG,  
19 et al., just to give it some distinguishing number, 10.

20 (The document referred to  
21 was marked for  
22 identification as  
23 UCS-NYPIRG Exhibit Number  
24 10.)

25 MS. POTTERFIELD: Is there any party or person

1 who has objection?

2 JUDGE GLEASON: I don't know? All we have  
3 done at this point is mark it. What did you want to say?

4 MS. POTTERFIELD: What I wanted to ask first  
5 was whether there was any party present who does not  
6 have a copy of it, because I do have other copies.  
7 However, it was served with Dr. Erikson's testimony. So  
8 I assume from the questioning that everybody has a  
9 copy.

10 JUDGE GLEASON: I would like a copy.

11 MS. POTTERFIELD: I would ask whether we could  
12 stipulate as to its authentication by Dr. Erikson, or  
13 whether I should ask Dr. Erikson to take the stand  
14 again.

15 MR. CZAJA: I will stipulate that it is an  
16 authentic document.

17 JUDGE GLEASON: It has been agreed to that it  
18 is an authenticated copy.

19 MS. POTTERFIELD: Then I would move for its  
20 admission into evidence as an exhibit to his  
21 supplemental testimony.

22 JUDGE GLEASON: Is there objection?

23 MR. CZAJA: The Board has ruled on the issue  
24 on my view, so I have no objection at this point. The  
25 Board having denied our motion to strike the

1 supplemental testimony, I have no objection.

2 JUDGE GLEASON: Well, the Board has not ruled  
3 on this. The Board ruled with respect to his  
4 testimony.

5 MR. CZAJA: Well, I would oppose its admission  
6 into evidence for the same reasons set forth in the  
7 motion to strike the supplemental testimony.

8 JUDGE GLEASON: Why don't you repeat that?

9 MR. CZAJA: That would be, first of all, that  
10 as something which is site-specific to Shoreham has no  
11 bearing on the issues before the Board, and secondly, it  
12 is hearsay. We have not had an opportunity to cross  
13 examine the people who prepared the survey.

14 JUDGE GLEASON: Ms. Potterfield?

15 MR. BRANDENBURG: Con Edison would just say  
16 the licensee's positions can both be stated as follows,  
17 that the Shoreham study should not be entered into the  
18 record, Mr. Chairman, for the reasons set forth in our  
19 motion to strike the supplemental testimony of Dr. Kai  
20 Erikson dated March 9.

21 In particular, it appears from Dr. Erikson's  
22 materials that he was merely a consultant in connection  
23 with the preparation of the questionnaire that was used  
24 in connection with the Suffolk study, and was not  
25 himself actually a participant in the development of the

1 survey responses or in their evaluation.

2 So I do not believe that the study results  
3 themselves can be sufficiently verified by this witness  
4 to entitle them to be admitted into evidence in this  
5 proceeding.

6 JUDGE GLEASON: Ms. Potterfield?

7 MS. POTTERFIELD: As we noted in our  
8 opposition to the motions to strike, Judge Gleason, and  
9 I believe that the Board upheld our opposition in ruling  
10 that the supplemental testimony should come in, this  
11 exhibit is the basis for the supplemental testimony. It  
12 was the basis for some cross examination of Dr. Erikson  
13 while he was on the stand, and simply provides the Board  
14 and all parties with the basis, the data base for his  
15 testimony, since the Board has ruled that his testimony  
16 about the survey and its results should be admitted and  
17 it has been.

18 JUDGE GLEASON: The Board has not ruled, Ms.  
19 Potterfield, with respect to the admission of this  
20 document. The Board has ruled with respect to the  
21 admission of his testimony, supplemental testimony,  
22 which does refer to the document, but it has not ruled  
23 with respect to the admissibility of this document.

24 MS. POTTERFIELD: Judge Gleason, the  
25 supplemental testimony not only refers to the document,

1 it is based on this document.

2 JUDGE GLEASON: Well, that may be so, but it  
3 has not ruled with respect to the admissibility of this  
4 document, and since you have just moved it, that must be  
5 some evidence that it hasn't been so ruled.

6 MS. POTTERFIELD: I understand the Board had  
7 ruled as to the hearsay objection and the relevance  
8 objection. If there is another ground upon which the  
9 Board may deny my request that it be admitted into  
10 evidence, if I could learn that other ground and address  
11 myself to it.

12 JUDGE GLEASON: Well, at this point I am  
13 offering you a chance to talk to the admissibility of  
14 this document into evidence.

15 MS. POTTERFIELD: And I believe I have  
16 addressed the objections that have been raised. If the  
17 Board has another objection, then I will be glad to  
18 address that.

19 (Whereupon, the Board conferred.)

20 JUDGE GLEASON: Ms. Potterfield, the Board is  
21 going to rule, and we will give you a chance to respond  
22 if you would like, that the exhibit is not admissible  
23 for the truth of the information contained in the  
24 exhibit, because the authors of that exhibit are not  
25 before the Board and not before the parties, and they

1 may not be cross-examined. We can accept the statements  
2 of Dr. Erikson because he is an expert in the field, and  
3 he has participated in some way, in some degree, and had  
4 some relationship to the study, and we can give whatever  
5 weight we want to with respect to the conclusions he  
6 reaches based upon that study.

7 As far as the study itself is concerned, it is  
8 not admissible.

9 MS. POTTERFIELD: Judge Gleason, I see that I  
10 should have made myself more clear. I am not offering  
11 it for the truth of what is in the study, but simply to  
12 provide the basis for Dr. Erikson's statements.

13 JUDGE GLEASON: You used the words "into  
14 evidence," and that is what I grabbed ahold of.

15 MS. POTTERFIELD: I still do so. I still do  
16 use those words. I still wish to have it admitted into  
17 evidence for the purpose of showing the basis for which  
18 Dr. Erikson has made his statements that have been not  
19 only testified to but upon which he has been cross  
20 examined.

21 JUDGE GLEASON: Well, it can be admitted for  
22 that limited purpose, but it cannot be admitted so far  
23 as the truth of the matters asserted.

24 MS. POTTERFIELD: Thank you, Judge.

25 (The document referred



1 to, previously marked for  
2 identification as  
3 USC-NYPIRG Exhibit Number  
4 10, was received in  
5 evidence.)

6 JUDGE GLEASON: Let's proceed with the next  
7 witnesses.

8 MS. POTTERFIELD: Joan Harding King and  
9 Jannelise Galdone.

10 JUDGE GLEASON: Excuse me. You are going to  
11 have to maintain an Order on witnesses, Ms. Potterfield,  
12 and your next witness is Ms. Betty Ramey.

13 MS. POTTERFIELD: Your Honor, that witness is  
14 scheduled to come at 12:00 o'clock, and I request  
15 permission that we allow Ms. Galdone and Ms. King to  
16 testify before that witness.

17 JUDGE GLEASON: Is there objection?

18 MR. CZAJA: Judge, in this case, I have no  
19 objection, although I think generally we should proceed  
20 in order. It is much easier. I had no notice of this.

21 JUDGE GLEASON: We are going to permit it this  
22 time and this time alone, because we cannot get out of  
23 our order of witnesses. We have some very complicated  
24 procedures everybody has to follow, and the Board has to  
25 be aware of testimony, and we have to be aware of

1 objections made, and we have to be aware of objections  
2 to certain parts of testimony, and just cannot humanly  
3 follow that if we are going to take witnesses out of  
4 order.

5 MS. POTTERFIELD: May I say, I object. I  
6 think that giving the Board as close a schedule as we  
7 have been able to arrive at with our witnesses'  
8 individual schedules, that the Board is being harsher on  
9 us than it has been in the past with witnesses of other  
10 parties, that we are committed to present the witnesses  
11 on the day that we have put them on the schedule, but  
12 that we intend to present them in as orderly and  
13 efficient a way as possible.

14 JUDGE PARIS: Ms. Potterfield, you have  
15 approximately 100 witnesses. You provided us with the  
16 witness list on Friday. Before I left Bethesda on  
17 Monday, I got all of those witnesses in the sequence in  
18 which your witness list indicated they will appear, thus  
19 taking them out of the numerical sequence in which they  
20 were originally presented to us. At the eleventh hour,  
21 before leaving Bethesda, we got your reorganization.

22 Now, I have got all of your witnesses out of  
23 numerical sequence according to your original witness  
24 list, and I have got to go back through all of that and  
25 get them into the new sequence. So, would you please

1 think about the inconvenience and trouble that you put  
2 people through when you change these lists at the last  
3 minute?

4 MS. POTTERFIELD: I do apologize for that,  
5 Judge Paris. I would like to say that Friday was the  
6 day upon which we were ordered to give the witness  
7 list.

8 JUDGE GLEASON: Excuse me, Ms. Potterfield.

9 MS. POTTERFIELD: I understand Friday was the  
10 day on which we were ordered to give the witness list.  
11 That is why we gave it on Friday.

12 JUDGE GLEASON: That is right. But I also  
13 might say, Ms. Potterfield, that the Board attempted to  
14 reach you three times last week and was unable to, to  
15 find out where you were with respect to witnesses, and  
16 so we both have a reciprocal obligation here in order to  
17 handle a great number of witnesses which are  
18 consolidated intervenors' witnesses. You have the  
19 burden of presenting them and presenting them in order,  
20 and as I indicated before, we will let it go this time,  
21 but we are not going to change it in the future.

22 Please call your witnesses.

23 MS. POTTERFIELD: Joan Harding King and  
24 Jannelise Galdone.  
25 Whereupon,

1 JOAN HARDING KING and  
2 JANNELISE GALDONE  
3 were called as witnesses, and having been first duly  
4 sworn, took the stand, and were examined and testified  
5 as follows:

6 DIRECT EXAMINATION

7 BY MS. POTTERFIELD:

8 Q Would you state your names and addresses,  
9 please, for the record?

10 A (WITNESS KING) Joan Harding King, 80 Saw Mill  
11 Road, New City, New York.

12 Q You will have to speak up, I am afraid.

13 A (WITNESS KING) Joan Harding King, 80 Saw Mill  
14 Road, New City, New York.

15 A (WITNESS GALDONE) Jannelise Galdone, 234  
16 Phillips Hill Road, New City, New York.

17 Q Ms. Galdone, do you have before you a copy of  
18 the testimony that you wish to present to the Atomic  
19 Safety and Licensing Board?

20 A (WITNESS GALDONE) I do.

21 Q Do you have any additions or corrections to  
22 that testimony?

23 A (WITNESS GALDONE) I don't think so, no.

24 Q Is it true and correct to the best of your  
25 information and belief?

1           A       (WITNESS GALDONE) It is.

2           MS. POTTERFIELD: I move that the testimony of  
3 Jannelise Galdone be admitted into evidence.

4           JUDGE GLEASON: Is there objection?

5           MR. CZAJA: Judge, with respect to Ms.  
6 Galdone's testimony, we object to Lines 13 through 18 on  
7 Page 1 of the testimony, starting with the language,  
8 "They said they were working overtime," and continuing  
9 through the rest of that paragraph.

10          JUDGE GLEASON: Excuse me. Where does it  
11 start?

12          MR. CZAJA: "They said they were working  
13 overtime." And after that sentence, there is a sentence  
14 dealing with Ms. Galdone's impression. The first  
15 sentence we say is hearsay. The second sentence we say  
16 is speculative.

17          On Page 2, the fourth full paragraph, starting  
18 with "The man from Stone and Webster," we would move to  
19 strike that on the grounds that it is unreliable  
20 hearsay.

21          MR. FARRELLY: Your Honor, we move to strike  
22 the testimony of Ms. King for the reasons stated at 8  
23 and 9.

24          JUDGE GLEASON: We are on Ms. Galdone.

25          MR. FARRELLY: We have no objection to Ms.



1 Galdone.

2 MS. POTTERFIELD: I would like to respond  
3 particularly to the objection regarding the sentence  
4 that is objected to as speculative. I suggest that the  
5 motion to strike is premature, and that the witness  
6 should be cross examined as to the basis for her  
7 impression before it can be ruled out as speculative.

8 JUDGE GLEASON: I don't really understand that  
9 comment, Ms. Potterfield.

10 MS. POTTERFIELD: Well, Judge, they have asked  
11 that you strike the testimony in the first instance as  
12 speculative. However, without some voir dire or cross  
13 examination as to the basis of Ms. Galdone's impression,  
14 it cannot be ruled out as speculative. Her impression  
15 may be based upon facts and her own personal knowledge  
16 and things that she observed.

17 JUDGE GLEASON: Do you have any other  
18 comments?

19 MS. POTTERFIELD: No, sir.

20 (Whereupon, the Board conferred.)

21 JUDGE GLEASON: Let me just, to save time, ask  
22 you, Ms. Galdone, what your statement about, it is your  
23 impression that "their prepared advance notice gave us  
24 no way of knowing how long it might take to set up in  
25 the event of an emergency" was based on.



1                   WITNESS GALDONE: Well, everything was set up  
2 before the alarm went off. They said they started at  
3 8:00 o'clock, and it was 9:45, and everything was all  
4 set up when I came there.

5                   JUDGE GLEASON: Well, the Board rules that  
6 those statements -- or the motions are granted, and  
7 those statements will be deleted on the grounds stated.  
8 They are hearsay. They also are speculative.

9                   MS. POTTERFIELD: Our objection as to the  
10 speculative statement is noted.

11                  JUDGE GLEASON: And if there is no other  
12 objection, the testimony is admitted with those  
13 deletions as noted.

14                  (The testimony of Ms. Galdone follows.)

15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

## JANNELISE GALDONE

My name is Jannelise Galdone, I reside at 234 Phillips Hill Road, New City, N.Y. and have lived in New City for 60 years. I am married and the mother of two children now grown. I am a housewife and photographer.

On March 3, 1982, I, as a member of West Branch Conservation Association, observed a drill exercise conducted by the County of Rockland for its Radiological Emergency Response Plan at Rockland Psychiatric Hospital, a New York State owned facility at Orangeburg, New York.

I arrived at the Safety Station at 9:45 AM and found on duty personnel setting up a tank, hoses, screens and other paraphernalia well in advance of what might in reality have taken place as an emergency. (They said they were working overtime and that they had been setting up the decontamination materiel since 8 AM. It is my impression that their prepared advance notice gave us no way of knowing how long it might take to set up in the event of an emergency.)

The equipment consisted of one brown canvas pool approximately 12 feet square and 3 feet high with no water in it, and an outlet to the outside of the building from inside the safety station. The persons participating in the practise were lined up outside the building waiting to enter were let in one at a time at first. They were inspected with a geiger counter. After about

six people were processed a second tester arrived and then two people were allowed in at a time. Next they went to a Red Cross table to identify themselves and then left. No one was washed because they all tested "clean" therefore there was no washing practise.

No privacy was provided or segregation as to sex. There were screens along one side of the pool for undressing and a pile of paper clothes available but not enough to provide for any large number of people. The Red Cross mobile units which were a part of the practise were a block away, or too far to walk to in paper clothing. The mobile unit was supposed to have clothing but I did not visit it.

The processors took two minutes per person to go over them with the counters.

Buses arriving were tested outside the building for radioactivity.

[The man from Stone and Webster, Ken Mattera, I am not sure of his last name, said when the exercise was over that it had been speeded up and the two hours he was there would have taken four hours.]

My impression was that it was incomplete even for a practise and proved very little excepting that it took too long to process people and had there been a real emergency the people outside would have been standing there possible needing to be washed and failing to have timely treatment.

MAY 29, 1982

1 JUDGE GLEASON: Proceed, please.

2 BY MS. POTTERFIELD: (Resuming)

3 Q Ms. King, do you have the testimony you wish  
4 to submit before the Atomic Safety and Licensing Board?

5 A (WITNESS KING) I do.

6 Q Does that testimony consist of two typewritten  
7 pages plus an Exhibit 1?

8 A (WITNESS KING) Yes.

9 Q Do you have any additions or corrections to  
10 that testimony?

11 A (WITNESS KING) No, not at this time.

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

14 A (WITNESS KING) Yes.

15 MS. POTTERFIELD: I move the admission of the  
16 testimony of Joan Harding King into evidence as if  
17 read.

18 JUDGE GLEASON: Is there objection?

19 MR. CZAJA: Judge, with respect to Ms. King,  
20 we believe that the testimony commencing on Page 1, Line  
21 16, with the words "Ms. Schwartz said," from there to  
22 the conclusion of the testimony, including the document  
23 on the letterhead of Good Samaritan Hospital, addressed  
24 to Mrs. Fleisher's attention, should be stricken as  
25 unreliable hearsay.

1 MR. FARRELLY: Your Honor, we object to Ms.  
2 King's testimony for the reasons stated in our motion.

3 (Whereupon, the Board conferred.)

4 JUDGE GLEASON: Ms. Potterfield?

5 MS. POTTERFIELD: Just a moment.

6 (Whereupon, counsel for the intervenors  
7 conferred.)

8 MS. POTTERFIELD: I have no argument.

9 (Whereupon, the Board conferred.)

10 JUDGE GLEASON: The Board grants the motions,  
11 both motions with respect to Mrs. King.

12 MS. POTTERFIELD: I understand the motion goes  
13 from Line 16 to the end. That is the hearsay  
14 exception.

15 JUDGE GLEASON: Except that the Consolidated  
16 Edison goes to the entire testimony.

17 MS. POTTERFIELD: I am sorry. I didn't  
18 realize. Do you mean because it is irrelevant?

19 JUDGE GLEASON: It is hearsay.

20 MS. POTTERFIELD: The hearsay objection, I  
21 think, on both counts begins on Line 16.

22 MS. POTTERFIELD: If you took out the hearsay,  
23 there wouldn't be much left of that statement.

24 MS. POTTERFIELD: That is not necessarily  
25 true, Judge Gleason, but if it is true, then that goes

1 to the weight of her testimony and not to any hearsay  
2 rule.

3 MR. FARRELLY: Your Honor, we think we have an  
4 objection to the entire testimony. The hearsay  
5 objection goes to the entire testimony. But we also  
6 have a relevancy objection and an objection based upon  
7 Ms. King's former testimony at a limited appearance  
8 statement. We believe the regulations are very clear  
9 that having made a statement, she cannot participate  
10 further in the proceeding.

11 JUDGE GLEASON: Well, I am not going to rule  
12 upon that, because I don't have to.

13 MS. POTTERFIELD: I do have an argument about  
14 that, Judge Gleason.

15 JUDGE GLEASON: I really don't want to hear an  
16 argument about that. I want to hear an argument about  
17 the hearsay and the relevancy, if you want to make one,  
18 but I had understood you to say that you didn't have an  
19 argument you wanted to make.

20 MS. POTTERFIELD: Up until Line 16, I see no  
21 hearsay objection. It will have to be explained to me.  
22 The relevance is important, because she talks about the  
23 drill of 1982 and what she saw with her own eyes when  
24 she visited Good Samaritan Hospital, which was a  
25 participant in that exercise. It goes to Contention



1 3.1. It is relevant for what it says, and I don't see  
2 the possibility of any hearsay objection to those first  
3 lines of the testimony.

4 JUDGE GLEASON: Well, you are talking about  
5 the first two lines of 41?

6 MS. POTTERFIELD: Up until Line 16, Judge  
7 Gleason, where I understood the hearsay objection  
8 begins.

9 (Whereupon, the Board conferred.)

10 JUDGE GLEASON: Ms. Potterfield, do you intend  
11 to demonstrate somewhere with some witness or by this  
12 witness what -- the problem that I am having is to say  
13 that somebody went through an emergency room of a  
14 hospital and found that they were not aware of the drill  
15 or any part of it for the hospital tells me nothing  
16 about whether there has been a compliance with the  
17 emergency plan of the licensee.

18 How are you going to get over that problem,  
19 the problem that I am raising?

20 MS. POTTERFIELD: Judge Gleason, insofar as  
21 FEMA witnesses have testified and have included in their  
22 post-exercise drill assessment that these hospitals  
23 responded appropriately and well, and that therefore the  
24 planning standard was met as far as the exercise.

25 JUDGE GLEASON: That this hospital responded?

1 FEMA's testimony was that this hospital responded well?

2 MS. POTTERFIELD: Mrs. Fleisher is telling me  
3 something.

4 She tells me that Mr. Davidoff's testimony  
5 states that Good Samaritan Hospital is prepared to  
6 respond. I was thinking more directly of the  
7 post-exercise assessment and the fact that the  
8 preparation of the hospitals was not indicated as a  
9 serious deficiency, and we think we are entitled to  
10 present evidence about deficiencies that our observers  
11 noted during that drill.

12 JUDGE GLEASON: Well, if there are  
13 deficiencies, the licensees can be held accountable --  
14 yes, you are -- and I am asking you if that is the case  
15 here, and if so, how do you intend to prove that?

16 MS. POTTERFIELD: We can only prove it with  
17 what we have seen with our own eyes, Judge, and part of  
18 our proof consists of Ms. King's statement of what she  
19 saw that day. I didn't understand what you meant about,  
20 if there are deficiencies for which the licensees can be  
21 held accountable in the emergency plan.

22 JUDGE GLEASON: The off-site emergency plans  
23 are deficient with respect to the allegations that are  
24 indicated in the statement. And my question is, how do  
25 you intend to prove that?

1 MS. POTTERFIELD: Judge Gleason, you  
2 understand, part of our problem is rebutting the  
3 evidence of the FEMA witnesses to the extent that apart  
4 from the deficiencies, that they have noted that the  
5 plan is otherwise acceptable. That is part of our  
6 problem and part of our proof on our emergency planning  
7 case. In order to do that, we can only present the  
8 testimony of individuals who observed what happened on  
9 the days of the drill, so that the Board will have it  
10 before it, and not only the summary conclusions of FEMA,  
11 but also whatever evidence we have been able to glean  
12 about what actually happened that day.

13 JUDGE GLEASON: Did you have an opportunity to  
14 depose the FEMA witnesses?

15 MS. POTTERFIELD: Well, Judge Gleason, they  
16 have already testified.

17 JUDGE GLEASON: I understand that.

18 MS. POTTERFIELD: I don't understand your  
19 question then.

20 JUDGE GLEASON: To get on with this, we will  
21 grant the objection with respect to Mrs. King's  
22 statement from Line 16 to the balance of the testimony,  
23 starting with the words, "Ms. Schwartz," and will permit  
24 the rest of the testimony going in. It will be subject  
25 to a later motion to strike if in fact there has not

1 been a linking up of this statement with an emergency  
2 requirement or a requirement under the emergency plans.

3 (The testimony of Ms. King follows.)

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

TESTIMONY OF.  
JOAN HARDING KING

1. My name is Joan Harding King, I reside at 80 Saw  
2. Mill Road, New City, N.Y., 10956. I have lived in  
3. Rockland County for 30 years, I have a BA, R.N. degree  
4. and am the mother of five children.

5. On March 3, as part of the drill exercise of the  
6. Rockland County Radiological Emergency Response Plan  
7. (RERP) and acting as an officer of West Branch Con-  
8. servation Association I visited Good Samaritan Hospi-  
9. tal arriving there at 10:05 A.M.

10. I found that no personnel in the Emergency Room  
11. were aware of the drill or any part in it for the hos-  
12. pital. I met Security Director Patrick Woods and the  
13. Assistant Director of Nursing, Theresa Schwartz who  
14. showed me the decontamination unit of the Emergency  
15. Dept. and explained some procedures on receiving and  
16. handling patients exposed to radiation. Ms. Schwartz  
17. said that the Emergency Council had informed them that  
18. Good Samaritan Hospital would be having no part in the  
19. drill. They had received no official notification that  
20. the drill would take place. They knew about it only  
21. from newspaper and radio accounts.  
22. Mr. Woods said that the hospital's radiation decontami-  
23. nation area and plans were set up because of the proxi-  
24. mity of Route 17 and the danger of spills of radioactive  
25. materials being trucked over it. Also because of the

1. presence of the Union Carbide Company's nuclear reac-  
2. tor in Sterling Forest, N.Y., not because of any warning  
3. from Indian Point. He had only received the Four County  
4. Nuclear Safety Committee emergency planning booklet two  
5. days before this drill and said he received the orange  
6. book (State of New York Emergency Worker Training Course)  
7. the day before the drill.

8. Ms. Schwartz and Mr. Woods described an emergency  
9. drill held on a Memorial Day weekend within the last  
10. two years. After a simulated explosion in a New City  
11. office building ambulances were unable to get to the  
12. Good Samaritan Hospital on any major highway because  
13. traffic was backed up for miles and they had to use the  
14. County's back roads.

15. On May 26, 1982, at 9:30 A.M. I spoke to James Dawson,  
16. President of Nyack Hospital, Nyack, New York. (We have  
17. two hospitals in Rockland County.) When I asked if the  
18. hospital had been notified officially of the March 3  
19. drill he said, "Not officially, we only knew about it  
20. through the media." When asked if they were equipped to  
21. handle radioactive contamination he said they had some  
22. provision as part of the hospital's regular disaster  
23. plan which includes a bath tub large enough for only one  
24. person at a time and their other preparations were simi-  
25. lar to those at Good Sam. A separate entrance area, it  
26. can be expanded to about 40 beds maximum. He has no copy  
27. of the RERP. It has never been sent to them. They have  
28. "received no official communication from anyone."

MAY 29, 1982



†

J.H.King Exhibit 1 \_\_\_\_\_

GOOD SAMARITAN HOSPITAL

SUFFERN, NEW YORK 10901

914-357-3300

March 16, 1982

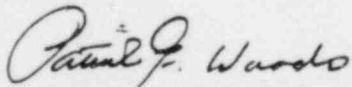
West Branch Conservation Association  
443 Buena Vista Road  
New City, New York 10956

Att: Ms. Zipporah Fleisher

Dear Ms. Fleisher:

On March 3, 1982 I met with Mrs. Joan King from your organization and together with Mrs. Theresa Schwarz, Assistant Director of Nursing and Mrs. Joan Fenton, Emergency Department Nursing Care Coordinator reviewed Good Samaritan Hospital's Internal Radiation Emergency Plan. As Mrs. King has advised you, other than your organization there was no attempt to incorporate Good Samaritan Hospital into the overall plan and we felt that written confirmation of that fact might be useful in preparing your critique.

Sincerely,



Patrick F. Woods  
Director of Safety & Security

cc/ J. Fitzpatrick  
K. Yusko  
T. Schwarz

pfw/dc

1 JUDGE GLEASON: All right. Who wants to  
2 proceed?

3 MR. FARRELLY: I will, Your Honor.

4 CROSS EXAMINATION

5 BY MR. FARRELLY:

6 Q Ms. Galdone, in preparing your testimony, have  
7 you reviewed the NRC emergency planning regulations?

8 A (WITNESS GALDONE) I have looked at them,  
9 yes.

10 Q Which portions have you looked at?

11 A (WITNESS GALDONE) I couldn't tell you right  
12 off.

13 JUDGE PARIS: Speak right into the microphone,  
14 Ms. Galdone.

15 WITNESS GALDONE: I have read the parts in the  
16 middle, but I don't know what they are.

17 BY MR. FARRELLY: (Resuming)

18 Q Are you familiar with the document entitled  
19 NUREG-0654?

20 A (WITNESS GALDONE) I have seen it, yes.

21 Q Have you read it?

22 A (WITNESS GALDONE) Not the whole thing, no.

23 Q Are you finished?

24 A (WITNESS GALDONE) Yes.

25 Q Are you aware that your testimony is being

1 offered today under Contention 3.1?

2 MS. POTTERFIELD: Objection, Your Honor. It  
3 is not clear whether or not she knows what Contention  
4 3.1 is. She is not a party to the proceeding.

5 MR. FARRELLY: Your Honor, I am just asking.  
6 If she doesn't know, she can say she doesn't know.

7 JUDGE GLEASON: Let her respond.

8 BY MR. FARRELLY: (Resuming)

9 Q Are you aware that your testimony is being  
10 offered under Contention 3.1?

11 A (WITNESS GALDONE) No, I just know what I  
12 saw. That's all.

13 Q Have you read -- Are you familiar with  
14 Contention 3.1?

15 A (WITNESS GALDONE) No. Not by that name.

16 Q Is it your testimony that your observations  
17 confirm -- your observations on March 3rd, 1982,  
18 indicated a failure of the licensees to comply with NRC  
19 or FEMA guidelines?

20 A (WITNESS GALDONE) Well, I thought there  
21 wasn't enough being done to handle a lot of people.

22 Q But you haven't analyzed what you observed in  
23 terms of compliance or non-compliance with the  
24 regulations. Is that correct?

25 A (WITNESS GALDONE) I just thought they just

1 couldn't handle more than about two people per minute --  
2 I mean, two minutes per person, and then there were two  
3 people at the most working geiger counters, so it  
4 wouldn't be more than maybe a few busloads of people  
5 that could be handled in an hour.

6 Q Do you have any formal medical training?

7 A (WITNESS GALDONE) No.

8 Q Any radiation health physics training?

9 A (WITNESS GALDONE) No. I have read manuals  
10 about radiation.

11 MR. FARRELLY: Your Honor, I am going to ask  
12 that the last part of the answer be stricken as  
13 non-responsive.

14 JUDGE GLEASON: Why isn't it responsive? You  
15 asked her the question about her training.

16 MR. FARRELLY: I asked formal training, Your  
17 Honor.

18 JUDGE GLEASON: I will deny the objection.

19 BY MR. FARRELLY: (Resuming)

20 Q Do you know at what time of the day the March  
21 3rd, 1982, exercise began?

22 A (WITNESS GALDONE) I thought it was around  
23 ten-ish.

24 Q Are you aware that the post-exercise  
25 assessment of the Federal Emergency Management Agency

1 states that the drill began at 6:00 a.m.?

2 A (WITNESS GALDONE) I wasn't. I know they were  
3 all prepared, so something must have been --

4 Q Are you aware that the same post-exercise  
5 assessment concluded that the Rockland County  
6 Psychiatric Center provided excellent facilities,  
7 supplies, and equipment?

8 A (WITNESS GALDONE) I didn't know that.

9 MS. POTTERFIELD: Your Honor, I object  
10 belatedly to the question. I beg your pardon. That is  
11 my problem.

12 BY MR. FARRELLY: (Resuming)

13 Q Ms. Galdone, referring to Page 2 of your  
14 testimony, the first paragraph on that page, you state  
15 that no privacy was provided. By that statement, do you  
16 mean no privacy beyond what might have been provided by  
17 the screens?

18 A (WITNESS GALDONE) Yes, but there were little  
19 screens, you know. If somebody wanted to be rinsed off  
20 there, they would have been in full view.

21 MR. FARRELLY: Your Honor, I have no further  
22 questions.

23 JUDGE GLEASON: The Power Authority.

24 CROSS EXAMINATION

25 BY MR. CZAJA:

1 Q Ms. King, were you in any location other than  
2 the Good Samaritan Hospital on March 3 observing the  
3 exercise?

4 A (WITNESS KING) No.

5 MR. CZAJA: I have no further questions for  
6 these witnesses.

7 JUDGE GLEASON: Any from the state  
8 representatives?

9 MS. VETERE: No, Your Honor.

10 JUDGE GLEASON: Any redirect?

11 MS. POTTERFIELD: No redirect.

12 JUDGE GLEASON: Thank you, ladies, for your  
13 testimony. You are excused.

14 Oh, I am sorry. Excuse me just a minute. I  
15 should ask the staff.

16 MR. HASSELL: Mr. Glass would have one  
17 question.

18 CROSS EXAMINATION

19 BY MR. GLASS:

20 Q Mrs. Galdone, did you visit the Rockland  
21 Psychiatric Hospital during the March 9th, 1983,  
22 exercise?

23 A (WITNESS GALDONE) Yes. I came there about  
24 the same, 9:30 or 40, something like that, and no plans  
25 had been made to receive people right away. They



1 started -- the garage was all still full of fire trucks,  
2 and the tank was not set up. There were no signs  
3 leading to the place. I guess there were two, I think  
4 they were Red Cross ladies, were there.

5 MR. FARRELLY: Your Honor, can I just ask a  
6 clarifying point? I am not sure if Ms. Galione  
7 understood the question as referring to the 1982 or the  
8 1983 exercise. If it referred to the '83 exercise, I  
9 want to raise an objection to the relevancy of the  
10 question as beyond the scope of the witness's direct  
11 testimony, which was limited to her observations of the  
12 1982 drill.

13 JUDGE GLEASON: Excuse me, Mr. Glass, what was  
14 your question?

15 MR. GLASS: I was asking whether she had  
16 observed the exercise at Rockland Psychiatric Hospital  
17 during the drill of March 9th, 1983.

18 JUDGE GLEASON: 1983?

19 MR. GLASS: Yes, sir.

20 JUDGE GLEASON: This goes beyond her  
21 testimony. All right. Thank you. Now you are excused.

22 (Witnesses excused.)

23 MR. CZAJA: Judge, I don't know if I have to  
24 say this every time, but I would like to accumulate the  
25 time I did not use on this witness towards my two-hour

1 accumulation.

2 MS. FLEISHER: Your Honor, if I may, we had  
3 not realized that the witnesses would not have any  
4 opportunity to make a preliminary summary, and therefore  
5 we didn't introduce any supplementary testimony. Mrs.  
6 Galdone did indeed visit again, so did Mrs. King, to  
7 both the hospital and the psychiatric center, and they  
8 had important additional information to give, and  
9 because we are not allowed to cross examine, I think it  
10 should go in the record that we had expected that they  
11 would be able to say a few words in a preliminary  
12 statement.

13 JUDGE GLEASON: Well, Mrs. Fleisher, the only  
14 purpose for a summary statement is to advise the  
15 audience if there is a large audience as to what the  
16 nature of the testimony is. It is not to be adding  
17 testimony to testimony already before the Board.

18 MS. FLEISHER: Your Honor, I do understand  
19 that. Again, we didn't want to clutter the world with  
20 supplementary testimony, even if it was only one page  
21 each, but we have been watching how Question 1 was  
22 treated, and we went by that, and I think the rules of  
23 Questions 3 and 4 are not the same as we have had with  
24 Question 1. That may be due to the fact that we have so  
25 many more witnesses, but it does require us to change

1 our outlook.

2 MR. KAPLAN: Judge Gleason, if I may be heard,  
3 as a general proposition, it seems to me that this Board  
4 almost has an obligation to consider the testimony of  
5 individuals who are being proffered by the intervenors  
6 or the counties or anyone else at this point on  
7 observations dealing with the drill.

8 The reason I say that is that based upon Mr.  
9 Glass's request we did that, and Board is almost  
10 mandated by the Commission to consider the implications  
11 of the drill. Now, I would just suggest that expedience  
12 and a commitment to truth-searching would require the  
13 Board to at least begin to hear some of that now.

14 I understand the possible objections from the  
15 licensees. We can't cross examine it. That would allow  
16 the Board to weigh it possibly differently when you  
17 consider its value, because it would not be in some  
18 sense totally cross examined, but it seems that if in  
19 fact the drill was significant, and the Commission's  
20 determination says that it is significant, how could the  
21 Board then not take testimony now and then throw it to  
22 the intervenors to come back after the FEMA witnesses  
23 possibly in May or some time subsequent in this  
24 proceeding and say, now you have to consider it, you are  
25 considering FEMA's report on the drill, when the

1 intervenors, be they interested states or citizen  
2 intervenors, had the opportunity to put in other  
3 evidence about what transpired last week unless they do  
4 it now.

5 MS. POTTERFIELD: It is in light of that,  
6 Judge Gleason, that we have asked the Board to  
7 reconsider its ruling that we will not be permitted to  
8 do a direct case on the 1983 drill. It is for that very  
9 reason, because we anticipated that the licensees would  
10 object to testimony given by our witnesses. The  
11 testimony of our witnesses had to be filed last June,  
12 June, 1982. They couldn't possibly have included  
13 testimony about the March 9th drill. The date for  
14 supplementary testimony occurred before the March 9th  
15 drill, and I want to support what Mr. Kaplan said, and  
16 also to remind the Board that we have before it a motion  
17 that would allow us to put on a direct case about the  
18 1983 drill in light of these problems.

19 JUDGE GLEASON: I am not familiar with that  
20 motion, Mrs. Potterfield, unless it is something that is  
21 tied up with some other motion that I haven't seen. I  
22 am not familiar with it.

23 MS. POTTERFIELD: It was in the form of a  
24 request that the Board consider additional contentions  
25 and or a Board question, a request by Parents and by USC

1 and NYPIRG.

2 JUDGE GLEASON: Well, the Board has ruled in  
3 denying those additional contentions, as you know.

4 MS. POTTERFIELD: Yes, and we asked in the  
5 alternative that the Board certify the issue to the  
6 Commission.

7 JUDGE GLEASON: And the Board, if it has not,  
8 it is denying certification of those questions to the  
9 Commission.

10 MS. POTTERFIELD: We had received no notice of  
11 that.

12 JUDGE GLEASON: I understand that, so you are  
13 receiving it now.

14 MS. POTTERFIELD: Does that mean that we are  
15 then precluded from presenting any evidence at all on  
16 the March, 1983, drill?

17 JUDGE GLEASON: You are precluded as of this  
18 point, yes, because the supplemental testimony would  
19 have been before that, but it is the Board's intention  
20 to have the FEMA witnesses come back and testify with  
21 respect to that drill, and as we have indicated, we  
22 intend to propound an additional schedule at that time.  
23 We have not crossed any bridges with respect to it.

24 MS. POTTERFIELD: So that the Board has not  
25 made a ruling that we will not be able to present

1 rebuttal testimony of the FEMA witnesses?

2 JUDGE GLEASON: The Board has not made any  
3 ruling to that effect.

4 MS. POTTERFIELD: Thank you.

5 MS. FLEISHER: Your Honor, I have a question  
6 to ask Your Honor. Will we have any opportunity for  
7 discovery of those FEMA witnesses, or will we just have  
8 to wait and try to get it through cross?

9 JUDGE GLEASON: I really do not know, Ms.  
10 Fleisher. We haven't crossed that bridge at all.

11 MR. THORSEN: Your Honor, Rockland County --

12 JUDGE GLEASON: I might remind you people that  
13 you can take as much of this time as you want, but this  
14 time, the allocation of this witness time for the  
15 intervenors is not going to be changed. It is going to  
16 be a certain number of days. So go ahead.

17 MR. THORSEN: I will be as brief as possible,  
18 Your Honor.

19 Your Honor, Rockland County is in a different  
20 position, I believe. I understand that FEMA does not  
21 intend to make any report to the Nuclear Regulatory  
22 Commission with regard to the March 9th, 1983, drill,  
23 insofar as it affected Rockland County. It is my  
24 intention to provide this Board and this proceeding with  
25 supplementary testimony from Rockland County's witnesses



1 with regard to the March 9th drill and their  
2 observations.

3 I would request that the Board grant me  
4 permission to supply the Board with supplementary  
5 testimony prior to Rockland County's case next week.

6 I also wish to renew my request which we sent  
7 to the Board in the form of a mailgram that Rockland  
8 County be granted additional time, and that the hearings  
9 be held during that time in Rockland County.

10 JUDGE GLEASON: Yes, I think the record should  
11 reflect that you were offered additional time yesterday,  
12 and that you did not take advantage of that additional  
13 time.

14 MR. THORSEN: Your Honor, would you clarify  
15 that? I am not sure I know what you are talking about.

16 JUDGE GLEASON: Yes. You were offered time  
17 yesterday to put on your witnesses for all of Monday,  
18 and you advised the Board that you were not able to do  
19 so because you were tied up in some other case.

20 MR. THORSEN: Your Honor, I think what you are  
21 talking about is a phone call I received last week  
22 offering me Monday, the 14th, for the presentation of  
23 certain Rockland County witnesses. Is that correct?

24 JUDGE GLEASON: That's exactly what I just  
25 said, in different words.

1           MR. THORSEN: Thank you, Your Honor. Yes, you  
2 are quite correct, Your Honor. We responded that we did  
3 not feel we had sufficient time to prepare our case and  
4 present witnesses on the 14th. At that time it was my  
5 understanding that we were offered the 21st, and that we  
6 had accepted the 21st for presentation of our case,  
7 Juige.

8           JUDGE GLEASON: Well, as far as the Board has  
9 determined, you have been allotted the time in the  
10 schedule that was sent to you, and that you were offered  
11 yesterday, and you indicated that you could not be  
12 prepared.

13           I really do not want to carry this on any  
14 further, please.

15           MR. THORSEN: Nor do I, Judge, but I want my  
16 objection noted on the record.

17           JUDGE GLEASON: Your objections are always  
18 noted, even without noting them.

19           Mr. Brandenburg, do you insist on saying  
20 something at this point?

21           MR. BRANDENBURG: Well, it relates to a prior  
22 remark of Your Honor. I will be very brief. I know you  
23 want to move on here, but I understood you to say that  
24 the Board had not yet ruled with respect to, in effect,  
25 post-1983 exercise testimony, and I just wanted to state

1 my understanding that the intervenor's request for an  
2 additional three days to consider such matters was  
3 before Judge Laurenson, was, in my understanding,  
4 disposed of in his ruling, which has now been accepted  
5 by the Board.

6 So, I am a little perplexed by Your Honor's  
7 most recent statement.

8 JUDGE GLEASON: I have not indicated anything  
9 with respect to the motion which I have heard for the  
10 first time from Rockland County with respect to putting  
11 testimony on concerned with post-exercise events. As I  
12 understand it, he is making such a motion now. I would  
13 suggest to you, sir, that you ought to put that motion  
14 in writing and get it to the Board.

15 MR. BRANDENBURG: I was actually addressing  
16 the prior colloquy, prior to Mr. Thorsen's statements,  
17 by Ms. Potterfield about post-March, 1983, exercise  
18 testimony, and it is my understanding that that has been  
19 ruled upon By Judge Laurenson, and it has been adopted.

20 JUDGE GLEASON: That is not my understanding.  
21 If you could point it out in his ruling.

22 MR. BRANDENBURG: I will.

23 JUDGE GLEASON: Call your next witness,  
24 please.

25 MS. KESSLER: Your Honor, when the list of

1 witnesses was prepared last Friday, or when it was sent  
2 in, we were unaware -- we made a footnote. A footnote  
3 was at the bottom of the page. Mrs. Ramey was  
4 hospitalized and did not know at that time, on Friday,  
5 whether or not she would be able to appear. She asked  
6 her news director who prepared the testimony with her if  
7 he would be willing to substitute if the need arose. I  
8 did not know until he walked through the door if Mrs.  
9 Ramey or Mr. LeMoulllec would be the one who is here. I  
10 don't know how we handle something like this.

11 JUDGE GLEASON: Who do you intend to call?

12 MS. KESSLER: It is Robert LeMoulllec for  
13 WRKL.

14 JUDGE GLEASON: Mr. LeMoulllec, are you here?

15 MR. LE MOULLEC: I am.

16 JUDGE GLEASON: Would you please come up?

17 Whereupon,

18 ROBERT LE MOULLEC

19 was called as a witness, and having been first duly  
20 sworn, took the stand, was examined, and testified as  
21 follows:

22 DIRECT EXAMINATION

23 BY MS. KESSLER:

24 Q Mr. LeMoulllec, you have before you a document  
25 which is entitled Testimony of Betty Ramey, WRKL Radio.

1 Is that not correct?

2 A (WITNESS LE MOULLEC) Yes, that is correct.

3 Q Is this the testimony that you wish to submit  
4 to the Atomic Safety and Licensing Board?

5 A (WITNESS LE MOULLEC) With the exception of  
6 the initial introduction, yes, it is.

7 Q Do you have additions or corrections to be  
8 made in this?

9 A (WITNESS LE MOULLEC) Yes, I do.

10 Q And if so, what are they?

11 A (WITNESS LE MOULLEC) Well, my name is Robert  
12 LeMoulllec, and I am the news director of WRKL in Pomona,  
13 New York, for the past 13 months. I have been in the  
14 news department for four and a half years. I am a  
15 member of the Radio and Television News Directors  
16 Association. I also host much of the WRKL hotline,  
17 which I see as a town hall of Rockland County. Issues  
18 of vital concern to Rockland are aired six days a week,  
19 and political, social, and economic problems of the  
20 community are discussed by the people involved.

21 Q I believe that that concurs. It is the same  
22 testimony from where you say, "I also host much of the  
23 WRKL hotline," and from then on it is exactly the same,  
24 is it not?

25 A (WITNESS LE MOULLEC) That is correct.

1 Q With these additions and corrections, is this  
2 testimony correct and accurate to the best of your  
3 knowledge?

4 A (WITNESS LE MOULLEC) Yes, it is.

5 MS. KESSLER: Your Honor, I move to submit  
6 this testimony to the record as presented and read.

7 JUDGE GLEASON: Is there objection?

8 MR. FARRELLY: Your Honor, Con Edison objects  
9 for the reasons stated in its March 9th -- I am sorry,  
10 March 14th memo at Page 8.

11 JUDGE GLEASON: Do you want to respond to the  
12 objections?

13 (Whereupon, counsel for intervenors  
14 conferred.)

15 MS. KESSLER: This testimony relates directly  
16 to our contentions, Your Honor, dealing with  
17 communications capabilities, communications and  
18 information notification to the public, and 3.4, in  
19 which we are lead intervenor, on the reliability of  
20 licensees' notification to the public regarding any  
21 incidents at the plants.

22 (Whereupon, the Board conferred.)

23 MS. KESSLER: After I received this last  
24 night, and got up early and read it this morning, I  
25 ascertained through the testimony there was nothing that



1 I could see which challenged in any way the testimony as  
2 presented here today.

3 JUDGE GLEASON: I think the problem that we  
4 are having is being able to evaluate the materiality of  
5 this testimony. For example, it states on Page 2 that  
6 the records show the station's role as a provider of  
7 news may be compromised regarding notification of leaks  
8 at Indian Point Units 2 and 3, and that they maintain  
9 record by date of every newscast. "According to a file  
10 check by our news director, the following delays are  
11 noted," and then it has a leak date and the news  
12 report. It doesn't show when they received the news.

13 MS. KESSLER: Your Honor, I think this will  
14 come out through cross examination. It relates, as I  
15 see it, directly to the contentions of which we are lead  
16 and contributing intervenor as to whether the plants  
17 comply with 10 CFR 50.47(b)(6) and (7). Provision is  
18 made in (b)(6) that provisions exist for prompt  
19 communications among principal response organizations to  
20 emergency personnel and to the public, and (b)(7),  
21 information made available to the public on a periodic  
22 basis on how they will be notified what their additional  
23 action should be. Procedures for coordinating and  
24 disseminating information to the public are  
25 established. It deals with public notification and

1 promptness, and the 3 and 4.

2 JUDGE GLEASON: Well, I have to say that it  
3 deals with them in a very general way. We are going to  
4 allow this testimony in and deny the objection, but it  
5 really does need some tightening up. It should have  
6 been a lot tighter than it is. I say we are going to  
7 allow it in, but it really skirts the line of  
8 immateriality, because there are so many gaps in it.

9 You say, for example -- first of all, you  
10 don't connect it up -- that when you receive the  
11 information, and therefore that there was in fact a  
12 delay, and secondly, you indicate you are only on the  
13 air in the daytime, and maybe these things came at  
14 night, but those are things that you should put in your  
15 testimony. Those are not things that the Board should  
16 be putting in.

17 MS. KESSLER: Well, unfortunately, I am not a  
18 professional testifier.

19 (General laughter.)

20 JUDGE GLEASON: Well, fortunately, we are  
21 where we are, and indeed, we do allow a little  
22 liberality with respect to pro se intervenors, but I  
23 thought that you had the advice of your experienced  
24 counsel there on this testimony.

25 MS. KESSLER: No, I did not, not on this one.

1 JUDGE GLEASON: Well, in any event, the  
2 objection is denied.

3 (The testimony of Mr. LeMoulllec follows.)  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the matter of

CONSOLIDATED EDISON COMPANY OF NEW YORK	)	Docket nos.
(Indian Point Unit 2)	)	
	)	50-247 SP
POWER AUTHORITY OF THE STATE OF NEW YORK	)	50-286 SP
(Indian Point Unit 3)	)	
	)	June 7, 1982

TESTIMONY OF: Betty Ramey, WRKL Radio  
ON BEHALF OF: RCSE  
RELATING TO CONTENTIONS: 3.4, 3.1

My name is Betty Ramey and I have been the sole owner of WRKL radio, Pomona, N.Y. for the past 14 years, prior to which I was the co-owner for 4 years. I am a member of the Governing Board of the New York State Associated Press Broadcasters and was 1981 President of that organization.

For the past 14 years I have been responsible for and conducted much of the WRKL "Hotline" which I see as a "Town Hall" of Rockland County. Issues of vital concern to Rocklanders are aired six days per week and political, social and economic problems of the community are discussed by the people involved.

WRKL functions as a provider of emergency information and public information regarding, for example, problems due to power outages, road and adverse weather conditions, etc. Rockland County schools use us for school-closing announcements, snow-related or otherwise. We are interested in performing whatever public service is appropriate in connection with keeping the community informed of any and all emergencies.

We presume that our listeners are English-speaking and we broadcast only in English.

Regarding the Emergency Broadcast System (EBS), we feel that the Federal Warning program should be examined so that local notification and activation can be similarly pre-planned regarding provision of authentication by return phone call or pre-arranged code (see attachment 4, paragraph 3 reference to suggested improvement, top right corner of attachment 1.) A system with the safeguards and immediacy of current EBS should be developed for all emergencies, including nuclear ones. Information regarding a local emergency should come from the source of the emergency through a local dispatch center such as the Fire Training Center and be directed to the radio station by a source we know to be authorized.

Our records show that our role as provider of prompt local news may be somewhat compromised regarding notification of leaks at Indian Point Units 2 and 3. WRKL maintains records, by date, of every newscast. According to a file-check by our News Director, Robert LeMoulllec, the following delays are noted:

<u>leak date</u>	<u>news report</u>
Unit 2 fan cooler leak: plant manager told 10-17-80	6 a.m. 10-22-80
Unit 3 malfunction and leak: 1-31-81	6 a.m. 2-2-81
Unit 2 malfunction and leak: 10-5-81	5:00 p.m. 10-6-81
Unit 2 malfunction and leak, small re- lease of radiation: 3-24-82, evening	9:00 a.m. 3-25-82

It should be noted that our license permits broadcasting during daylight hours only, though we can operate after sunset in a

RCSE witness Betty Ramey - 3 -

declared state of emergency for information dissemination only. Our newsroom is covered approximately 21 hours of most days with the morning hours of 2:00 to 5:00 receiving least or no coverage. Although we do not maintain records of when news items are received, it is not our practice to delay broadcast of newsworthy items once we have the necessary information.



1 JUDGE GLEASON: Who will proceed with cross  
2 examination?

3 MR. CZAJA: I will proceed, Judge.

4 CROSS EXAMINATION

5 BY MR. CZAJA:

6 Q Mr. LeMoullec, I would like to proceed with  
7 this question of when you received notification of the  
8 situations. There is one reference to Unit 3, the Unit  
9 3 malfunction and leak. You give the leak date as  
10 January 31, 1981, and your news report comes on at 6:00  
11 a.m. on February 2, 1981.

12 Do you have any recollection as to when you  
13 first received information regarding that situation?

14 A (WITNESS LE MOULLEC) Well, we would have to  
15 have received that information some time past signoff on  
16 February 2nd, 1981, and before we went on the air on  
17 February 2nd, 1981.

18 Q So your best recollection is that you received  
19 notification of that situation on February 2, 1981. Is  
20 that correct?

21 A (WITNESS LE MOULLEC) Yes. My best  
22 recollection is some time, let's say, after 5:00 o'clock  
23 p.m., February 1st, 1981.

24 Q I am sorry, after 5:00 p.m., February 1st?

25 A (WITNESS LE MOULLEC) February 1st, 1981.

1 Q Do you recall the source of that information?

2 A (WITNESS LE MOULLEC) No, I don't.

3 Q Does your station subscribe to the Associated  
4 Press Wire Service?

5 A (WITNESS LE MOULLEC) Yes, we do.

6 Q Do you recall whether that situation was  
7 reported in the Associated Press Wire Service on January  
8 31, 1981?

9 A (WITNESS LE MOULLEC) I am certain it wasn't.

10 Q You are certain that it wasn't?

11 A (WITNESS LE MOULLEC) Right.

12 MR. CZAJA: I am going to ask Mr. Pikus to  
13 distribute a document that I will ask to be marked as  
14 Exhibit PA-39.

15 JUDGE GLEASON: The exhibit will be so marked,  
16 PA-39.

17 (The document referred to  
18 was marked for  
19 identification as Exhibit  
20 Number PA-39.)

21 BY MR. CZAJA: (Resuming)

22 Q Mr. LeMoullec, have you previously seen a copy  
23 of the document marked as Exhibit PA-39?

24 A (WITNESS LE MOULLEC) I am not certain.

25 Q Well, can you identify the format of that

1 document? Is this typical of the format of documents  
2 that come over the Associated Press wire?

3 A (WITNESS LE MOULLEC) This looks like a news  
4 -- this is done for the newspaper, not for the broadcast  
5 wire.

6 Q So it is your testimony that this came over  
7 the Associated Press news wire possibly for newspaper,  
8 but you have no recollection of learning about it on  
9 January 31?

10 A (WITNESS LE MOULLEC) No, because there are  
11 two different AP wires, the newspaper wire and the  
12 broadcast wire.

13 Q Let's turn to February 1. Did you read any  
14 newspapers that day?

15 A (WITNESS LE MOULLEC) I don't know offhand.  
16 Generally I do.

17 Q Have you ever heard of a newspaper called the  
18 Rockland Journal News?

19 A (WITNESS LE MOULLEC) Yes.

20 Q Do you recall reading an article in that  
21 newspaper on February 1 about this situation?

22 A (WITNESS LE MOULLEC) Offhand, no.

23 Q Well, let me ask Mr. Pikus to show you a  
24 document, and I would ask that it be marked as Exhibit  
25 PA-40.

1 JUDGE GLEASON: The document will be marked  
2 PA-40.

3 (The document referred to  
4 was marked for  
5 identification as Exhibit  
6 Number PA-40.)

7 BY MR. CZAJA: (Resuming)

8 Q Have you ever seen the document that has been  
9 marked as Exhibit PA-40, Mr. LeMoullec?

10 A (WITNESS LE MOULLEC) This is the copy of the  
11 Journal News?

12 Q Yes, it is a copy of the article from the  
13 Rockland Journal News.

14 A (WITNESS LE MOULLEC) Offhand, I don't know.

15 MR. CZAJA: I have no further questions of  
16 this witness.

17 JUDGE GLEASON: Does Consolidated Edison have  
18 any questions?

19 MR. FARRELLY: Yes, Your Honor.

20 CROSS EXAMINATION

21 BY MR. FARRELLY:

22 Q Mr. LeMoullec, have you reviewed the NRC  
23 emergency planning regulations in preparing your  
24 testimony or reviewing Mrs. Ramey's testimony?

25 A (WITNESS LE MOULLEC) No.

1 Q Have you reviewed a document entitled  
2 NUREG-0654, Criteria for Preparation and Evaluation of  
3 Radiological Emergency Response Plans in Preparedness  
4 for Nuclear Power Plants?

5 A (WITNESS LE MOULLEC) No, I haven't.

6 Q Have you reviewed the various contentions in  
7 this proceeding?

8 A (WITNESS LE MOULLEC) Yes, I have.

9 Q Have you reviewed Contention 3.1?

10 A (WITNESS LE MOULLEC) Is this Contention 3.1  
11 from the Rockland Citizens for Safe Energy?

12 Q I am referring to one of the contentions  
13 admitted by the Board.

14 A (WITNESS LE MOULLEC) I am not sure which  
15 contention you are talking about.

16 Q Is it your contention, referring to Page 2 of  
17 your testimony, is it your contention that the procedure  
18 referred to at the top of that page, that the absence of  
19 that procedure constitutes non-compliance with the NRC  
20 or FEMA guidelines?

21 A (WITNESS LE MOULLEC) It is my contention that  
22 the absence of this would make it very difficult for us  
23 to give information to the public.

24 MR. FARRELLY: Your Honor, that is not  
25 responsive. My question asked him specifically on the

1 NRC-FEMA guidelines.

2 JUDGE GLEASON: Rephrase the question.

3 BY MR. FARRELLY: (Resuming)

4 Q Does the absence of the procedure referenced  
5 in your testimony at the top of Page 2 constitute  
6 non-compliance with NRC-FEMA guidelines?

7 MS. KESSLER: Your Honor, he has already  
8 stated he is not familiar with those guidelines.

9 JUDGE GLEASON: Good point.

10 BY MR. FARRELLY: (Resuming)

11 Q Referring to the incidents at Page 2, you have  
12 listed at Page 2 of your testimony, is it your testimony  
13 that any of the incidents regarding Indian Point 2  
14 required either the activation of the Emergency  
15 Broadcast System or the activation of emergency response  
16 organizations off-site?

17 A (WITNESS LE MOULLEC) I am not in a position  
18 to make that sort of judgment.

19 Q Again referring to the three incidents listed  
20 for Indian Point 2, as I understand your testimony, the  
21 list of the news reports is the times at which you  
22 broadcast -- reported the incident. Do you have any  
23 evidence as to when each of those incidents were  
24 reported on the AP news line?

25 A (WITNESS LE MOULLEC) Well, we don't use the



1 AP as our primary source of information. We actually  
2 generate stories ourselves, and we submit stories to the  
3 Associated Press.

4 Q I understood in response to a question by Mr.  
5 Czaja that you do subscribe to the AP service.

6 A (WITNESS LE MOULLEC) Yes, we do.

7 Q Do you know if the AP service reported these  
8 incidents and when they reported them?

9 A (WITNESS LE MOULLEC) Offhand, no, I don't.

10 Q With regard to the three incidents, as I  
11 understand your testimony in answer to one of my  
12 questions, your primary source of news is self-generated  
13 news. That is, you make your own news. You didn't get  
14 it from the AP wire. Is that correct?

15 A (WITNESS LE MOULLEC) I wouldn't say we make  
16 it. We report it.

17 Q Have you, in preparing your testimony or in  
18 reviewing Mrs. Ramey's testimony, did you review the  
19 NRC's regulations on notification by licensees to the  
20 NRC?

21 A (WITNESS LE MOULLEC) No, I didn't.

22 Q Do you have any idea as to when the operators  
23 of Indian Point 2 -- strike that.

24 Do you have any understanding as to when the  
25 operators of Indian Point 2 notified the NRC of the

1 three incidents listed as opposed to when they were  
2 reported to news organizations?

3 A (WITNESS LE MOULLEC) Can you repeat that? I  
4 am sorry.

5 Q I am sorry. With respect to the three events  
6 listed for Indian Point 2, do you have any idea when  
7 those events were reported, or if they were reported to  
8 the NRC?

9 A (WITNESS LE MOULLEC) No, I don't.

10 MR. FARRELLY: Your Honor, we are done.

11 JUDGE GLEASON: Is there any cross?

12 MR. GLASS: I have about five questions.

13 JUDGE GLEASON: Go ahead.

14 CROSS EXAMINATION

15 BY MR. GLASS:

16 Q Is your station part of the Emergency  
17 Broadcast System?

18 A (WITNESS LE MOULLEC) Yes, it is.

19 Q Are you aware of what the primary EBS station  
20 in this region is?

21 A (WITNESS LE MOULLEC) Yes, we are.

22 Q Are you familiar with the procedures used to  
23 activate stations such as yours in the Emergency  
24 Broadcast System?

25 A (WITNESS LE MOULLEC) Yes.

1 Q How are you notified to activate your EBS  
2 signal?

3 A (WITNESS LE MOULLEC) Well, a red light  
4 flashes in the control room, and we know that the EBS is  
5 to go on.

6 Q And what action do you take at that time?

7 A (WITNESS LE MOULLEC) Well, we punch in, and  
8 we can transmit the EBS. Once we punch into a certain  
9 button, the EBS station then can be transmitted over the  
10 radio over our own airwaves.

11 Q So in other words you do not have to take any  
12 particular action with the message from the primary  
13 stations repeated over your station?

14 A (WITNESS LE MOULLEC) I don't understand the  
15 question.

16 Q Once you punch in the buttons, what is  
17 broadcast over your station concerning the EBS message?  
18 I don't know if I understood your last answer.

19 A (WITNESS LE MOULLEC) We transmit the EBS.

20 Q So your station just repeats the message  
21 coming from the primary EBS station?

22 A (WITNESS LE MOULLEC) It is running  
23 concurrently.

24 MR. GLASS: I have no further questions.

25 JUDGE GLEASON: Is there any redirect?

## 1 REDIRECT EXAMINATION

2 BY MS. KESSLER:

3 Q Regarding information that you receive, we had  
4 some exhibits presented to us here. Do you have any  
5 other information or access to logs or any other  
6 information through the emergency operation facility in  
7 Rockland County or anything else upon which you depend,  
8 aside from the wires from the utility? Do you have  
9 access to information directly from the utility?

10 A (WITNESS LE MOULLEC) No, I don't.

11 Q Who is the liaison of the utilities to you or  
12 to the press?

13 A (WITNESS LE MOULLEC) They have several public  
14 relations people who speak with us. I'm not sure which  
15 is which. Bowen Lindgren is one name that comes to  
16 mind, and Jack Brumfeld is another. I am not really  
17 sure which, not that it's relevant, which one they are  
18 from, Con Ed or PASNY.

19 Q And is this how you usually get your  
20 information directly from the utilities?

21 A (WITNESS LE MOULLEC) Yes, it is.

22 Q Are you dependent in any way for messages such  
23 as this and others on the public telephone? Is it the  
24 public telephone system that you rely on for this?

25 A (WITNESS LE MOULLEC) Our own lines, if that

1 is public.

2 MS. KESSLER: I have nothing further.

3 JUDGE GLEASON: All right. Thank you. You  
4 are excusei.

5 (Witness excused.)

6 JUDGE GLEASON: Okay. We will come back at  
7 1:30, please.

8 (Whereupon, at 12:40 p.m., the Board was  
9 recessed, to reconvene at 1:30 p.m. of the same day.)

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

AFTERNOON SESSION

(1:35 p.m.)

1  
2  
3 JUDGE GLEASON: Are you ready, Miss  
4 Potterfield?

5 MS. POTTERFIELD: Yes. I would call Jane  
6 Courtney, Karen Ford, and Agata Craig.

7 JUDGE GLEASON: Excuse me a minute. Aren't we  
8 at Blattstein?

9 MS. POTTERFIELD: Judge, I expect Miss  
10 Blattstein will be here later in the afternoon. I had  
11 not realized, of course, that the Court was going to  
12 order that I follow the exact sequence. I request once  
13 again that Mrs. Blattstein be permitted to be heard  
14 later on this afternoon.

15 I apologize for the inconvenience. I hadn't  
16 realized what an inconvenience it was.

17 JUDGE GLEASON: Who are you calling?

18 MS. POTTERFIELD: I am calling a panel of Jane  
19 Courtney, Agata Craig and Karen Ford.

20 JUDGE GLEASON: All right. Would you ladies  
21 please raise your right hands?

22 Whereupon,

23 JANE COURTNEY,

24 AGATA CRAIG,

25 AND



1 KAREN FORD  
2 were called as witnesses on behalf of NYPIRG and, having  
3 been duly sworn by the Chairman, were examined and  
4 testified as follows:

5 DIRECT EXAMINATION

6 BY MS. POTTERFIELD:

7 Q Miss Courtney, would you please state your  
8 name and address for the record, please?

9 A (WITNESS COURTNEY) My name is Jane Courtney.  
10 I live at 16 Adams Drive, Stoney Point, New York.

11 Q Miss Ford, would you state your name and  
12 address for the record, please?

13 A (WITNESS FORD) My name is Karen Ford. I live  
14 at 90 Maple Street, Croton-on-Hudson, New York.

15 Q And, Miss Craig?

16 A (WITNESS CRAIG) Agata Craig, 25 Mountain  
17 Trail, Croton-on-Hudson.

18 Q Miss Craig, do you have before you the  
19 testimony you wish to submit before the Atomic Safety  
20 and Licensing Board?

21 A (WITNESS CRAIG) Yes, I do.

22 Q Do you have any additions or corrections to  
23 that testimony?

24 A (WITNESS CRAIG) Yes. I have since acquired a  
25 car.

1 Q Would you indicate to us which paragraph of  
2 the testimony you are changing or adding to?

3 A (WITNESS CRAIG) I am adding the second  
4 paragraph that I have a 1966 Chevy Impala.

5 Q Since you prepared this testimony in June of  
6 1982, then, you have acquired a 1966 Chevy Impala, is  
7 that correct?

8 A (WITNESS CRAIG) That is correct.

9 Q Is that the extent of your addition?

10 A (WITNESS CRAIG) Yes.

11 Q Thank you. With that addition, is your  
12 testimony true and correct to the best of your  
13 information and belief?

14 A (WITNESS CRAIG) Yes, it is.

15 MS. POTTERFIELD: I move the admission of the  
16 testimony of Agata Craig into the record as if read.

17 JUDGE GLEASON: Is there objection?

18 MR. PIKUS: The Power Authority has no  
19 objection to Miss Craig, Your Honor.

20 MR. FARRELLY: Your Honor, Con Edison does  
21 object to the admission of the testimony for the reasons  
22 stated at page ten of our motion.

23 MS. POTTERFIELD: Are you ready for argument,  
24 Judge Gleason?

25 JUDGE GLEASON: Not yet. We are ready now.

1 MS. POTTERFIELD: Judge Gleason, Consolidated  
2 Edison has repeatedly in the pages of its motion to  
3 strike, has moved to strike testimony on the ground that  
4 the testimony does not allege non-compliance with NRC  
5 FEMA guidelines.

6 The guidelines require that the emergency  
7 plans protect the health and safety of the residents  
8 around the nuclear power plants. Our witnesses are  
9 offered and their testimony addresses their own  
10 particular problems with the emergency plans in terms of  
11 protecting the health and safety of themselves and the  
12 people for whom they are responsible.

13 MR. FARRELLY: Your Honor, may I be heard  
14 briefly on that?

15 JUDGE GLEASON: Very briefly.

16 MR. FARRELLY: Commission Question 3 asked  
17 this Board to consider the compliance or non-compliance  
18 with NRC regulations and it is Con Edison's position  
19 that it is essential that the testimony address that and  
20 that we be on notice as to how violations are alleged.

21 JUDGE GLEASON: Are you alleging that failure  
22 to have sirens in an emergency plan is not a deficiency  
23 of the emergency planning standard?

24 MR. FARRELLY: No, I am not alleging that  
25 failure of notification systems. I am not alleging

1 that, Your Honor.

2 JUDGE GLEASON: We deny the objection. The  
3 testimony will be received into evidence.

4 (The prepared testimony of Agata Craig  
5 follows:)

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

My name is Agata Craig. I reside at 25 Mountain Trail in Croton-on-Hudson. I am the mother of two small children ages 4 and 22 months.

Often, I am without a car as my husband must commute by car to his job. I have had to rely on other mothers for getting my four year old son to and from his nursery school.

In the event that I could not use the telephone I would have a difficult time seeking out transportation from the evacuation zone. My family's home is situated in a rather secluded area, which is a long walk to the nearest bus stop. Most of my neighbors are not at home during the day. Those who are do not have cars.

I never heard the sirens during the March 3rd evacuation drill. I barely glanced at the pamphlet I received in the mail. My home has no basement nor do most of the homes in my neighborhood if we had to retreat to shelter quickly. I don't know what we would do.

Agata Craig  
5/28/82

1 BY MS. POTTERFIELD: (Resuming)

2 Q Mrs. Ford, do you have before you a copy of  
3 the testimony you wish to present to the Atomic Safety  
4 and Licensing Board in this proceeding?

5 A (WITNESS FORD) Yes, I do.

6 Q Do you have any additions or corrections to  
7 your testimony?

8 A (WITNESS FORD) I have a change subsequent to  
9 my having written it in June, and the change is number 2  
10 on page 3 of 5, and it has to do with where my children  
11 are after school, who is watching them. At this point  
12 in time, my children do not usually have babysitters  
13 after school, which actually makes the situation a lot  
14 worse.

15 Q So that you testified in June of 1982 that as  
16 a working mother I have babysitters at home with my  
17 children before I return from work.

18 A (WITNESS FORD) Yes.

19 Q The change is that -- are you still a working  
20 mother?

21 A (WITNESS FORD) I am still a working mother,  
22 but I no longer usually have babysitters at home with my  
23 children before I return from work, which means that  
24 they would be unsupervised, which is okay if an  
25 emergency is not occurring, but it will make an



1 evacuation of my children all the more difficult.

2 Q With that addition, Mrs. Ford, is your  
3 testimony true and correct to the best of your  
4 information and belief?

5 A (WITNESS FORD) Yes, it is.

6 MS. POTTERFIELD: I move the admission of  
7 Karen Ford's testimony into the record as if read.

8 JUDGE GLEASON: Is there objection?

9 MR. PIKUS: Your Honor, the Power Authority  
10 has objected to six portions of Ms. Ford's testimony on  
11 the grounds either that it is hearsay or that it  
12 contains speculative information.

13 JUDGE GLEASON: What page are you on?

14 MR. PIKUS: I'm sorry, Your Honor -- page six  
15 of our motion papers, at the very bottom. The first  
16 starts at page one, lines eight through fourteen. The  
17 Power Authority submits that that is simply hearsay.

18 JUDGE GLEASON: What is -- these lines are not  
19 indicated by numbers. What are the words it starts with?

20 MR. PIKUS: I'm sorry. The first portion is  
21 where it begins with "Officer told me." It is in the  
22 third full paragraph.

23 JUDGE GLEASON: How far does it go?

24 MR. PIKUS: Then it goes on to the end, where  
25 it says "plan."

1 JUDGE PARIS: Where it says "I believe this is  
2 a serious defect in the plan."

3 MR. PIKUS: Yes. Do you want me to go through  
4 them all now?

5 JUDGE GLEASON: Yes, I do.

6 MR. PIKUS: The second portion begins on page  
7 two, the first full paragraph that begins with "Unless"  
8 and continuing right up on to the third page, the fourth  
9 line, where it says "into smaller groups."

10 It is our position that this is all  
11 hypothetical, speculative conclusion as to what she  
12 would do. It contains no present facts or statements  
13 that would have any probative value for the record. It  
14 is all speculation.

15 JUDGE GLEASON: Go ahead.

16 MR. PIKUS: The next portion begins on page  
17 three, line nine, beginning with the line "I am  
18 concerned that babysitters may not be informed of the  
19 evaluation plan" and continuing to the end of that  
20 paragraph.

21 Then, the next portion is on page four,  
22 beginning with the word "accident statistics", the last  
23 sentence in that continued paragraph and continuing to  
24 the end of that paragraph, just that sentence.

25 JUDGE PARIS: Mr. Pikus, I am not with you.

1 MR. PIKUS: In the first sort of  
2 half-paragraph, the indented material at the top of the  
3 page, the very last sentence, referring to accident  
4 statistics, which would be hearsay.

5 JUDGE PARIS: Just that sentence?

6 MR. PIKUS: Just that sentence, Your Honor.

7 And then picking up again two lines down,  
8 beginning with "even under the best of conditions" and  
9 continuing to the words "accomplish this."

10 MS. POTTERFIELD: I am sorry. I do not  
11 follow.

12 MR. PIKUS: I'm sorry. It is the second and  
13 third sentence in that full paragraph that begins "even  
14 under" and then ending with "accomplish this." And then  
15 picking up again with "I am sure I am typical" and  
16 continuing down to the end of that page.

17 Again, our concern is that this is all  
18 speculation and does not contain any facts that would  
19 provide an evidentiary basis and I believe, Your Honors,  
20 that that is the testimony we would like to have  
21 stricken.

22 JUDGE GLEASON: Miss Potterfield?

23 MS. POTTERFIELD: With regard to the first  
24 objection, Your Honor, relating to page one, the  
25 information given to Miss Ford from a police officer at

1 the time of the exercise, we submit that this is  
2 important. It addresses the question of the information  
3 of local police at the time of the exercise and what  
4 information they were able to give to the public.

5 It addresses the criteria for emergency  
6 planning established by NUREG-0654 in that it indicates  
7 that in addition to the deficiencies that FEMA  
8 identified in the exercise of March 1982 that there is  
9 at least this additional deficiency in terms of the  
10 ability to get the public notified of the situation.

11 JUDGE GLEASON: Is it hearsay, Miss  
12 Potterfield?

13 MS. POTTERFIELD: It is hearsay, Your Honor,  
14 but it goes not for the truth of the matter but for the  
15 lack of information available at the time of the  
16 exercise by the police officers and so it is not offered  
17 for the truth of the matter asserted but as simply a  
18 lack of information.

19 JUDGE GLEASON: Well, how does that negate its  
20 character as hearsay?

21 MS. POTTERFIELD: I am desperately searching  
22 for the legal definition.

23 JUDGE GLEASON: Well, let's go on.

24 MS. POTTERFIELD: With regard to the objection  
25 on page two, that the testimony is hypothetical, I have

1 to remind the Board, or probably I don't, that all of  
2 the testimony offered by the licensees' experts in terms  
3 of human response in a radiological emergency is also  
4 hypothetical. We have heard over and over again that  
5 there are no instances that are directly applicable to  
6 the event of a radiological emergency at Indian Point.

7 The witness' testimony about her expected  
8 anticipated response in the event of an emergency is  
9 simply just as probative as the testimony of Dr. Dynes  
10 and Dr. Lecker about what they would expect this witness  
11 to do or witnesses or people in her situation.

12 The objection relating to page three is  
13 directed to the paragraph which Miss Ford has --

14 JUDGE GLEASON: She has already changed that.  
15 She doesn't have babysitters any more, if I recall.

16 MS. POTTERFIELD: The first objection on page  
17 four relating to accident statistics is premature, since  
18 we don't know the source of the statistics referred to  
19 by Miss Ford, and if it relates to numbers of accidents  
20 of which she has personal knowledge, it certainly would  
21 not be hearsay.

22 Moving down to the objection that other  
23 testimony on that page is speculative, I submit, Judge  
24 Gleason, that if a resident in the area isn't able to  
25 indicate when there would be a traffic jam based upon



1 her previous experience, then we certainly shouldn't be  
2 hearing from any experts on emergency planning who are  
3 all speculating on when there would not be a traffic  
4 jam.

5 I don't think that there should be a different  
6 standard of proof for an individual witness who lives  
7 here and knows the road systems than there is for the  
8 witnesses who are operating on the basis of hypothetical  
9 information.

10 JUDGE GLEASON: Is that it, Ms. Potterfield?

11 MS. POTTERFIELD: Yes, except returning to my  
12 rather clumsy defense of the testimony on page one, let  
13 me try again, particularly because Ms. Ford draws the  
14 conclusion that the failure to give -- to have  
15 information available to her at the time that the sirens  
16 are sounded, she concludes that this is a serious defect  
17 in the plan, so I submit that she ought to be able to  
18 describe for the Board and for the other parties the  
19 basis for her conclusion.

20 I understand that the objection goes to the  
21 content of the statement made to her by the police  
22 officer and would request that the testimony be  
23 permitted to be amended simply to say "I identified  
24 myself to the officer and stated my reason for calling.  
25 He was unable to give me any information."



1           MR.PIKUS: Your Honor, may I be heard just  
2 very briefly?

3           JUDGE GLEASON: You are changing the  
4 testimony? In effect, you are asking to change the  
5 testimony?

6           MS. POTTERFIELD: Well, if I understand the  
7 objection and it goes to the content of the conversation  
8 with the officer, as opposed to the import of that  
9 conversation, which is that he didn't have any  
10 information to give her, then I would request that we be  
11 permitted to amend it.

12           MR. PIKUS: Judge, if I may, I don't think  
13 Miss Potterfield completely understands my objection.  
14 My objection includes the conclusion because it is  
15 obvious that the conclusion is derived entirely from the  
16 hearsay testimony. So my objection is to both the  
17 hearsay testimony and to the conclusion that is derived  
18 therefrom. I think it is taking the egg before the  
19 chicken to do it the other way.

20           And, with respect to the point on speculation,  
21 I don't make up the rules. It is a well-established  
22 principle of evidence that an expert is allowed to  
23 speculate and a fact witness is not.

24           (Board conferring.)

25           JUDGE GLEASON: All right. The first

1 objection is sustained. That is clearly hearsay and  
2 should not be admitted.

3           The second objection is sustained with common  
4 sense to what she would do in an emergency is all  
5 speculation and will not be admitted. I think the  
6 statements on page three under paragraph two have  
7 already come out so that really we don't get involved in  
8 that.

9           And then on page four, the last line where it  
10 refers to accident statistics in the top paragraph, that  
11 is clearly -- there is clearly no foundation for that  
12 and it will not be admitted. We will leave in the last  
13 paragraph respecting the highway network or her view of  
14 the highway network conditions.

15           MS. POTTERFIELD: Judge Gleason, I need  
16 clarification of your ruling regarding the paragraph on  
17 page two. We have a contention relating to the response  
18 of parents and other people in the event of an  
19 emergency. Do I understand that in no cases will our  
20 witnesses be permitted to testify?

21           JUDGE GLEASON: Which are you referring to?

22           MS. POTTERFIELD: On page two, Judge Gleason.

23           JUDGE GLEASON: Which contention are you  
24 referring to?

25           MS. POTTERFIELD: 3.2.

1 (Board conferring.)

2 JUDGE GLEASON: The Board's judgment is that  
3 the first paragraph of that objection can stay in. The  
4 second paragraph is not admissible.

5 MR. PIKUS: Judge, could I ask for a  
6 clarification?

7 JUDGE GLEASON: Please don't until I finish.

8 And then the field trips part is out too. So  
9 in answer to your question, Ms. Potterfield, what she  
10 indicates she would do is going to be admissible. What  
11 other people are going to do is not.

12 MS. POTTERFIELD: Thank you, Judge.

13 JUDGE GLEASON: All right. Did you want  
14 further clarification?

15 MR. PIKUS: I think I have the clarification.

16 JUDGE GLEASON: All right. With those  
17 deletions, the testimony of the witness is admitted into  
18 evidence.

19 (The prepared testimony of Ms. Ford follows:)

20

21

22

23

24

25

Karen K. Ford  
90 Maple Street,  
Croton-on-Hudson, New York 10520

As a parent of two children in Croton schools, I am especially concerned about the evacuation plan.

On the day of the siren test, I made a call to the Croton Police Department to get some idea of what information regarding evacuation would be forthcoming in the event of a real emergency.

I identified myself to the officer and stated my reason for calling. I asked him if, were this a real emergency, he would be able to tell me whether buses from CET and PVC had left. The officer told me that he would have no idea, that no procedure had been set up to gather and transmit this information to parents.

I believe that this is a serious defect in the plan.

I have children at two different schools in the Village. The younger one is at CET, which does have buses at its disposal to take the children to White Plains. But my older one is at PVC which would be alledgedly covered under the Chappaqua bus with all of its myriad problems. I work in North Tarrytown. Assuming I learned of an emergency at work and the children at school, I would have these options:

Karen Ford 6/4/82

041  
a. Head south to White Plains, to one of the schools my children would be bused to.

b. Return to Croton to personally get my children.

(Unless I had information indicating that yes, both children were in transit to White Plains, I would probably be more inclined to return to Croton to see to their safety.

In the event of a real emergency, I believe that there would be thousands of parents, like myself, who would attempt to drive back into the Plume Zone in order to get their children. This would, of course, be a futile action. Roadways would all be jammed. At best, children would be evacuated to safety while their parents would be trapped trying to reach them. At worst, all would be trapped.

Further, consider these snags regarding the evacuation of children from Croton.

1. Field Trips. I am concerned that it would be especially difficult to evacuate children from what often are extremely remote locations. I am concerned that buses may not be available to them because bus drivers will not have waited for the children to return, or that children might be off in separate groups, or even worse, may become isolated in a panic situation. I believe that these are realistic

Karen Ford  
p. 2 of 5

concerns given that under normal circumstances buses are not always waiting in parking lots for the duration of the outing, and that these outings frequently involve breaking the larger group up into smaller groups.

2. After school hours. As a working mother, I have babysitters at home with my children before I return from work. This is rather a typical situation. I am concerned that these babysitters may not be informed of the evacuation plan, and that even with adequate information they might join their own families or friends and my children would be left to fend for themselves. If this were to occur and I was unable to communicate with my children, their choice would be to wait home for me or to seek transportation out of the area. This would be extremely confusing to them, adding to their fright during a nuclear emergency and thus increasing the likelihood of panic, <sup>and</sup> non-constructive behavior.
  
3. Inclement weather. Snow, heavy rains, icy roads, would exacerbate an already unwieldy evacuation plan. As evidenced by the area's historic tie ups during storms which are due, to a large extent, to State and local government highway departments' slow response time in clearing roadways of ice and snow, the road system is hazardous and inadequate during poor weather conditions. Moreover, there are a number of specific stretches along the area's highways that

Karen Fred  
p. 3 of 5



seem especially vulnerable to this problem. The steep hill along Route 9A just South of Croton is one example. Route 129 between Croton and Yorktown is another. Both of these routes are major, and both are affected by rather unique climactic factors which cause resistant icing up. Another glaring example of a major egress route which becomes a virtual accident trap even in the most normal of inclement weather situations is the Taconic Parkway. Not only does it ice up easily, but it is extremely hilly and curvy in the Plume Zone and its immediate vicinity. Accident statistics clearly document these major roadways' vulnerability of inclement weather.

I am convinced that the evacuation plan is completely unworkable. Even under the best of conditions the road system in and out of the Plume Zone would be jammed. It would take only a few breakdowns, empty gas tanks, and accidents to accomplish this. I, for one, usually have less than a half a tank of gas for several days each week. Often the gauge registers nearly empty. I am sure I am typical of the average driver in this regard. Compounding this, under a real nuclear emergency there is no doubt that there would be massive panic behavior. And this would not be limited to inhabitants of the Plume Zone. Were I visiting relatives in Port Chester or Harrison during a nuclear emergency at Indian Point, I would surely head as far away from the area as possible.

*Karen Ford*  
p. 4 of 5

Because of these and a multitude of other concerns I have regarding the safety of my children and myself in the event of a nuclear emergency at Indian Point, and because I believe that the Evacuation Plan does not begin to address these concerns, I feel it my responsibility as a parent and as a citizen to bring my misgivings before you in hope that the safety and health of my children, my neighbors and myself can be secured.

Thank you.

*Karen K. Ford*

*June 4, 1982*

Karen K. Ford

*Karen Ford  
P. 5 of 5*

1 BY MS. POTTERFIELD: (Resuming)

2 Q Mrs. Courtney, do you have the testimony you  
3 wish to submit before the Atomic Safety and Licensing  
4 Board?

5 A (WITNESS COURTNEY) Yes.

6 Q Do you have any additions or corrections to  
7 that testimony?

8 A (WITNESS COURTNEY) Just one thing has changed  
9 since last year. I am now not a full-time homemaker but  
10 also a part-time teacher, so I am not home. That was in  
11 the first paragraph, the second line.

12 Q So that sentence should read "I am a wife,  
13 mother of three girls, a homemaker and a part-time  
14 teacher."

15 A (WITNESS COURTNEY) Yes. Also, on the bottom  
16 of page two there is just one word that has been  
17 omitted. It should be "will be rampant." It is just  
18 "be" that has been left out, but just to make sure it is  
19 clear.

20 Q That should read: "I am sure robbery and  
21 vandalism will be rampant."?

22 A (WITNESS COURTNEY) Yes.

23 Q With those additions and corrections, is this  
24 testimony true and correct to the best of your  
25 information and belief?

1           A       (WITNESS COURTNEY) Yes, as it applies to last  
2 year's emergency evacuation drill.

3           MS. POTTERFIELD: I move the admission of the  
4 testimony of Jane Courtney into the record as if read.

5           JUDGE GLEASON: Is there objection?

6           MR. PIKUS: Yes, Judge. Again on page six of  
7 our motion we have objections to four portions of the  
8 testimony.

9           The first one commences on page one, the third  
10 paragraph, continuing to the second page, the word  
11 "planned." on the second line. The basis for that  
12 objection is it is information which from the testimony  
13 itself is clearly not within the witness' own personal  
14 knowledge but it deals with information known to others,  
15 what other people will do, and has, in addition to lack  
16 of personal knowledge, some hearsay aspects to it.

17           WITNESS COURTNEY: That is not so.

18           JUDGE GLEASON: Please refrain from  
19 responding. He is making his objections to the Board.  
20 Go ahead.

21           MR. PIKUS: The second portion, Judge Gleason,  
22 begins on page two, the second full paragraph. We would  
23 move to strike that entire paragraph on the grounds that  
24 it is speculative.

25           JUDGE GLEASON: What is the lead of the

1 paragraph?

2 MR. PIKUS: "The sirens are simply going".

3 JUDGE GLEASON: All right.

4 MR. PIKUS: The next objection begins at the  
5 next paragraph as to the bus routes and continues to the  
6 end of that page. Again, it is speculative and it is  
7 information which is either hearsay or not otherwise  
8 properly within the witness' personal knowledge as the  
9 foundation has been provided or not been provided in  
10 testimony.

11 And the final portion is everything on the  
12 third page, except for the last sentence. The ground is  
13 relevance. I don't believe an insurance or compensation  
14 for damage or the deteriorating conditions of plants are  
15 subjects within Commission Questions 3 and 4, so it  
16 would be a relevance objection.

17 MR. FARRELLY: Your Honor, Con Edison, I won't  
18 restate our ground. We explain our objection on page  
19 seven of our motion.

20 (Board conferring.)

21 JUDGE GLEASON: Miss Potterfield?

22 MS. POTTERFIELD: Is it my go?

23 JUDGE GLEASON: Yes.

24 MS. POTTERFIELD: With regard to -- I will  
25 address, I guess, Mr. Pikus' objections. First, the

1 last paragraph on page one is objected to as hearsay. I  
2 submit that it is a blanket objection to many different  
3 aspects of knowledge stated to be in the knowledge of  
4 the witness, and it is speculation on Mr. Pikus' part  
5 that it is hearsay. It is true enough that the witness  
6 says what she will do and what many of her friends will  
7 do. If his objection is to strike "and many of my  
8 friends", then we have no problem with the objection.

9           Otherwise, she says that "what our experts and  
10 other people say is that you do not know what bus  
11 drivers and teachers will do" without making any  
12 conclusion about that.

13           There is no indication that she does not know  
14 of her own personal knowledge that police, fire and  
15 ambulance personnel don't have the proper communications  
16 equipment. Mr. Pikus is assuming it is hearsay when it  
17 is not presented as hearsay in any respect.

18           Regarding the second paragraph on page two,  
19 beginning "the sirens are simply going to contribute to  
20 the general panic," it is within this witness'  
21 competence to testify to what she believes will happen  
22 when the sirens go off, certainly as far as she herself  
23 is concerned.

24           With regard to the third paragraph, it again  
25 is objected to as speculation. I submit that the



1 witness can tell this Board that, she is here to do  
2 that, what here response would be in an emergency. We  
3 heard testimony this morning from Dr. Erikson. He was  
4 cross examined about his opinion on the response of  
5 people to an emergency plan if they were first assured  
6 that their own families were safe.

7           It is an issue in this hearing whether or not  
8 people's response will depend upon first knowing that  
9 their own families are safe. This witness and other  
10 witnesses are testifying about that to their own  
11 personal knowledge, their own situations in the  
12 community, their own ability to respond or not to  
13 respond in the way that the plan anticipates in the  
14 event of an emergency.

15           JUDGE GLEASON: Miss Potterfield, Dr. Erikson  
16 presented -- was Dr. Erikson presented this morning as  
17 an expert witness?

18           MS. POTTERFIELD: He is an expert witness on  
19 general attitudes. We have here Mrs. Courtney, who is  
20 an expert witness on her own attitude, her own response  
21 to the plan. She is one of the people who will have to  
22 respond. She has many different roles in this plan and  
23 she is going to have to be the one who implements those  
24 procedures and we have submitted her testimony to show  
25 the Board what her response is likely to be to the best

1 of her knowledge and belief.

2 JUDGE GLEASON: Are you finished?

3 MS. POTTERFIELD: Yes, thank you.

4 JUDGE GLEASON: We are going to take a  
5 few-minute recess here.

6 (A brief recess was taken.)

7 JUDGE GLEASON: I thought it was important  
8 because of the continuing situation we are getting into,  
9 Miss Potterfield, to make it clear to you as to what the  
10 Board's view of testimony is with respect to human  
11 factors, which is item 3.2, as to questions as to what  
12 people will or will not do.

13 It is our opinion and our judgment that the  
14 evidence that is of value to the Board in responding to  
15 the Commission's questions and getting answers to the  
16 contentions has to be testimony that really has  
17 probative value and is basically of material worth. It  
18 may be important -- and certainly it is important in the  
19 eyes of the individual witnesses here -- as to what they  
20 would do individually, but what they would do  
21 individually is not, does not meet the test of  
22 materiality that the Board is seeking.

23 And so the Board is going to be consistently  
24 ruling against individual comments as to what they would  
25 do or would not do and has to try to encourage you to

1 relate that testimony to what we would have with respect  
2 to Dr. Erikson this morning, which, in our view, was  
3 expert testimony which has substantial or does have  
4 probative value.

5           So I wanted to make that clear now because  
6 otherwise we are going to continue to get into this  
7 situation and it is going to get a lot of people upset  
8 about the things.

9           MS. POTTERFIELD: Yes, it certainly will,  
10 Judge Gleason. We've heard an awful lot about how there  
11 is no reliable evidence on how people would respond to a  
12 radiological emergency around Indian Point. There were  
13 objections to Dr. Erikson's testimony because it had to  
14 do with a survey that was done on Long Island.

15           The only way we can present testimony to this  
16 Board, and I submit that the Board should find it  
17 material, is to present the testimony of the people who  
18 have to live with these plants and with the emergency  
19 plan.

20           We will hear testimony from experts who talk  
21 in hypothetical terms, Dr. Russell and Dr. Dynes and Dr.  
22 Lecher. Both submit, they state categorically and  
23 deduce the testimony of the licensees, that these very  
24 people who are sitting in front of you will respond as  
25 told to respond during the plan. The only way we can

1 convince you, the only way we can rebut those conclusory  
2 statements, based upon hypothetical evidence of  
3 hurricanes that took place in 1955, is to show you the  
4 people who are involved.

5           These people sitting in front of you are the  
6 people that Dr. Dynes says will follow authority. They  
7 are the people who Dr. Lecher says will follow the  
8 authority of the leaders and that their children will do  
9 what they are told.

10           They are here to tell you they will not and if  
11 you don't find that material, then I submit that you are  
12 not interested in hearing our case rebutting the  
13 evidence that is presented at every NRC hearing by the  
14 licensees, which is that of Dr. Dynes, who says  
15 categorically, every time, people will follow authority  
16 in the event of an emergency.

17           We know of no other way to show you that they  
18 will not, around the Indian Point plants.

19           JUDGE GLEASON: Miss Potterfield, you are  
20 making some what I consider rather extreme statements  
21 and in characterizing the Board's attitude --

22           MS. POTTERFIELD: It goes to the heart of our  
23 case on emergency planning, Judge Gleason.

24           JUDGE GLEASON: Well, I'm sorry if it goes to  
25 the heart of your case. That may say more about your

1 case than my ruling.

2 MS. POTTERFIELD: I'm afraid it says more  
3 about your attitude toward our case.

4 JUDGE GLEASON: What I'm saying, Miss  
5 Potterfield, is that you have to follow the rules that  
6 the Board lays down and it has just laid down a ruling  
7 to give you guidance. If you would rather not have  
8 that, we can go through a rather agonizing process of  
9 doing it as witnesses come up. We would rather avoid  
10 that if possible.

11 Now you have referred several times to some  
12 testimony by someone called Dynes and someone else. Now  
13 that is not testimony that is before the Board currently.

14 MS. POTTERFIELD: Judge Gleason, just because  
15 we go first doesn't mean we --

16 JUDGE GLEASON: Let me finish, please. I let  
17 you finish your statement. Let me finish.

18 You have the right, the same right that the  
19 licensees have when that testimony is presented, if it  
20 is not based on expert testimony, if it is not based on  
21 the kind of probative materiality criteria that we are  
22 laying out, to make the same motions to strike that the  
23 licensees are making to your witnesses and I would  
24 suggest that you follow that course.

25 In the meantime the Board rules that the

1 testimony of Ms. Courtney, from "I and many of my  
2 friends" on page one to the top of the next page and  
3 then the second paragraph and the third paragraph and  
4 the lines on page three down to the last sentence are  
5 deleted. The motion of the licensees is granted to that  
6 extent.

7 (The prepared testimony of Ms. Courtney  
8 follows:)

9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CONSOLIDATED EDISON COMPANY OF NEW YORK	)	Docket Nos. 50-247SP
(Indian Point Unit 2)	)	50-286SP
	)	
POWER AUTHORITY OF THE STATE OF NEW YORK	)	
(Indian Point Unit 3)	)	

TESTIMONY OF Jane Courtney  
 ON BEHALF OF RCSE/WBCA/PARENTS  
 RELATING TO CONTENTIONS 3.1,3.2,3.3,3.7,3.9,4.2,4.3

JUNE 1982

My name is Jane Courtney. I live in Stony Point, three miles from Indian Point, and I am a wife, mother of three girls, and a homemaker. I don't have any particular specialized knowledge or background regarding Indian Point, other than what I have read in the last few months since I received the evacuation plan booklet in the mail.

I ignored the booklet for a long time, and I know many people who have done the same thing. And when I finally read it carefully, I really had no confidence in it whatsoever. I was turned off by the format, tone and vocabulary which all seemed designed to minimize any danger, to not arouse any anxiety, and to distract the people's attention from the cause of the problem in the first place - Indian Point

I and many of my friends have no faith in this paper plan, and will not cooperate in a plan that separates families between different points in New Jersey and Pearl River. We will not allow our children to be bused to New Jersey. The school reception centers there have had no preparation for such an event. We do not know if school bus drivers and teachers will fulfill their roles, since they have their own families to take care of. Police, Fire, and Ambulance Personnel do not have the proper communications equipment,

1481

protective clothing, and monitoring equipment to fulfill the requirements of the plan. And even if they did, the population density, panic, congested road systems, and hilly, winding terrain all make implementation of an evacuation plan totally unworkable. It has been estimated in the newspaper that Rockland County alone would need 5 million dollars just for proper equipment of all sorts, not including the additional costs of road widening, realignments and leveling, etc. The plan is totally unacceptable to the populace, the emergency personnel and to the Legislature. The consequences of an accident at Indian Point are too devastating to life, health, safety, air, water and food supplies, home and property to justify Indian Point's continued operation.

The sirens are simply going to contribute to the general panic, if we can hear them. You assume that people will quietly listen to their radios, and calmly follow directions. This is totally unrealistic. There will be utter hysteria; the roads will be clogged with people trying to get from one school to the other to get their children. There will be accidents, and once the roads get clogged (as they frequently do now at rush hours), there will be people perhaps killing other people in order to get ahead of them and drive out of the area. I hope everyone has a full tank of gas, because otherwise there will be murder and mayhem at the gas pumps.

As to the bus routes for evacuating the general populace, the Red and Tan Lines are talking of only supplying the buses that normally service Rockland County (which are too few to meet the needs of an evacuation), and they are not guaranteeing that there will be bus drivers. Anyone who foolishly waits at a bus stop carrying three days' worth of clothing, food, water, medicine, important papers, money and credit cards, will just be irradiated while waiting for this imaginary bus. Multiple trips are supposed to be made. We'll be lucky if there is one. And if there is one, people will trample one another to get on it. I'm sure robbery and vandalism will <sup>be</sup> rampant.

There will be no reimbursement for the loss of home, property and livelihood. The Price-Anderson Act will only pay a few pennies for each dollar's worth of damage. I notice that Con Ed and PASNY are not offering to pick up the tab for this damage, but they have the nerve to ask us all to "cooperate" in a plan that will cause almost as much death and destruction as the radiation will.

It is simply unworkable. If the plants are so old and deteriorating and dangerous as to need an evacuation plan; and if the plan is unworkable (which it is); then the only logical conclusion is that the plants are too dangerous and should be shut down and decommissioned.

I really don't know what we will do, but my family and I will do it together.

1 MS. POTTERFIELD: So you're granting PASNY's  
2 motion in full?

3 JUDGE GLEASON: Yes. We are granting PASNY's  
4 motion in full.

5 MS. POTTERFIELD: And you're granting the  
6 motion regarding the bottom paragraph of page one on  
7 grounds of hearsay, Judge Gleason? Just so the record  
8 is clear?

9 JUDGE GLEASON: No. I'm basing that on the  
10 basis of it is just not material. It is immaterial.

11 MS. POTTERFIELD: Let me understand the basis  
12 for your ruling on the second paragraph on page two. Is  
13 that also not material?

14 JUDGE GLEASON: That's right.

15 MS. POTTERFIELD: Then what about your ruling  
16 about page three? Is that also not material or is there  
17 some other ground of evidence? Is there some other rule  
18 of evidence upon which you're basing your objection?

19 JUDGE GLEASON: No. It is based totally on  
20 materiality.

21 MS. POTTERFIELD: And just so that I'm clear  
22 about it, Judge Gleason, about your guideline. Do you  
23 consider it immaterial that what parents living within  
24 the EPZ want to tell you they would do in the event of a  
25 radiological emergency?

1                   JUDGE GLEASON: I'm not making any statement  
2 other than the statement I made, Mrs. Potterfield, and I  
3 think you ought to go back to turning your witnesses  
4 over to cross examination, if you intend to do that.

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 MS. POTTERFIELD: The witnesses are available  
2 for cross-examination.

3 JUDGE GLEASON: PASNY?

4 CROSS-EXAMINATION ON BEHALF  
5 OF LICENSEE PASNY

6 BY MR. PIKUS:

7 Q Ladies, I'm going to ask as many questions as  
8 I can that simply require a yes or no answer, and  
9 everything will go a lot more quickly that way, and I  
10 would ask that you cooperate to the best you can.

11 Have any of you received any instructions  
12 concerning the testimony that you prepared and are  
13 delivering here today?

14 A (WITNESS FORD) Yes.

15 Q Could you tell us?

16 A (WITNESS FORD) We were told to be  
17 non-speculative and to be material and probative.

18 Q Could I ask who gave you these instructions?

19 A (WITNESS FORD) Well, this was way back when  
20 we were preparing it. We were told not to raise  
21 questions, not to present in the form of a rhetorical  
22 question, but to present it as parents as we thought out  
23 the ramifications of a real nuclear emergency, not to  
24 try to pretend to be experts, which we are not. We are  
25 parents.



1           There was a drill going on. It was a  
2 hypothetical situation. We were asked to think out what  
3 could happen and we were asked to think about it, spend  
4 time with it, and to draw conclusions based on as much  
5 fact as was available. Fortunately, we did not have a  
6 real emergency to deal with.

7           Q     Could you tell us who asked you to prepare  
8 this testimony?

9           A     (WITNESS FORD) I don't recall.

10          Q     Was it your understanding from what this  
11 person told you that the Indian Point plants were  
12 unsafe?

13          A     (WITNESS FORD) I don't believe that came up.  
14 I think it had to do with the drill.

15          Q     Have any of you ever attempted to enlist the  
16 support of other people to come here and give testimony  
17 in this proceeding?

18                MS. POTTERFIELD: I object, Your Honor.  
19 That's irrelevant.

20                JUDGE GLEASON: Objection sustained.

21                BY MR. PIKUS: (Resuming)

22          Q     Are any of you aware of any recent changes  
23 that have been made in the Westchester County portion of  
24 the emergency plan concerning the manner in which school  
25 children will be transported in the event of an

1 emergency?

2 A (WITNESS COURTNEY) I have heard something,  
3 but again it is only hearsay. My sources are the radio  
4 and the newspaper, which have been struck out as  
5 hearsay. So am I permitted to speak about what I know?

6 Q I'm asking what your understanding is.

7 A (WITNESS COURTNEY) What my understanding is,  
8 is that just as valid as my testimony?

9 Q Would you please answer?

10 MR. PIKUS: Excuse me. Could I ask that the  
11 Board direct the witness to respond to my question?

12 JUDGE GLEASON: Please just respond to the  
13 question.

14 MS. POTTERFIELD: May I say, Judge Gleason,  
15 you understand the witness' confusion. She's asking for  
16 what the understanding is.

17 JUDGE GLEASON: I understand what she has said  
18 and I'm asking her to just respond to the question. If  
19 she cannot respond to it, she can say she cannot respond  
20 to it.

21 WITNESS COURTNEY: It is my understanding that  
22 now children no longer would be required to be bused,  
23 but if there is an emergency evacuation they might have  
24 to walk home, which doesn't seem to be an improvement  
25 over the previous plan to me.

1 MR. PIKUS: I would move that the last portion  
2 of the comments be stricken as unresponsive.

3 JUDGE GLEASON: The last portion will be  
4 stricken.

5 BY MR. PIKUS: (Resuming)

6 Q Ms. Craig, I note in your testimony that you  
7 didn't hear the sirens during the March 3rd, 1982,  
8 drill. Have you heard the sirens since then?

9 MS. POTTERFIELD: I object, Your Honor.  
10 You've already ruled we can't talk about it.

11 JUDGE GLEASON: Objection sustained.

12 BY MR. PIKUS: (Resuming)

13 Q Ms. Craig, in your testimony you indicate that  
14 most of your neighbors are not at home during the day  
15 and that those who are do not have cars. Do you know  
16 whether there are other people in the neighborhood who  
17 have -- or let me personalize the question.

18 If you were without a car, would you have a  
19 friend or relative who lives within the EPZ who you  
20 could call upon for a car?

21 MS. POTTERFIELD: Your Honor, if this line of  
22 questioning is permitted I suggest that we look again at  
23 the rulings that the Board has made. This is a  
24 hypothetical situation that is being posed as a  
25 speculative situation.

1 MR. PIKUS: I will rephrase the question, Your  
2 Honor.

3 BY MR. PIKUS: (Resuming)

4 Q Do you have friends, relatives or neighbors  
5 within the emergency planning zone who have cars?

6 A (WITNESS CRAIG) They have cars, but it  
7 depends upon what time of the day I call them, and I  
8 would have to use a telephone in order to reach them.

9 MR. PIKUS: Your Honor, I would move that the  
10 last portion of the witness' response be stricken.

11 JUDGE GLEASON: We will strike the last  
12 portion of her answer.

13 BY MR. PIKUS: (Resuming)

14 Q Do any of you ladies have any professional  
15 background in the area of either transportation  
16 engineering, traffic planning, urban planning, or a  
17 similar discipline?

18 A (WITNESS CRAIG) No.

19 A (WITNESS COURTNEY) No.

20 A (WITNESS FORD) Yes. I drive children.

21 Q Would your answer be yes or no.

22 A (WITNESS CRAIG) If car pooling counts, then  
23 we probably have a lot of experience.

24 Q But that I take it is the extent of your  
25 experience?

1 A (WITNESS COURTNEY) Yes.

2 A (WITNESS FORD) I would like to point out some  
3 personal experience I had on the roads during the April  
4 9th blizzard. I was caught for two hours.

5 MR. PIKUS: Your Honor, could you direct the  
6 witness that that was not my question.

7 JUDGE GLEASON: Well, you asked her if she had  
8 any experience in traffic.

9 MR. PIKUS: Traffic engineering or traffic  
10 planning.

11 JUDGE GLEASON: I think you had better focus  
12 your question a little bit more.

13 BY MR. PIKUS: (Resuming)

14 Q My question referred to professional training  
15 in these areas as scientific disciplines.

16 A (WITNESS COURTNEY) Then car pooling doesn't  
17 count.

18 Q So the answer is no?

19 A (WITNESS COURTNEY) I guess not.

20 Q Ms. Craig, you indicate that, in your  
21 testimony, that your home has no basement; is that  
22 correct?

23 A (WITNESS CRAIG) That is correct.

24 Q Could you just describe for us what the  
25 construction of your home is?

1           A       (WITNESS CRAIG) It is a ranch that has two  
2 bedrooms, a crawl space that is directly on top of  
3 boulder. There is no attic at all.

4           Q       Do you have interior areas?

5           A       (WITNESS CRAIG) I'm sorry?

6           Q       Do you have interior areas in the home?

7           A       (WITNESS CRAIG) I don't understand.

8           Q       I will rephrase the question. Do you have  
9 areas within the home that are enclosed, that don't have  
10 windows?

11          A       (WITNESS CRAIG) No, none at all.

12          Q       Do any of your neighbors to your knowledge  
13 have basements?

14          A       (WITNESS CRAIG) There are several. Let me  
15 see. Within walking distance, most of them work.

16               MR. PIKUS: Your Honor, again I would move --

17               WITNESS CRAIG: I wouldn't be able to get into  
18 their house unless they were home.

19               BY MR. PIKUS: (Resuming)

20          Q       My question is, do they have basements.

21          A       (WITNESS CRAIG) Two of them do.

22          Q       Are there office buildings or stores or  
23 schools nearby?

24          A       (WITNESS CRAIG) No.

25          Q       Ms. Craig, you indicate that you barely



1 glanced at the pamphlet you received in the mail. Have  
2 you sought to obtain any other information concerning  
3 emergency planning for Indian Point?

4 A (WITNESS CRAIG) Yes, I have.

5 Q And how have you done that?

6 A (WITNESS CRAIG) The reason and how combined  
7 is, I did not know about the evacuation drill on March  
8 3rd of last year. I had received the pamphlet, thought  
9 it was something from Con Ed, and just stuck it in a  
10 drawer. And when I didn't know that there was a drill,  
11 I became very angry afterwards, like why didn't I know  
12 about it, it must have been in the papers.

13 From that point on I decided, well, I have to  
14 find out what is going on, because it was really a  
15 frightening thought that anything could possibly happen,  
16 and what on earth would I possibly do should the  
17 occasion arise that I would have to evacuate myself and  
18 my children.

19 So I contacted a friend who knows a lot of  
20 people in the area and she told me who was involved with  
21 Parents Concerned. From that point on I found out as  
22 much as I possibly could on the whole situation.

23 Q Do you still have the emergency brochure in  
24 your possession?

25 A (WITNESS CRAIG) Yes, I have it at home in my

1 drawer.

2 Q Have any of you ladies ever seen panic in real  
3 life?

4 A (WITNESS CRAIG) Yes, I have.

5 Q Could you tell us in what situation?

6 A (WITNESS CRAIG) I was in an earthquake in  
7 1970 in Los Angeles at 6:00 in the morning. I was in an  
8 automobile accident last May with five children in my  
9 car on Route 9. I can give you my own personal reaction  
10 as far as that's concerned. And I was in two apartment  
11 fires in Manhattan.

12 And today is the Ides of March.

13 (Laughter.)

14 MR. PIKUS: I suppose I asked for that,  
15 Judge. My sympathy is growing by the minute.

16 BY MR. PIKUS: (Resuming)

17 Q I suppose that the apartment fires occurred in  
18 an enclosed area and required the egress from an  
19 enclosed area?

20 A (WITNESS CRAIG) Yes.

21 Q And I take it that the automobile accident was  
22 an individualized situation; is that correct? It only  
23 involved you and the persons involved in the accident?

24 A (WITNESS CRAIG) It was my rear tire blew out  
25 while I was doing 45 miles an hour on 9, so I had to

1 swing around and try not to hit the traffic that was  
2 coming at me.

3 Q With respect to the earthquake that you  
4 experienced, could you describe for us the kind of panic  
5 that you saw?

6 A (WITNESS CRAIG) Yes. The building did not  
7 tumble, but it was a two-story apartment house on stilts  
8 in Los Angeles, and it was 6:00 in the morning.  
9 Everyone was asleep and everybody seemed to come out of  
10 their apartments.

11 I ran into the street with my nightclothes  
12 on. Many people just ran out into the streets, and it  
13 was panic. It lasted a minute and a half and that was  
14 it, and it stays with you a long time.

15 Q Were people -- strike that.

16 JUDGE PARIS: Could I interrupt just a  
17 minute?

18 What was the date of that.

19 WITNESS CRAIG: February 1970.

20 JUDGE PARIS: Thank you.

21 BY MR. PIKUS: (Resuming)

22 Q Did you at that time witness people disobeying  
23 authorities?

24 A (WITNESS CRAIG) There was no authority at  
25 that point, because it was out of the blue at 6:00 in

1 the morning. Everyone was asleep.

2 Q And at the time that the emergency occurred,  
3 did people turn to radio stations or television stations  
4 or news media to try to get information?

5 A (WITNESS CRAIG) No.

6 Q Have any of you other ladies -- I hope not --  
7 had an experience involving panic?

8 A (WITNESS COURTNEY) Well, I just witnessed a  
9 very, very bad automobile accident, a crash between two  
10 cars, and this is just one incident with two people  
11 injured and the driver of the other car shaken. But  
12 there must have been a dozen cars that pulled up along  
13 side of the road on 202, and traffic was slowed down  
14 considerably.

15 There was no radio to turn to at the time.  
16 Someone contacted someone else by phone and they  
17 contacted the police. The police arrived within 10 or  
18 15 minutes. The whole thing until the ambulance came --  
19 and this again is just one incident on one road -- took  
20 about an hour before the ambulance came and cleared away  
21 the people and the debris was removed.

22 JUDGE GLEASON: Mr. Pikus, where is this  
23 interesting bit of cross-examination going?

24 MR. PIKUS: That was my last question, Judge.  
25 I was simply trying to get -- there was some testimony

1 that was not stricken in the record about panic, and I'm  
2 trying to get an idea of what these witnesses'  
3 conception of panic is, and I think that I have done  
4 that. That is all the questions I have.

5 MR. FARRELLY: Just one question, Your Honor.

6 CROSS-EXAMINATION ON BEHALF  
7 OF LICENSEE CONSOLIDATED EDISON

8 BY MR. FARRELLY:

9 Q Ladies, have any of you reviewed a document  
10 entitled NUREG-0654?

11 A (WITNESS COURTNEY) Who?

12 Q It's also entitled "Criteria for Preparation  
13 and Evaluation of Radiological Emergency Response Plans  
14 and Preparedness in Support of Nuclear Power Plants."?

15 A (WITNESS COURTNEY) No.

16 A (WITNESS CRAIG) Who puts it out?

17 Q The NRC.

18 A (WITNESS CRAIG) No.

19 A (WITNESS COURTNEY) Have they mailed it to  
20 every household?

21 Q No, they haven't.

22 A (WITNESS COURTNEY) Then we haven't read it.

23 MR. FARRELLY: No further questions, Your  
24 Honor.

25 JUDGE GLEASON: Do you have anything, Mr.

1 Kaplan?

2

CROSS-EXAMINATION ON BEHALF

3

OF NEW YORK CITY COUNCIL MEMBERS

4

BY MR. KAPLAN:

5

Q Mrs. Courtney, you've indicated that at some

6

point you received the booklet from the Licensees; is

7

that correct?

8

A (WITNESS COURTNEY) Yes.

9

Q When you received it, did you have any

10

children at that time?

11

A (WITNESS COURTNEY) Yes.

12

Q Were you concerned about the safety of your

13

children?

14

A (WITNESS COURTNEY) Yes.

15

Q Did you put the booklet in the top drawer of a

16

dresser?

17

A (WITNESS COURTNEY) No. I put it somewhere in

18

my dining room. My dining room table collects a lot of

19

unused material.

20

Q You weren't concerned enough about your

21

children to read the booklet?

22

A (WITNESS COURTNEY) I didn't think it was for

23

real.

24

Q You know that Indian Point exists, don't you?

25

A (WITNESS COURTNEY) Yes.



1 Q You live within ten miles of the EPZ; is that  
2 correct?

3 A (WITNESS COURTNEY) Yes.

4 Q Why didn't you read the booklet?

5 A (WITNESS COURTNEY) Because up until about a  
6 few months after I received the booklet I had total  
7 faith in Con Ed and PASNY and American technology, and I  
8 just figured that nothing really dangerous could be  
9 emanating from Indian Point.

10 Q And something changed your mind?

11 A (WITNESS COURTNEY) Yes.

12 Q What was that?

13 A (WITNESS COURTNEY) Well, gradually I became  
14 aware of more and more newspaper articles in the paper  
15 and I thought, gee, this really must be serious. And  
16 then of course, the March drill from 1982 came closer  
17 and closer, and I finally realized that they were  
18 playing for real, that this was not make-believe, that  
19 this was real and that it was a true danger to our lives  
20 and safety. And I took that book out of mothballs and  
21 read it.

22 Q And you read it?

23 A (WITNESS COURTNEY) Yes.

24 Q And having read it, you now were told what you  
25 would do in the event of an accident, correct?

1 A (WITNESS COURTNEY) Yes.

2 Q So now, did reading that booklet --

3 JUDGE GLEASON: Mr. Kaplan, you're skirting  
4 the edge. This is direct testimony you are giving.

5 BY MR. KAPLAN: (Resuming)

6 Q After reading the booklet that you ignored,  
7 you indicate that you really had no confidence in it  
8 whatsoever?

9 A (WITNESS COURTNEY) Right. It was written  
10 like a public relations ad campaign.

11 Q But it gave you specific directions about what  
12 to do in the event of an accident, correct?

13 A (WITNESS COURTNEY) Yes.

14 Q That didn't make you feel more confident that  
15 your children would be taken care of?

16 A (WITNESS COURTNEY) No, it didn't.

17 Q Why not?

18 A (WITNESS COURTNEY) Because I have knowledge  
19 about our school district and I spoke to the school  
20 superintendent and I read the testimony that he was  
21 going to submit here. I don't know whether it was  
22 stricken from the record or submitted or not, but he had  
23 grave questions and concerns about whether the reception  
24 areas even existed in New Jersey in Pearl River. He had  
25 grave concerns over whether there would be buses. Our

1 school district doesn't have enough buses to transport  
2 everyone.

3 JUDGE GLEASON: You're into testimony that has  
4 been stricken from this record.

5 WITNESS COURTNEY: I'm sorry. I thought I was  
6 supposed to respond to his question.

7 JUDGE GLEASON: Well, you're not to respond to  
8 testimony that has been stricken.

9 Mr. Kaplan, you're going to have to conclude  
10 very shortly, because you are not asking adversarial  
11 type questions. You are asking questions that should be  
12 given on direct, and when the Board sent out that  
13 injunction last week it was not fooling.

14 MR. KAPLAN: I'm not trying to --

15 JUDGE GLEASON: Well, yes, I think that you  
16 are not being very serious about this cross-examination,  
17 and the Board insists that you be serious about it.

18 MR. KAPLAN: I am being serious. The Board  
19 will make the rulings it wishes when I ask my  
20 questions. There is nothing I can do about that. But I  
21 can assure the Board, I am being very serious about the  
22 cross-examination.

23 JUDGE GLEASON: Well, the Board can remove any  
24 further cross-examination time from you if you don't  
25 change the point of your questions.

1 MR. KAPLAN: I'm sorry, I didn't hear that.

2 JUDGE GLEASON: I said the Board can eliminate  
3 any further cross-examination on your part if you don't  
4 get your questions in an adversarial area.

5 MR. KAPLAN: I guess the Board would have to  
6 define for me what it means by "adversarial."

7 JUDGE GLEASON: The Board is not going to  
8 define for you. You're a member of the bar and you  
9 should know that.

10 MR. KAPLAN: Then I would only beg the Board's  
11 indulgence, that I will do my best to be adversarial.  
12 And if I fail, I hope the Board will direct me.

13 BY MR. KAPLAN: (Resuming)

14 Q Mrs. Ford.

15 A (WITNESS FORD) Yes.

16 Q You testified about field trips. Have you  
17 ever discussed your concern about possible emergency  
18 responses with the people who run the school district,  
19 regarding what would happen in the event of a problem  
20 with field trips, since you are so concerned with that?

21 JUDGE GLEASON: Mr. Kaplan, I believe that  
22 field has been struck. I am going to ask if somebody  
23 else wants cross-examination. That concludes your  
24 cross-examination.

25 MR. KAPLAN: That's over my objection, of

1 course. We do have a due process right, as does every  
2 other party.

3 JUDGE GLEASON: That's right. But we're very  
4 serious about our instruction to the parties.

5 That's enough, please.

6 Do you have any cross-examination?

7 WITNESS FORD: Can I say something?

8 JUDGE GLEASON: Does the Staff have any  
9 cross-examination?

10 MR. HASSELL: No, we do not.

11 JUDGE GLEASON: Any redirect?

12 MS. POTTERFIELD: No redirect, Your Honor,  
13 because of our objection to the Board's ruling about the  
14 materiality of these witnesses' testimony.

15 JUDGE GLEASON: All right. You ladies can  
16 step down.

17 WITNESS FORD: Could I have a question entered  
18 into the record as a concerned parent?

19 JUDGE GLEASON: No, you cannot.

20 WITNESS FORD: Can you enter into the record  
21 that you're not allowing question, because I am a little  
22 confused about why certain things were not allowed in.

23 JUDGE GLEASON: Well, you can consult with the  
24 person who put you on as the witness.

25 Judge Paris has a question.

1 BOARD EXAMINATION

2 BY JUDGE PARIS:

3 Q Ms. Ford, you testified that you understood  
4 that your children would not be bused from school in the  
5 event of an accident. What is the basis for that  
6 understanding?

7 Excuse me. It wasn't Ms. Ford. It was Ms.  
8 Courtney.

9 A (WITNESS COURTNEY) I'm sorry, would you  
10 repeat your question, please.

11 Q You testified, in responding to questions  
12 being asked you by Mr. Pikus, I think, that you  
13 understood that your children would not be bused from  
14 school in the event of an accident. What is the basis  
15 for that understanding?

16 A (WITNESS COURTNEY) Is this the question that  
17 this gentleman directed to me before? He asked me about  
18 changes in the evacuation plan as it applies to  
19 Westchester County. Wasn't that the question?

20 Now, I happen to live in Rockland County, but  
21 I am aware of the changes because I read them in the  
22 newspaper or heard them on the radio. But they don't  
23 apply to me since I live in Rockland County.

24 Q I see, but your understanding is based upon  
25 the newspaper?



1           A       (WITNESS COURTNEY) Yes. And most of the  
2 things that were stricken from my testimony were based  
3 upon newspaper and radio, things that I had read and  
4 heard.

5           MS. RODRIGUEZ: Excuse me, Judge Paris. I  
6 think you're confused on something I might be able to  
7 clear up.

8           A few weeks ago Mr. O'Rourke, the County  
9 Executive of Westchester, announced at a news conference  
10 that there was a new recommendation to the plan, that  
11 is, the sequence of events, the way things would  
12 happen.

13           Whereas before he brought up the subject the  
14 way things would happen in case of an accident the  
15 children would be bused to school reception centers, now  
16 they are considering, although it is unclear whether it  
17 is actually part of the plan at this point, but we think  
18 that they are considering in the less severe cases of  
19 accident that children would be sent home by the schools  
20 and not taken out of the area.

21           And there has been a lot of talk of this in  
22 the press. There was also -- apparently in the drill of  
23 last week, there were several schools that were ordered  
24 to send children home in the mock instructions.

25           JUDGE PARIS: Okay. I hope, Mr. Glass and Mr.

1 Hassell, that somewhere before this is all over this  
2 will be clarified for us.

3 MR. HASSELL: Well, I would assume that FEMA  
4 will do its job in assessing the exercise.

5 JUDGE PARIS: Thank you.

6 MS. VETERE: Your Honor, County Executive  
7 O'Rourke addresses that in his testimony, which has been  
8 submitted.

9 JUDGE GLEASON: Thank you, Ms. Vetere.  
10 Thank you, ladies. You may step down.

11 (Witnesses excused.)

12 JUDGE GLEASON: Ms. Potterfield?

13 MS. POTTERFIELD: The next witness is Mr.  
14 Blum's witness.

15 MR. BLUM: I call to the stand Mr. Robert L.  
16 Morris.

17 JUDGE GLEASON: Excuse me.

18 Ms. Potterfield, was Ms. Burgher to be the  
19 next witness?

20 MS. POTTERFIELD: She wasn't able to appear,  
21 Your Honor. I'm sorry.

22 JUDGE PARIS: Is Ms. Burgher out?

23 MS. POTTERFIELD: As far as I know, Judge  
24 Paris, yes, unless you're willing to put on witnesses  
25 out of order.

1 JUDGE GLEASON: We will allow that if there is  
2 time at the end, Ms. Potterfield. We're trying to  
3 maintain the schedule.

4 Whereupon,

5 ROBERT L. MORRIS,  
6 called as a witness by counsel for Intervenors Union of  
7 Concerned Scientists and New York Public Interest  
8 Research Group, having first been duly sworn by the  
9 Chairman, was examined and testified as follows:

10 DIRECT EXAMINATION

11 BY MR. BLUM:

12 Q Mr. Morris, do you have in front of you a  
13 document entitled "Testimony of Robert L. Morris on  
14 Behalf of the Union of Concerned Scientists and the New  
15 York Public Interest Research Group.

16 A (WITNESS MORRIS) Yes, I have.

17 Q Would you look this over and tell us whether  
18 it is in fact the testimony you wish to give in this  
19 proceeding?

20 A (WITNESS MORRIS) Yes, I have looked it over  
21 and it is the testimony that I would like to give.

22 Q Is this testimony complete and correct to the  
23 best of your knowledge?

24 A (WITNESS MORRIS) Yes, it is.

25 MR. BLUM: Your Honor, Mr. Morris is now

1 available for cross-examination.

2 I would note for the record that we have  
3 passed out a little diagram showing the relationship  
4 between different levels of service as used in the  
5 Highway Capacity Manual and how they relate to each  
6 other in terms of speed and volume. This isn't  
7 necessarily to be entered into evidence; it is simply  
8 available for clarification during the course of  
9 cross-examination.

10 JUDGE GLEASON: Mr. Blum, you do not intend to  
11 introduce his statements into evidence, his testimony?

12 MR. BLUM: I'm sorry. Excuse me, Your Honor.  
13 I would now move that Mr. Morris' testimony be admitted  
14 into evidence.

15 JUDGE GLEASON: Is there objection?

16 MR. CZAJA: No objection.

17 JUDGE GLEASON: Hearing none, the testimony of  
18 the witness will be received into evidence and bound  
19 into the record as if read.

20 (The document referred to, the prepared  
21 testimony of Mr. Morris, received in evidence, follows:)

22

23

24

25

TESTIMONY OF ROBERT L. MORRIS

ON BEHALF OF THE UNION OF CONCERNED SCIENTISTS  
AND THE NEW YORK PUBLIC INTEREST RESEARCH GROUP,  
INC.

RELATING TO BOARD CONTENTIONS 3.1, 3.3, 3.6

JUNE 21, 1982

My name is Robert L. Morris, a registered professional engineer and traffic consultant, registered in eleven states including the State of New York. I have been qualified as an expert in my field in a number of jurisdictions, including the State of New York. My professional qualifications are appended to this statement.

I have reviewed reports concerning the Indian Point nuclear power station prepared by Parsons Brinckerhof Quade and Douglas, Inc. (hereinafter referred to as P-B), including "Evacuation Time Estimates for Areas Near the Site of Indian Point Power Plants" (January 31, 1980), "Methodology to Estimate Roadway Travel Time During Evacuations" (January, 1981), and "Methodology to Calculate Evacuation Travel Time Estimates for the Indian Point Emergency Planning Zone" (November, 1981). As a result of my review of these documents, I have the following comments.

- 1) The levels of service used by P-B, reportedly from the Highway Capacity Manual (H.C.M.) do not correspond with the H.C.M. For example, in the November

1981 report, P-B states that:

... (S)peeds would be low, flow would be unstable, and there would be stoppages of momentary duration.

The H.C.M. clearly states that when speeds drop below 30 miles per hour, the level of service is F, with capacities ranging from a maximum value equal to level of service E down to zero. These slow speeds, in addition to the P-B description quoted above, can be roughly calculated using the P-B evacuation speed formula:

$$\frac{\text{free flow speed}}{0.25 (V/C)^4 + 1}$$

The free flow speed at level of service D (P-B's upper level) is 30-35 miles per hour (H.C.M.). Using P-B's adverse weather capacities in all of the links that cross the five mile circle, and assuming that 85% of the 31,681 vehicles within that circle would try to evacuate, the V/C would be:

$$\frac{0.85 \times 31,681}{11,240} = 2.4$$

and the evacuation speed, from the formula would be 3.2 - 3.8 miles per hour. Even using P-B's good weather capacities, which are questionable (representing the maximum values at level of service E in the H.C.M.), the average evacuation speed would be 19-22 miles per hour, also level of service F, not E. For both times and capacities, P-B should use level of service F, not E.

2) P-B has worked only with highway links, ignoring the traffic constraints of intersections. As a minimum, time penalties should be assigned to the link nodes, depending upon the number of vehicles that would be crossing or merging with the principal traffic flow.

3) The use by P-B of several computer runs to arrive at the best system balance is an appropriate technique for evaluating normal daily traffic conditions



where drivers can make decisions to avoid congestion. For an emergency evacuation, an unconstrained traffic assignment should be used.

4) P-B has ruled out factors such as the percentage of trucks and the type of terrain in its analysis. This is improper; the effect on capacity can be significant. Even if the normal proportion of trucks is minimal (there is no assurance of that ), a fully loaded bus has the same operating characteristics as a large truck. If the proportion of trucks and buses is ten percent in rolling terrain, the capacity of a two-lane road would be reduced by almost 30 percent.

5) An emergency evacuation traffic analysis should be based on a worst case condition. As noted in the points listed above, P-B has made assumptions that are inconsistent with emergency conditions. For the purpose for which the reports were prepared, they have no validity. Standard traffic forecasting practice requires conservative assumptions to allow for unforeseen impediments to traffic flow in day-to-day operation. P-B's use of optimistic assumptions would be inappropriate in normal circumstances and is particularly inappropriate in planning for an emergency situation.

ROBERT L. MORRIS

Consultant in  
Transportation Planning  
& Traffic Engineering

P.O. Box 34230  
Bethesda, Maryland 20817  
(301) 299-6632

EDUCATION           University of Maryland, B.S., Civil Engineering, 1949  
University of Maryland, M.S., Civil Engineering, 1950  
University of Baltimore, LL.B., 1957

EXPERIENCE           Head, Master Plan Section, Department of Planning,  
                          Baltimore  
Acting Assistant Commissioner of Traffic, Baltimore  
Senior Planner - Transportation, Downtown Progress,  
                          Washington, D.C.  
Vice President, Alan M. Voorhees & Associates

PROFESSIONAL  
ORGANIZATIONS       Institute of Transportation Engineers - Fellow  
                          Past President, Washington Section  
                          Past Chairman, Delegation to National Committee  
                          on Uniform Traffic Laws and Ordinances  
American Society of Civil Engineers - Fellow  
American Planning Association - Member  
                          American Institute of Certified Planners  
Transportation Research Board  
Urban Land Institute

HONORARY  
ORGANIZATIONS       Cosmos Club  
Faculty of Building of Great Britain - Fellow  
Lambda Alpha (Land Economics)  
Tau Beta Pi (Engineering)  
Phi Kappa Phi (Scholarship)

LECTURED AT         American University  
Catholic University  
George Washington University  
University of Maryland  
University of Texas at Arlington  
University of West Virginia  
University of Waterloo, Ontario  
Northern Virginia Community College

Robert L. Morris

PROFESSIONAL QUALIFICATIONS

Registered Professional Engineer

Connecticut  
Delaware  
Florida  
Kentucky  
Maryland  
New Jersey  
New York  
Ohio  
Pennsylvania  
Tennessee  
Virginia

Member of the Bar

Maryland  
U.S. Supreme Court

Qualified as Expert Witness, Traffic and Transportation

Connecticut  
Delaware  
District of Columbia  
Louisiana  
Maine  
Maryland  
Michigan  
New Hampshire  
New Jersey  
New York  
North Carolina  
Ohio  
Pennsylvania  
Vermont  
Virginia  
Texas  
Utah

Robert L. Morris

RESPONSIBLE STUDIES

Downtown Transportation, Circulation and Accessibility

Buffalo, New York  
Chicago, Illinois  
Clearwater, Florida  
Fort Lauderdale, Florida  
Kansas City, Missouri  
Louisville, Kentucky  
Salem, Virginia  
Salt Lake City, Utah  
Washington, D.C.

New Town Transportation Planning

Columbia, Maryland  
Fort Lincoln, D.C.  
Germantown, Maryland  
Lysander, New York  
Maumelle, Arkansas  
Panther Valley, Pennsylvania  
Reston, Virginia  
Soul City, North Carolina  
West Valley, Illinois

Parking Studies

Annapolis  
Charles Center, Baltimore  
Downtown Baltimore  
Inner Harbor, Baltimore  
Chicago  
Johns Hopkins Hospital  
Louisville  
Vanderbilt University  
Washington, D.C.  
Williamsport, Pennsylvania

Shopping Center Traffic Planning

Various Locations in:

Delaware  
Maryland  
Pennsylvania  
New Jersey  
New York  
Virginia

Pedestrian Studies

Oklahoma City  
Salt Lake City  
Washington, D.C.

Robert L. Morris

Responsible Studies (Continued)

Traffic Planning Studies

Falls Church, Virginia  
Germantown, Maryland  
Harristown, Pennsylvania  
Judiciary Square, D.C.  
Mattawoman, Maryland  
Montgomery Village, Maryland

Traffic Impact Studies

District of Columbia  
Delaware  
Maryland  
    Baltimore City  
    Baltimore County  
    Calvert County  
    Carroll County  
    Charles County  
    Howard County  
    Montgomery County  
    Prince George's County  
Massachusetts  
New Jersey  
North Carolina  
Pennsylvania  
Virginia

Site Access Studies

Philadelphia Bicentennial  
Washington Visitors' Center  
Battery Park City  
Southwest Washington Employment Area  
Suitland, Maryland

Restaurant Access Studies

Burger King  
Gino's  
Hamburger Hamlet  
La Potagerie  
Le Steak  
Marriott  
Roy Rogers

Chancery Studies \*

Bangladesh  
France  
Italy  
Japan  
Philippines  
Saudi Arabia

Robert L. Morris

Responsible Studies (Continued)

Hospital Access Studies

Johns Hopkins Medical Institutions  
Vanderbilt University  
Veterans Administration, Little Rock  
Doctors Hospital, Washington, D.C.  
Charleston, W. Va., Medical Center

Accident and Safety Studies

Connecticut  
District of Columbia  
Maryland  
Pennsylvania  
New York  
Virginia

Transit Planning

Minibus in Downtown Washington  
Columbia, Maryland  
Bus Circulation Plan, Washington  
Subway Alignment, Washington  
Germantown Transit  
Fairfax Minibus  
I-270 Corridor

Highway Planning

Traffic Assignment, Jones Falls Expressway  
Major Arterial Plan, Baltimore  
Gravity Model Analysis, Baltimore  
Prince George's Freeway Analysis  
Montgomery County Arterials

Environmental Impacts

Connecticut  
Iowa  
Maryland  
Massachusetts  
Michigan  
New Hampshire  
North Carolina  
Pennsylvania  
South Carolina  
Utah  
Vermont  
Virginia  
Wisconsin



Robert L. Morris

Responsible Studies (Continued)

Model Cities Transportation Planning  
Rochester, New York  
Norfolk, Virginia

Demonstration Project Design  
Minibus  
F Street Plaza  
Mass Transit Information

Traffic Laws and Ordinances Review and Analysis  
Buffalo, New York  
Macon, Georgia  
Augusta, Georgia  
Tallahassee, Florida  
Middlesex, New Jersey  
Jersey City, New Jersey  
Right Turn on Red

Robert L. Morris

PUBLICATIONS

- McVoy, Arthur D., Walter Thabit and Robert L. Morris, "Pedestrian Way Business Districts," The American City, March 1957
- Voorhees, Alan M., and Robert L. Morris, "Evaluating and Forecasting Travel for Baltimore by Use of a Mathematical Model," Highway Research Board Bulletin 224, 1959
- Booth, James, and Robert L. Morris, "Transit versus Auto Travel in the Future," Journal of the American Institute of Planners, May 1959
- Morris, Robert L., "Evaluating the Requirements for a Downtown Circulation System," Highway Research Board Bulletin 347, 1962
- Morris, Robert L. and S. B. Zisman, "The Pedestrian, Downtown, and the Planner," Journal of the American Institute of Planners, August 1962
- Morris, Robert L., "Automobiles, Rapid Transit and the Future," American Motorist, September 1962
- Morris, Robert L., "Traffic Considerations in Planning Central Business Districts," Traffic Engineering, June 1964. (As Chairman of ITE Committee 6D-62)
- Morris, Robert L., "The Motor Vehicle and Megalopolis U.S.A.," Law & Order, June 1965
- Morris, Robert L., "The National Committee on Uniform Traffic Laws and Ordinances," Traffic Engineering, March 1966
- Morris, Robert L., "The Handsome Semaphore of London," Traffic Engineering, August 1966
- Morris, Robert L., "Pioneer Profile, William L. Potts," Traffic Engineering, September 1966
- Morris, Robert L., "The Signals of San Francisco," Traffic Engineering, March 1967
- Morris, Robert L., "J. W. Arch Bollong," Traffic Engineering, June 1967 \*
- Morris, Robert L., "Why Malls?" Traffic Engineering, August 1967
- Morris, Robert L., "Downtown: Part 1. The Pulse," Nation's Cities, October 1967

Robert L. Morris

Publications (Continued)

- Morris, Robert L., "Downtown: Part 2. Downtown's Nervous System," Nation's Cities, November 1967
- Morris, Robert L., "The History of the Center Line," Traffic Engineering, November 1967
- Morris, Robert L., "Downtown: Part 3. The Pedestrian," Nation's Cities, December 1967
- Morris, Robert L., "Transportation Planning for New Towns," Highway Research Board Record 293, 1969
- Morris, Robert L., "Traffic Control," Nation's Cities, January 1969
- Morris, Robert L., "New Towns and Old Cities: Part 1. The Impact of New Towns," Nation's Cities, April 1969
- Morris, Robert L., "New Towns and Old Cities: Part 2. What Can the Cities Learn from New Town Experience?" Nation's Cities, May 1969
- Morris, Robert L., "New Towns and Old Cities: Part 3. Prospects for Coexistence," Nation's Cities, June 1969
- Morris, Robert L., "Transportation Planning for a New Community," Public Works, October 1969
- Morris, Robert L., "Social Considerations of Urban Transportation Systems," Transportation Engineering Journal, ASCE, Volume 96, Number TE 3, August 1970
- Morris, Robert L., "Sidewalks Are the City," Nation's Cities, April 1971
- Morris, Robert L., "Traffic Planning Considerations in Location of C.B.D. Parking Facilities," Traffic Engineering, June 1971 (As Chairman of ITE Committee 6U)
- Morris, Robert L., "Changing Transportation Planning Concepts," Nation's Cities, April 1972
- Morris, Robert L., "A Measure of Shopping Center Trip Distribution," Traffic Engineering, October 1974
- Morris, Robert L., "Transportation Problems of Urban America," Hearings before the Subcommittee on Transportation of the Committee on Public Works, United States Senate, page 976, July 18, 1975

Robert L. Morris

Publications (Continued)

- Morris, Robert L., "Do Freeways Help Downtown?" Nation's Cities,  
November 1975
- McGee, H. W., W. A. Stimpson, J. Cohen, G. P. King, and R. L. Morris,  
"Right-Turn-on-Red, Volume I: Final Technical Report,"  
Federal Highway Administration, May 1976
- Morris, Robert L., "Traffic as a Function of Supply and Demand,"  
Traffic Quarterly, October 1977
- Morris, Robert L., "Are Levels of Service on the Level?" Technical  
Notes, Institute of Transportation Engineers, March 1978
- Morris, Robert L., "Community Planning as a Tool in the Conservation  
of Transportation Energy," paper delivered before the  
American Association for the Advancement of Science, Houston,  
Texas, 7 January 1979

1 JUDGE GLEASON: All right, please proceed.

2 CROSS-EXAMINATION ON BEHALF  
3 OF LICENSEE CONSOLIDATED EDISON  
4 BY MR. BRANDENBURG:

5 Q Mr. Morris, apart from your general background  
6 in traffic engineering, as you referred to in your  
7 curriculum vitae and your testimony in this proceeding,  
8 on any prior occasion have you ever performed any  
9 evacuation time estimate analyses for nuclear or  
10 non-nuclear emergency planning purposes?

11 A (WITNESS MORRIS) No, sir, I have not.

12 Q Now, I would like to turn to the first  
13 numbered paragraph in your testimony, which starts at  
14 the bottom of page 1. And I ask you if it is your  
15 testimony that the Parsons Brinkerhof evacuation time  
16 estimates for the Indian Point site do not use the  
17 level, employ the level of service F, but rather only  
18 use levels of service E and higher? Is that the general  
19 thrust of your testimony here?

20 A (WITNESS MORRIS) That is part of it. That is  
21 not the whole of point one.

22 Q Now, earlier, on page 1 of your testimony, you  
23 state that you have reviewed and are familiar with a  
24 document dated November 1981 entitled "Methodology to  
25 Calculate Evacuation Travel Time Estimate for the Indian

1 Point Emergency Planning Zone." Do you see that?

2 A (WITNESS MORRIS) Yes, sir.

3 Q Do you recall that document?

4 A (WITNESS MORRIS) Yes, I do.

5 Q I would now like to ask you to look at a copy  
6 of that document which has previously been marked as  
7 UCS-1 and ask you if you can recall that and identify  
8 that as the document dated November 1981 that you are  
9 referring to here?

10 A (WITNESS MORRIS) Well, I can't go through the  
11 whole thing, but this appears to be the document that I  
12 reviewed.

13 Q You state at the bottom of page 1 of your  
14 testimony that the levels of service employed by Parsons  
15 Brinkerhof do not correspond with those used in the  
16 Highway Capacity Model, and you go on to give an  
17 example. I would like to direct your attention to page  
18 E-8 through E-10 of Appendix E of that document.

19 A (WITNESS MORRIS) Yes, sir.

20 Q And I ask you if these tables as employed here  
21 by Parsons Brinkerhof are in fact from the Highway  
22 Capacity Model, if you know?

23 A (WITNESS MORRIS) The tables are certainly  
24 from the Highway Capacity Model. It doesn't indicate  
25 that -- what part of these tables Parsons Brinkerhof



1 used, and the tables do not refer to an F level of  
2 service.

3 Q Is it your testimony that you do not know to  
4 what extent the tables set forth at pages E-8 through  
5 E-10 of the Parsons Brinkerhof methodology document were  
6 in fact employed by them in preparing their evacuation  
7 time estimates?

8 A (WITNESS MORRIS) Well, I know that they  
9 referred to the specific parameters that are included  
10 here. They refer to widths of lane, they refer to  
11 roadside clearance, and those factors that are included  
12 in these tables, but they are not specific in exactly  
13 what data they use.

14 Q Can you describe for us, what is your  
15 understanding of how the tables from the Highway  
16 Capacity Model set forth at pages E-8 through E-10 of  
17 Exhibit UCS-1 were in fact employed by Parsons  
18 Brinkerhof in connection with preparing their evacuation  
19 time estimates?

20 A (WITNESS MORRIS) Do I understand you to say  
21 you want me to explain how Parsons Brinkerhof used these  
22 tables?

23 Q I am asking if you know how they used these  
24 tables in preparing their time estimates.

25 A (WITNESS MORRIS) No, they didn't give any

1 indication as to how they used them. They referred to  
2 the parameters that are included there.

3 Q And your review of their testimony did not  
4 convey to you any understanding of how those tables were  
5 used in connection with the evacuation time estimates  
6 developed by Parsons Brinkerhof?

7 A (WITNESS MORRIS) Well, I'm not sure exactly  
8 what you're asking. For example, on page E-8 the first  
9 column has the distance from traffic lane edge to  
10 obstruction and there are four numbers listed there,  
11 zero, two, four and six feet. I did not see any  
12 reference, any specific reference to the distance of the  
13 traffic lane edge to the obstruction for any specific  
14 link in the roadway network.

15 They did make the observation that they  
16 included a factor of this distance, but they were not  
17 specific as to what the distances were. They didn't  
18 talk about shoulders, they didn't talk about roadside  
19 clearances, and so forth for specific links. So there's  
20 no way that I can tell how they used the tables.

21 Q Mr. Morris, let me try to be a little bit more  
22 general here. As I understand the thrust of numbered  
23 paragraph one of your testimony, it is that you have  
24 concluded that Parsons Brinkerhof did not use material  
25 from the Highway Capacity Model in a way that

1 corresponded to the way in which that material was  
2 intended to be used by the manual; is that correct?

3 A (WITNESS MORRIS) You started this line of  
4 questioning by talking about level of service F and I  
5 thought that is what you were going to get around to in  
6 bringing this material before me. And as I stated quite  
7 clearly, there is no level of service F indicated in  
8 these three pages that you're referring to.

9 And I pointed out quite specifically that they  
10 did not properly use the Highway Capacity Model in  
11 determining that level of service, nor did they use the  
12 Highway Capacity Model properly in correlating the  
13 travel speed with the volume of traffic in order to  
14 arrive at a level of service.

15 Q Mr. Morris, let's start again. You have a  
16 sentence at the bottom of page 1 of your testimony that  
17 reads as follows: "The levels of service used by  
18 Parsons Brinkerhof, purportedly from the Highway  
19 Capacity Model, do not correspond with the Highway  
20 Capacity Model."

21 Do you see that sentence?

22 A (WITNESS MORRIS) I see that sentence and I  
23 stand behind it.

24 Q Now, we have then gone through pages E-8  
25 through E-10 of the UCS-1, the Parsons methodology

1 document, have we not?

2 A (WITNESS MORRIS) We have looked at those  
3 pages, yes, sir.

4 Q And you stated, I believe, that those tables  
5 were in fact from the Highway Capacity Model; is that  
6 correct?

7 A (WITNESS MORRIS) Yes, that is correct.

8 Q So we're now up to the point where I'm trying  
9 to ascertain from you your understanding, if indeed you  
10 have any, as to how those tables appearing on page E-8  
11 through E-10 of Exhibit UCS-1 were employed by Parsons  
12 Brinkerhof in preparing their evacuation time  
13 estimates.

14 Now, can you describe for us, if you know, how  
15 in fact the tables from the Highway Capacity Model  
16 appearing at pages E-8 through E-10 of the Parsons  
17 methodology document were employed by Parsons in  
18 preparing their evacuation time estimates?

19 A (WITNESS MORRIS) Well, I will have to --

20 Q Do you know how they used those materials?

21 A (WITNESS MORRIS) I have to give you the same  
22 answer, that they were not specific. But that has  
23 nothing -- the two have nothing whatever to do with each  
24 other. The statement in my report that you have before  
25 you that you just quoted from has nothing whatever to do

1 with these three tables, and I don't know why you keep  
2 referring to these three tables.

3 That is not what I was talking about in my  
4 statement.

5 Q Well, is your statement here in numbered  
6 paragraph 1 of your testimony solely confined to  
7 Parsons' use of level of service F?

8 A (WITNESS MORRIS) No, sir, it is not.

9 Q Well then, you will have to describe for us, I  
10 guess -- it is not clear from your testimony, to me at  
11 least -- how you contend Parsons' use of levels of  
12 service differed from the way that levels of service  
13 were intended to be used by the Highway Capacity Model.

14 A (WITNESS MORRIS) I will be very happy to,  
15 sir. The Highway Capacity Model makes it quite clear in  
16 other tables, not the ones you're referring to here, and  
17 I don't know why you referred to these three, but in  
18 other tables it makes it quite clear that level of  
19 service must be determined by two factors, one of which  
20 is the volume and the other is the speed.

21 You can have a certain volume which apparently  
22 meets level of service C and a speed which implies a  
23 level of service E, and you have to consider both  
24 factors, and you can have it the other way around. And  
25 Parsons Brinkerhof did not use those factors, and

1 indeed, when they did make their calculations they  
2 improperly applied them in going through the  
3 volume-capacity ratio, the V over C ratio. They  
4 improperly applied them there, and I can explain that if  
5 you would like to have me do it.

6 Q Well, I think if we just take one question at  
7 a time it might go quicker, Mr. Morris.

8 A (WITNESS MORRIS) Surely.

9 Q Is it your understanding that the level of  
10 service concept as employed in the Highway Capacity  
11 Model is a function of not only volume over speed, but  
12 volume over capacity of the roadway as well?

13 A (WITNESS MORRIS) It is not volume over speed,  
14 sir. It is volume over capacity and speed. It is a  
15 function of those two factors.

16 Q Now, do you have any understanding as to when  
17 and under what circumstances Parsons Brinkerhof employed  
18 the formula that appears towards the top of page 2 of  
19 your testimony?

20 A (WITNESS MORRIS) Do I know where they  
21 employed it?

22 Q Do you know when they use it and when they  
23 don't?

24 A (WITNESS MORRIS) No, I don't know when they  
25 use it and when they don't.



1 Q Do you know whether Parsons Brinkerhof used  
2 this evacuation speed formula which you quote here  
3 towards the top of page 2 of your testimony when the  
4 volume over capacity was greater than 1.0?

5 A (WITNESS MORRIS) You're asking me if I know  
6 whether they use it when V over C is greater than 1.0?

7 Q Yes.

8 A (WITNESS MORRIS) The answer to your question  
9 is no, I do not know. I just testified I don't know  
10 when they use it and when they choose not to.

11 Q Now, could you describe for us, Mr. Morris,  
12 your understanding of when the Parsons Brinkerhof study  
13 precluded the use of level of service F?

14 A (WITNESS MORRIS) Yes. The Parsons Brinkerhof  
15 study considered two levels, basically D and E. They  
16 use level of service E to determine the maximum capacity  
17 of the road network and included the entire road  
18 network, which of course is clearly improper in these  
19 conditions.

20 But they included the entire road network to  
21 establish a total capacity for the roads that would lead  
22 away from the accident site, and that gave them a base  
23 condition for how many vehicles theoretically could get  
24 out, could get away from the site. And then they used a  
25 level of service D, which gives you a lower volume of

1 traffic, E representing the maximum volume that a road  
2 can handle and anything better than that, D, C, B, and  
3 A, represent respectively lower volumes of traffic.

4           And I think someone testified before, compared  
5 it with a pipe and the pipe gets smaller as you go to  
6 these better levels of service. You can get fewer  
7 vehicles on a road at a level of service D than you can  
8 at level of service E.

9           And they used this lower volume as a means of  
10 determining how long it would take to evacuate the site  
11 under adverse conditions. And clearly, you would not be  
12 at a level of service D under adverse conditions; you  
13 would be at a level of service F.

14           Your Honor, can I refer to the diagram that  
15 was given to you? I think that makes it much clearer.

16           MR. BRANDENBURG: Mr. Chairman, I would like  
17 to move to strike the witness' answer. My question was  
18 quite pointed to what this witness' understanding was of  
19 when Parsons did and did not use level of service F, and  
20 I got about a page and a half of answer and I don't  
21 think I heard the term "level of service F" mentioned  
22 once.

23           I would like to request a direction from the  
24 Board that this witness respond specifically to the  
25 questions that are posed to him.

1 JUDGE GLEASON: I think he is having a  
2 difficulty in understanding your question, Mr.  
3 Brandenburg.

4 MR. BRANDENBURG: Let me try it one more time,  
5 then.

6 JUDGE GLEASON: He has responded three  
7 different times in the same way and you keep asking the  
8 question in a different format. But I think if you  
9 would simplify and then perhaps we could move on  
10 quicker.

11 MR. BRANDENBURG: Well, I just wish this  
12 traffic engineering material was simplifiable, Mr.  
13 Chairman.

14 WITNESS MORRIS: I apologize. I did not mean  
15 to avoid your question. I clearly understood you to ask  
16 -- and I think the reporter can give it back. You asked  
17 the difference between D and E, when Parsons used D and  
18 when they used E. You did not ask me when they used F.

19 MR. BRANDENBURG: Well, the record will say  
20 what it says. But let me try it again.

21 BY MR. BRANDENBURG: (Resuming)

22 Q What is your understanding, Mr. Morris, of  
23 when Parsons Brinkerhof, in connection with their  
24 evacuation time estimates, employed level of service F?

25 A (WITNESS MORRIS) I have already testified I

1 did not see that they used level of service F at all in  
2 determining the travel times.

3 Q All right. Thank you.

4 Now, you mentioned earlier testimony about  
5 flow through a pipe and so on, as given earlier in this  
6 proceeding. Were you indeed referring to the testimony  
7 of Dr. Thomas Urbanek?

8 A (WITNESS MORRIS) Yes.

9 Q Have you reviewed the testimony of Dr. Urbanek  
10 given in this proceeding?

11 A (WITNESS MORRIS) Some of it.

12 Q Do you recall whether Dr. Urbanek was asked  
13 whether or not Parsons Brinkerhof used level of service  
14 F in connection with preparing their time estimates?

15 A (WITNESS MORRIS) No, I do not recall. I did  
16 not read that.

17 Q Mr. Morris, I would like to show you the  
18 testimony of Dr. Thomas Urbanek given in this proceeding  
19 on June 24th, 1982, at pages 1920 and 1921, and I would  
20 like you to take a moment to review that and ask if that  
21 refreshes your recollection whether or not Dr. Urbanek  
22 stated that Parsons Brinkerhof employed level of service  
23 F in connection with the Parsons Brinkerhof time  
24 estimates.

25 A (WITNESS MORRIS) Well, I can answer your

1 question without reading it, because obviously it does  
2 not refresh my recollection since I didn't read this.

3 Q You testified that you had read portions of  
4 the Urbanek testimony, I believe. Do you recall as you  
5 sit here whether this passage is among the portions of  
6 the Urbanek testimony that you have indeed reviewed?

7 A (WITNESS MORRIS) I did not review this.

8 Q Can you tell us which portions of the earlier  
9 testimony of Dr. Thomas Urbanek you have and have not  
10 reviewed?

11 A (WITNESS MORRIS) It was generally the section  
12 where he is talking about the pipelines.

13 Q Mr. Morris, I would like to read you a short  
14 answer that witness Urbanek gave earlier and then I'm  
15 going to ask you whether or not you agree with it, and  
16 this is the testimony of Dr. Urbanek appearing on page  
17 1920 of the transcript. I quote:

18 "You cannot do an analysis starting with level  
19 of service F. You have to assume some capacity, so you  
20 have got to pick a number that ranges between level A  
21 and E. Then when you do your modeling, as a result of  
22 that modeling some parts of your network, because of the  
23 very high demand, will result in level of service F."

24 Now, do you agree with that?

25 A (WITNESS MORRIS) No, sir.

1           MR. BLUM: Your Honor, could the witness be  
2 given an opportunity to explain his answer? Because I  
3 understand the problem here. There are two different  
4 meanings of the word "use", and he has a particular  
5 criticism of the way level of service D and E were used,  
6 that the questions just aren't quite getting at.

7           MR. BRANDENBURG: Well, I'm sure Mr. Blum will  
8 have an opportunity on redirect, if the Board finds it  
9 appropriate.

10           BY MR. BRANDENBURG: (Resuming)

11           Q     Now, returning, Mr. Morris, to numbered  
12 paragraph 1 of your testimony, which starts at the  
13 bottom of page 1 and continues over onto page 2, you  
14 employ the Parsons Brinkerhof formula and conclude that  
15 in employing that formula yourself and an evacuation  
16 speed of of 3.2 to 3.8 miles per hour would be  
17 appropriate output from that formula; is that correct?

18           A     (WITNESS MORRIS) That is what it states in my  
19 report, yes.

20           Q     Now, if we were to assume that a vehicle were  
21 stationed at the Indian Point site at the time the order  
22 to evacuate was given, traveling at an average speed of  
23 3.2 to 3.8 miles per hour, how long would it take that  
24 vehicle to travel from the site of the plant to the  
25 outer edge of the ten-mile emergency planning zone,



1 traveling at this speed?

2 A (WITNESS MORRIS) You're asking me to do an  
3 arithmetical calculation based upon an average  
4 condition? Is that what you're saying?

5 Q Would it be approximately three hours?

6 A (WITNESS MORRIS) 10 divided by 3.2 is roughly  
7 3. But that is an answer to a hypothetical question.  
8 It is not an answer to a practical situation.

9 Q Now, in numbered paragraph 2 of your  
10 testimony, which appears on page 2, as I understand the  
11 thrust of this passage you are faulting the Parsons  
12 Brinkerhof estimates because they worked only with  
13 highway links and they did not explicitly model the  
14 traffic constraints that would occur at intersections.  
15 Is that a fair statement of your testimony here?

16 A (WITNESS MORRIS) That is a fair statement.

17 Q Now, at page 1 of your testimony you state  
18 that you reviewed a document dated January 31st, 1980,  
19 entitled "Evacuation Time Estimates for Areas Near the  
20 Site of Indian Point Power Plants." Do you see that?

21 A (WITNESS MORRIS) Yes, I do.

22 Q Now, Mr. Morris, are you aware that this  
23 January 31st, 1980, document contained a dynamic traffic  
24 flow analysis that in fact modeled traffic constraints  
25 imposed by intersections?

1           A       (WITNESS MORRIS) It gave penalties to the  
2 nodes, the nodes being the connecting points between the  
3 links. That is not what I'm talking about. I'm  
4 familiar with your dynamic model and this is not what  
5 I'm referring to.

6           Q       Now, again on page 2 of your testimony, Mr.  
7 Morris -- this would be the last four lines of numbered  
8 paragraph 1 -- you make reference to the highway  
9 capacities used by Parsons Brinkerhof, which you stated  
10 -- and specifically referring to the parenthetical that  
11 starts four lines up from the bottom of your numbered  
12 paragraph one, it says: "Representing the maximum  
13 values at level of service E in the Highway Capacity  
14 Model."

15                   Do you see that?

16           A       (WITNESS MORRIS) Yes, sir, I see that.

17           Q       Now, in the Highway Capacity Model, Mr.  
18 Morris, what is the maximum value for vehicles per hour  
19 per lane at level of service E that is set forth?

20           A       (WITNESS MORRIS) 2,000 vehicles per lane per  
21 hour.

22           Q       And what is the highest value for vehicles per  
23 hour per lane at level of service E that is employed by  
24 Parsons Brinkerhof in their evacuation time estimates,  
25 if you recall?

1           A       (WITNESS MORRIS) Yes. On one link I found  
2 2,560.

3           Q       Is that per lane, Mr. Morris?

4           A       (WITNESS MORRIS) Per lane. It was a  
5 four-lane road that had something over 10,000 vehicles  
6 on the four-lane road, and dividing that  
7 10,000-something by 4 it came to 2,560.

8           Q       Was that the volume, sir, or the capacity?

9           A       (WITNESS MORRIS) That was the capacity.

10          Q       Do you recall which link that is?

11          A       (WITNESS MORRIS) I can find it if you would  
12 like. Can you give me a minute?

13          Q       Surely.

14                   (Pause.)

15          Q       Mr. Morris, maybe it would clarify things. Is  
16 the value, maximum value that you are referring to, is  
17 it set forth in the November 1981 methodology document  
18 which has been identified as UCS-1 that I gave to you a  
19 few moments ago?

20          A       (WITNESS MORRIS) It may be. Just a minute.  
21 I'll try to find it. If you found the specific  
22 reference you could save me some time.

23                   I have it. Yes, it is in that.

24          Q       Do you have the page number for us?

25          A       (WITNESS MORRIS) Yes, D-2. It is link number

1 142. This is labeled "outbound evacuation capacity,  
2 passenger vehicles equivalent per hour, normal weather,  
3 four-lane road, 10,560."

4 Q How many links are addressed in the entire  
5 evacuation time estimate, do you know?

6 A (WITNESS MORRIS) I don't know.

7 Q Did you find any others that exceeded the  
8 2,000 maximum value for level of service E?

9 A (WITNESS MORRIS) I didn't examine them all.  
10 This one just caught my eye because it sticks out, as  
11 you can obviously see on that page. It is a very large  
12 number and I just made quick check and found 2560.

13 Q Mr. Morris, given your experience with traffic  
14 engineering, would you be surprised to learn that that  
15 number was a typographical error and it was not  
16 propagated through calculations?

17 A (WITNESS MORRIS) It's not a typographical  
18 error, because it's a printout. It came from a  
19 computer, I assume. Maybe the computer is in error.  
20 Maybe the wrong number is in the computer. I can't  
21 answer that.

22 Q Now, Mr. Morris, with regard to your numbered  
23 paragraph 4 that appears on page 3 of your testimony,  
24 you state that the percentage of trucks and buses on the  
25 highway system "can" be significant. And my question

1 is, do you believe that the average speed of evacuating  
2 traffic as you would expect to find in the situation of  
3 an evacuation from the Indian Point site would be such  
4 that buses and trucks would on the average be traveling  
5 at slower speeds than automobiles?

6 A (WITNESS MORRIS) They certainly would going  
7 up hills. They certainly would from a stopped  
8 position. Whenever your traffic comes to a stop your  
9 slower moving vehicles move away more slowly than  
10 automobiles, and that affects the capacity. That is why  
11 the Highway Capacity Manual addresses those points.

12 Q Now, returning to the computations that you  
13 performed, Mr. Morris, throughout a five-mile circle --  
14 and these are set forth in approximately the middle of  
15 page 2 of your testimony. Just so the record is clear,  
16 sir, is that a five-mile radius or a five-mile  
17 diameter?

18 A (WITNESS MORRIS) It is a five-mile radius.

19 Q Now, my question is, based upon your  
20 experience as a traffic engineer, would you expect to  
21 see that a more meticulous piece by piece approach to  
22 determining rates of evacuation from this five-mile  
23 radius circle would yield more accurate results than the  
24 aggregate approach that you use here?

25 As I understand it, you simply have added all

1 of the vehicles and all of the capacity within this  
2 five-mile ring and then just divide the former by the  
3 latter. And my question is, would a more meticulous  
4 piece by piece of the roadway approach in your view  
5 yield more accurate results?

6 A (WITNESS MORRIS) Well, not if you include all  
7 of the road. I was being very generous. Not if you  
8 include all of the roadways in the situation which  
9 you're discussing, because approximately one-quarter of  
10 those roadways would be out of action because of the  
11 wind conditions. You would lose a quarter of them.

12 And so if you do it on a meticulous, piece by  
13 piece basis as you point out and include those roads  
14 that are under the plume as it travels away from the  
15 accident, obviously you don't get more accurate  
16 results.

17 JUDGE SHON: Mr. Brandenburg, if you would  
18 excuse me for a moment.

19 There is something that I don't at all  
20 understand about that particular calculation that you  
21 have done, and I haven't since I first saw it, and that  
22 is I would expect this number  $V$  over  $C$  to come out to  
23 what I would call a pure numeric. That is, it would not  
24 have units. You would divide a volume by a capacity and  
25 both of them would be in vehicles per hour.



1 WITNESS MORRIS: Yes, sir, that is correct.

2 JUDGE SHON: But you have said, assuming all  
3 of the vehicles in the circle try to get out, and you  
4 have used 31,000-some odd.

5 WITNESS MORRIS: Yes, sir.

6 JUDGE SHON: But you haven't said how long it  
7 took them. Your assumption is that they all get out in  
8 one hour, as far as I can see; is that correct?

9 WITNESS MORRIS: For this calculation, yes,  
10 that is correct; the distance they would travel in an  
11 hour. My assumption is not that they would all clear  
12 out from the area within an hour. I am taking a piece  
13 of roadway that has a capacity in vehicles per hour and  
14 I am taking one hour's worth of movement over that piece  
15 of roadway.

16 JUDGE SHON: I understand that. They would  
17 all go through, past this boundary, in effect. They  
18 would all go through roads that lead out in one hour.

19 WITNESS MORRIS: They would go across segments  
20 of roads that lead out, yes, sir, but I did not mean to  
21 imply, sir, that they would get all the way out to the  
22 limits of the study area within a one-hour period.

23 JUDGE SHON: No, but they would all get out of  
24 the five-mile circle in one hour.

25 WITNESS MORRIS: No, that is not implied in my

1 calculation. All I'm doing is taking a segment of road  
2 with capacity of so many vehicles per hour and taking  
3 this number of vehicles during the one hour period  
4 however far they go, and you come up with a travel speed  
5 and that will indicate how far they go.

6 But all I'm saying is, if you have 30,000  
7 vehicles and they travel for a period of one hour,  
8 however far they go, they are on this network for one  
9 hour. So I am comparing vehicles per hour with vehicles  
10 per hour, and I am not saying how far they go in that  
11 one-hour period.

12 JUDGE SHON: But they might long since have  
13 left the area and got out of where they were being  
14 counted.

15 WITNESS MORRIS: If they can travel the  
16 ten-mile distance that is possible, certainly.

17 JUDGE SHON: It seems more likely that if you  
18 have a given number of vehicles that you want to get out  
19 of a particular area, you would have to assign some  
20 length of time for them to get out of the area, and then  
21 you would need to know the capacity of the roads  
22 crossing the boundary.

23 WITNESS MORRIS: There is no question about  
24 that, sir. When you make your traffic assignment, as  
25 Parsons Brinkerhof did, you assign all your vehicles to

1 a road network and you assign them to every one of these  
2 links that is listed in the report. And they follow the  
3 link no matter how much time it takes.

4 That was their bottom line, how much time does  
5 it take. But they assign the vehicles to various links  
6 and each vehicle starts at an origin and ends at a  
7 destination and goes over link after link until they get  
8 out, okay?

9 JUDGE SHON: Yes, I understand that. But that  
10 is not what you have done here. What you appear to have  
11 done here is rather artificially assumed that they all  
12 did this thing, whatever it was, in an hour, so that you  
13 would get 31,000 vehicles per hour to compare with  
14 11,000 vehicles per hour.

15 Parsons Brinkerhof suggested that the  
16 evacuation times are on the order of many hours, so that  
17 the V over C would be on the order of a tiny fraction of  
18 31,000 over 11,000, so that instead of being a number  
19 like 2 or 2.4 such as you've gotten it is a number like  
20 a half or something. And then the formula goes to the  
21 fourth power. That is a very strong function.

22 Your 3.8 miles per hour just vanishes if you  
23 do that calculation.

24 Is that right?

25 WITNESS MORRIS: I'm afraid I didn't

1 communicate very effectively. What I was trying to do  
2 was take a segment, take within this five-mile ring. We  
3 have a series of roads that lead out and we have  
4 capacities. The capacities vary all over the place. As  
5 you saw in the tables where I referred to that 2560  
6 vehicles per lane per hour, they have all kinds of  
7 capacities.

8 All I'm doing is taking an average condition  
9 and seeing what an average travel speed would be over a  
10 section of the roadway, not all the way through. All  
11 right?

12 JUDGE SHON: I'm sorry. Capacities and  
13 roadways do not appear to be things that have to do with  
14 over a section of the roadway. They are, capacities  
15 are, the number of vehicles that pass a given point per  
16 hour. They aren't -- you know, a pipe has two  
17 capacities, 50 gallons if it is a 50 foot long pipe, but  
18 that doesn't mean that 50 gallons per hour passes any  
19 point.

20 And highway capacities are vehicles per hour  
21 at a point. They are not volume of vehicles over a  
22 given stretch, or at least that is how I understand  
23 them. Am I wrong?

24 WITNESS MORRIS: I beg your pardon, sir. The  
25 capacity is treated as a link, and it is quite clear

1 these are all links, and a link can be a half a mile, it  
2 can be ten miles. It depends where the roadway is  
3 consistent in cross-section design, and you go from one  
4 node to another, and at any point -- let's say the  
5 capacity is 2,000 vehicles per hour. At any point along  
6 that link your capacity is 2,000 vehicles per hour, and  
7 you are absolutely right in that respect. But it  
8 applies to the entire link.

9 JUDGE SHON: I don't want to get into arguing  
10 with you, sir. It is obvious we don't quite understand  
11 one another. It still seems clear to me that if you  
12 say, I draw a circle and 30,000 vehicles must get out,  
13 and that you then divide it by a highway capacity that  
14 is 11,000 vehicles per hour, any number you must get  
15 implies these 30,000 vehicles must get out of that  
16 circle in an hour.

17 I don't care whether you say, I treat a node  
18 as having the same flow at every point that is  
19 reasonable, or I treat a particular juncture as having  
20 the flow. It seems to me that the number you obtain,  
21 this 2.4, is a number that applies only if the 31,000  
22 vehicles tried to go through those highways whose  
23 capacities, those nodes whose capacities, some 11,000 in  
24 one hour.

25 WITNESS MORRIS: Well, quite clearly, sir,

1 they would like to get through there in one hour. There  
2 is no question about it. And if you have a ten-mile  
3 distance to go, obviously people would like to cover  
4 that ten miles within an hour.

5 All I'm saying, sir, is that I am using a  
6 rate, vehicles per hour, and the rate can be at a  
7 specific point or it can be over a link, as we point  
8 out, with the capacity of the road. But the 31,681 cars  
9 are trying to move out across that network, through  
10 those links at that particular rate, and they obviously  
11 would like to do it in less than an hour.

12 But it is a ratio, and the ratio is vehicles  
13 divided by time.

14 JUDGE SHON: No. It seems to me if you assign  
15 a time, like say for the next three days, when those  
16 31,000 vehicles that are going to go out of that area,  
17 they could do it calmly, stopping to eat sandwiches on  
18 the way, and there would be no time in which they would  
19 particularly jam up.

20 If they are allowed four, five, six, eight  
21 hours, as Parsons Brinkerhof has suggested, to get out  
22 of this circle, there would be no time at which their  
23 limiting speeds would be what you would calculate using  
24 the Parsons Brinkerhof formula you have given and the  
25 number 2.4 that is that ratio, is that not correct?



1           WITNESS MORRIS: I'm sorry, sir. The last  
2 thing I want to do is argue with you, either. But I  
3 would like to clarify this point if I possibly can.

4           You say that Parsons Brinkerhof has allowed  
5 them six or eight hours, yet they haven't allowed them  
6 anything. That is their bottom line. That is their  
7 finding as to how long it would take them to get out.  
8 That was not a given, okay?

9           JUDGE SHON: No, but if one makes a  
10 calculation in the form of an iterative calculation, you  
11 come up with something at the end that is consistent  
12 with what you put in at the beginning, everything is  
13 fine. If you come out that your calculation says they  
14 all move out at 30 miles an hour and they all take 10  
15 hours to do it, and when you enter a formula like this  
16 one in an iterative fashion, you then come out that,  
17 yes, if they all take ten hours to clear out, they can  
18 all move at 30 miles per hour, then there is no  
19 inconsistency and you have performed a sort of Newton's  
20 method calculation that doesn't bother anyone.

21           WITNESS MORRIS: Well, let me put this in  
22 perspective if I can. I was asked the question, if you  
23 divide the ten-mile distance that these people want to  
24 go with my calculation of 3.2 to 3.8 miles per hour, how  
25 long, I was asked, how long, Mr. Morris, would it take

1 them to travel?

2           And obviously the time is three hours. And of  
3 course, Parsons Brinkerhof has found seven to eight  
4 hours. So this 3.2 to 3.8 miles per hour that the use  
5 of these formulas leads to clearly is not a ludicrous  
6 finding. You would raise it to the fourth power, as you  
7 point out, and it has a dramatic effect, and the  
8 dramatic effect is that it gives you a speed in the  
9 neighborhood of 3 to 3.5 miles per hour, and if you  
10 could maintain that speed all the way through you would  
11 do it in half the time that Parsons Brinkerhof  
12 calculated.

13           JUDGE SHON: Well, it's clear that if you had  
14 this ten miles to go and you went at three miles an  
15 hour, according to your calculation you would come to  
16 the point that you needed three hours to clear them  
17 out. And you say, how many cars per hour, 30,000, over  
18 3 is 10,000.

19           You take your 10,000, your 85 percent ratio,  
20 and recalculate to an iterative calculation of the sort  
21 that I suggested. You are going to progress toward  
22 something closer to Parsons Brinkerhof than toward what  
23 you have come up with.

24           WITNESS MORRIS: In terms of total amount of  
25 time.

1 JUDGE SHON: Yes.

2 WITNESS MORRIS: I have no argument, I have no  
3 quarrel with their finding under ideal conditions. If  
4 you don't have accidents, if you don't have ice so cars  
5 get all over the road, and all of these sorts of things,  
6 their minimum time I think is a reasonable one.

7 I have no quarrel with that, and I don't think  
8 anything I have here is inconsistent with that, except I  
9 say what this all leads to, sir, is that they use this D  
10 level of service for this low travel speed in order to  
11 get at this poor weather condition situation, and what  
12 they really should have used is an F level of service,  
13 which has completely different connotations and has very  
14 significant impact in terms of the actual travel.

15 And you would find that, given these poor  
16 conditions if you use level F rather than level D, it is  
17 going to take far more time than Parsons Brinkerhof has  
18 calculated for the bad conditions. The good conditions,  
19 fine; no quarrel with that.

20 JUDGE SHON: I'm sorry, sir. I didn't mean to  
21 shut you off again, but I see nothing in your testimony  
22 here or saw nothing in the calculation that you made  
23 here that said anything about accidents, no snow, ice,  
24 or anything like that.

25 WITNESS MORRIS: That's exactly right. I make

1 that point -- number four, I believe, or number five --  
2 that they do not take such things into consideration.  
3 They're abnormal conditions, which we gloss over in  
4 normal transportation planning, that they haven't  
5 considered.

6 That's why I'm trying to focus on this F level  
7 of service. That is what makes all the difference in  
8 the world when you get into these kinds of conditions  
9 where you have the unusual, which you have to plan for  
10 in a life and death situation.

11 JUDGE SHON: Very well.

12 Please go ahead, Mr. Brandenburg. I'm afraid  
13 I didn't get very far.

14 MR. BRANDENBURG: Well, I'm not sure. You've  
15 gotten farther than I was, Judge Shon.

16 One moment.

17 (Counsel for Consolidated Edison conferring.)

18 BY MR. BRANDENBURG: (Resuming)

19 Q Mr. Morris, just before you engaged in your  
20 colloquy with Judge Shon I believe, if I understood you  
21 correctly, you answered one of my questions with an  
22 answer to the effect that wind conditions would preclude  
23 the use of certain highway arteries for evacuation  
24 purposes.

25 Can you explain to us a little more what you

1 meant by that?

2 A (WITNESS MORRIS) Well, it seems to me the  
3 last thing in the world anyone wants to do is send  
4 people out from this accident site in the same direction  
5 in which the wind is blowing. That is the danger  
6 direction, and the wind is going to be blowing from one  
7 direction and you have to make your calculations  
8 assuming that people aren't going to use that corridor,  
9 which I guess is about 25 percent of your total circle  
10 leading out from the center.

11 And quite clearly, it would not be proper  
12 evacuation technique to send people where the danger  
13 is.

14 Q Are you familiar with a document, sir, entitled  
15 "NUREG-0654", which is entitled "Criteria for  
16 Preparation and Evaluation of Radiological Emergency  
17 Response Plans and Preparedness in Support of Nuclear  
18 Power Plants"?

19 A (WITNESS MORRIS) I've heard of it, sir. I  
20 haven't read it.

21 Q Is it your understanding that that document,  
22 which is a guidance document for emergency planning,  
23 directs that evacuation shall be based on a radial  
24 dispersion from the site?

25 A (WITNESS MORRIS) Of course you base it on a

1 radial dispersion, but that doesn't mean 360 degrees.

2 You obviously don't send people where the danger is.

3 Q Well, is it your understanding -- and maybe  
4 you have none, and if you don't please tell us you don't  
5 -- but is it your understanding that the evacuation  
6 precepts of NUREG-0654, the emergency planning document,  
7 recommend a 360 degree radial dispersion from the site,  
8 on the assumption that evacuation will take place prior  
9 to any release of radioactivity?

10 MR. HASSELL: Judge Gleason, I'm not sure  
11 where this line is taking us. As I understand it, the  
12 witness has already answered that in effect he's not  
13 familiar with NUREG-0654. It's just not clear what this  
14 line is directed at.

15 JUDGE GLEASON: What is your question directed  
16 towards, Mr. Brandenburg?

17 BY MR. BRANDENBURG: (Resuming)

18 Q Do you have any understanding, Mr. Morris, of  
19 whether or not the evacuation concepts in NUREG-0654  
20 contain within them the premise that certain directions  
21 should be precluded from evacuation because of wind  
22 conditions?

23 MR. BLUM: I will object to the question.

24

25



1 JUDGE GLEASON: The objection is sustained.

2 BY MR. BRANDENBURG: (Resuming)

3 Q Now, I think you testified earlier, Mr.  
4 Morris, that you had reviewed certain portions of the  
5 testimony of Dr. Thomas Urbanek in this proceeding; is  
6 that correct?

7 A (WITNESS MORRIS) Yes, sir.

8 Q Do you recall reading the portions that  
9 discuss the evacuation time estimates prepared by the  
10 Consad Corporation? That's C-o-n-s-a-d.

11 A (WITNESS MORRIS) No, sir, I do not.

12 Q Do you have any familiarity with the  
13 evacuation time estimates for the Indian Point site that  
14 were prepared by the Consad Research Corporation?

15 A (WITNESS MORRIS) No, sir.

16 Q Now, in connection -- do you recall whether or  
17 not in your review of the Urbanek testimony in this  
18 proceeding, do you recall Dr. Urbanek's testimony that it  
19 was his understanding that Parsons Brinkerhof consulted  
20 with the New York Department of Transportation in  
21 connection with the preparation of their evacuation time  
22 estimates?

23 A (WITNESS MORRIS) No, I don't recall that.

24 Q As a result of your review of Dr. Urbanek's  
25 testimony, Mr. Morris, are you aware that Dr. Urbanek

1 agreed with the approaches to evacuation time estimates  
2 employed by Parsons Brinkerhof?

3 A (WITNESS MORRIS) No, I can't say that I am.

4 MR. BRANDENBURG: I have no further questions,  
5 Mr. Chairman. If I have any remaining time, I would  
6 yield it to the Power Authority.

7 MR. CZAJA: I have a few questions.

8 CROSS-EXAMINATION ON BEHALF  
9 OF LICENSEE PASNY

10 BY MR. CZAJA:

11 Q Mr. Morris, am I to understand that the  
12 purpose of your testimony here today is not to give your  
13 opinion that the Parsons Brinkerhof evacuation time  
14 estimates are not in compliance with the requirements of  
15 NUREG-0654?

16 A (WITNESS MORRIS) I have stated, sir, that I  
17 don't know what those requirements are.

18 Q So you do not have an opinion on that subject  
19 one way or another?

20 A (WITNESS MORRIS) That is correct.

21 Q Now, in the portions of Dr. Urbanek's  
22 testimony that you read, did you read the portion in  
23 which he stated that if he were grading Parsons  
24 Brinkerhof's efforts he would give them a grade of  
25 excellent?

1           A       (WITNESS MORRIS) Do you mean the X marks?  
2           Q       Yes.  
3           A       (WITNESS MORRIS) Yes, I saw that.  
4           Q       And did you agree with that?  
5           A       (WITNESS MORRIS) No, sir.  
6           Q       Dr. Urbanek was wrong in that?  
7           A       (WITNESS MORRIS) That would be my opinion,  
8       yes, sir, quite clearly wrong.  
9           Q       And if the New York State Department of  
10       Transportation concurred in Parsons Brinkerhof's  
11       estimates, they are wrong, too; is that correct?  
12          A       (WITNESS MORRIS) Absolutely.  
13          Q       So they are wrong, Urbanek's wrong, Parsons  
14       Brinkerhof is wrong, and you're right?  
15          A       (WITNESS MORRIS) That is correct, yes, sir.  
16          Q       Let me just make one more attempt at what I  
17       think Mr. Brandenburg and Judge Shon were attempting to  
18       get at. Looking at page 2 of your testimony, you told  
19       Mr. Brandenburg that you do not know whether Parsons  
20       Brinkerhof used the formula that you quote in the case  
21       where volume over capacity is greater than one; is that  
22       correct?  
23          A       (WITNESS FORD) That was my testimony, yes.  
24          Q       And in fact, when you do your numerical  
25       application of the formula you arrive at a situation

1 where volume over capacity equals 2.4; is that correct?

2 A (WITNESS MORRIS) Yes, sir, that is correct.

3 Q And if in fact Parsons Brinkerhof did not use  
4 the formula in a situation where volume over capacity is  
5 greater than one, would your numerical example be  
6 irrelevant to an assessment of Parsons Brinkerhof's  
7 work?

8 A (WITNESS MORRIS) No, sir.

9 Q Could you explain to me how it would be  
10 relevant?

11 A (WITNESS MORRIS) Yes. It is relevant in that  
12 it focuses on the fundamental issue that I was trying to  
13 get across, and that is that you should be doing your  
14 planning on the basis of a level of service F, and any V  
15 over C in excess of one represents a level of service  
16 F. And whether the 2.4 is correct or 1.1 or 10.8, it  
17 wouldn't matter.

18 The point I am trying to direct the attention  
19 to is that a level of service F is the proper level to  
20 be considered in the analysis, and Parsons Brinkerhof  
21 didn't use it.

22 Q And if Parsons Brinkerhof were to testify that  
23 under their analysis some portions of the network do  
24 indeed operate at level of service F, they would be  
25 incorrect?

1           A       (WITNESS MORRIS) Well, I'm sure they would  
2 testify to that. Certainly they have links that have V  
3 over C in excess of one. That is not the issue. That  
4 has nothing to do with the point I'm trying to make  
5 here.

6           Q       My question is simply, does a portion of the  
7 network under Parsons Brinkerhof's model in fact operate  
8 at level of service F?

9           A       (WITNESS MORRIS) There are links that operate  
10 at a level of service F, yes.

11           MR. CZAJA: I have no further questions,  
12 Judge.

13           JUDGE GLEASON: Any questions, Mr. Kaplan?

14                    CROSS EXAMINATION ON BEHALF  
15                    OF NEW YORK CITY COUNCIL MEMBERS  
16                    BY MR. KAPLAN:

17           Q       Directing your attention to paragraph 5 of  
18 your direct testimony, if, sir, a worst case condition  
19 is unlikely, if a worst case condition is unlikely, why  
20 then do you argue that emergency evacuation should be  
21 predicated upon a worst case rather than the most likely  
22 case?

23           A       (WITNESS MORRIS) Well, if we are planning for  
24 a transportation system for normal day to day operation,  
25 you use an average condition, and when we are designing

1 for people to go to work in the morning and come home in  
2 the evening and so forth that's fine. There is no  
3 critical element to that kind of planning.

4           If we are planning for a life and death  
5 situation, as you would be in the issue at hand today,  
6 you obviously have to plan for a worst case condition  
7 and you really should develop a series of probabilities  
8 as to what the likelihood is of your system breaking  
9 down: What is the probability that you're going to have  
10 accidents at your worst accident locations, and what is  
11 the probability of an icing condition when cars get off  
12 the road and the whole road is closed, and things like  
13 that.

14           In a life and death situation you don't use  
15 normal average everyday techniques.

16           Q     Is your testimony, then -- or do you predicate  
17 your judgment, then, on a failure of Parsons Brinkerhof  
18 to look at those kinds of eventualities?

19           A     (WITNESS MORRIS) Absolutely.

20           Q     Did not Parsons Brinkerhof consider the impact  
21 of accidents when they did their time projections?

22           A     (WITNESS MORRIS) The only reference I see to  
23 accidents is the blithe statement that, since there will  
24 be light traffic going in the opposite direction,  
25 vehicles will be able to move around an accident when it



1 occurs.

2 Q And isn't that the case?

3 A (WITNESS MORRIS) No, of course it's not the  
4 case. First of all, how can you be sure that an  
5 accident is going to be confined to a single lane? How  
6 can you be sure that an accident won't tie up a whole  
7 road?

8 There are a whole series of situations that  
9 can arise that call for a statistical analysis of  
10 probabilities as to how much confidence do we have that  
11 the conditions that Parsons Brinkerhof have arrived at  
12 are actually going to take place. I think you have to  
13 have some means of evaluating the probabilistic results  
14 that they have before you can make a fair evaluation.

15 Q Let me ask you, you used the term  
16 "probabilistic." You're talking about the probabilities  
17 of particular events occurring that haven't been planned  
18 for? You're not talking about probabilistic  
19 probabilities in an accident, of an accident at Indian  
20 Point? You're talking about the probabilities of  
21 blockages in the road, correct?

22 A (WITNESS MORRIS) Certainly.

23 Q Are you aware of the plans to provide tow  
24 truck services and emergency vehicles to deal with  
25 accident situations?

1           A       (WITNESS MORRIS) I have seen references to  
2 that, yes.

3           Q       Doesn't that deal with your -- doesn't that  
4 begin to address itself to your concern?

5           A       (WITNESS MORRIS) Well, if you can make sure  
6 that the tow trucks are going to be located where the  
7 accident is going to occur, yes. Where you have a  
8 bumper to bumper situation, where the roads are jammed  
9 and the emergency vehicles can't get to the location of  
10 an accident -- and again, it is a matter of probability;  
11 how many emergency vehicles do you have, what is the  
12 probability of having a certain number of accidents at a  
13 certain time.

14                   This can be done. There are statistical means  
15 of evaluating how likely it is that these conditions are  
16 going to arise.

17           Q       In looking at the evacuation analysis prepared  
18 by Parsons Brinkerhof -- withdrawn.

19                   In doing an analysis similar to the one  
20 prepared by Parsons Brinkerhof, do you have an opinion  
21 on how far out, how broad an area, based on that first  
22 line in question 5 or paragraph 5, one would have to  
23 consider highway capacity?

24                   MR. CZAJA: Judge, I'm going to object at this  
25 point.

1                   JUDGE GLEASON: Mr. Kaplan, you I just think  
2 are incapable of participating in an adversarial type of  
3 examination.

4                   MR. KAPLAN: If I may for the record, Judge, I  
5 don't know what adversarial cross-examination is in this  
6 sense. And if I may state my position, I'm sure you  
7 will respond to it and enlighten me.

8                   I have a case to put in. Members of the City  
9 Council have a point of view. We could put on many,  
10 many, many, many, many witnesses to put in each little  
11 bit of testimony. However, historically, in every other  
12 adjudicative or investigative proceeding I am familiar  
13 with -- now, you may have deeper and broader experience  
14 than I -- it is appropriate -- there is no requirement  
15 that the cross-examination be adversarial in the sense  
16 that a litigant is precluded from eliciting information  
17 that he or she wishes to predicate ultimate findings of  
18 fact upon.

19                   There are specific things in this testimony  
20 that may not be offensive or adversarial to the case of  
21 some other party, but that doesn't and should not limit,  
22 I submit, my ability to elicit that information because  
23 it is not in the narrowest sense adversarial and opposed  
24 to the interest of the party who is offering that  
25 testimony.

1 I am not looking to reinforce the specific  
2 testimony. I am looking for additional points that I  
3 think -- in here, in the interstices of the direct.

4 So I would suggest, if "adversarial" means  
5 that I have to have an interest adverse to Mr. Morris,  
6 then I don't know whether or not the Board's limitation  
7 is appropriate, and I would ask the Board to consider  
8 that.

9 If I am not being clear I will try to do  
10 better, but I think my point is clear.

11 MR. BLUM: If the Board's use of the term  
12 "adversarial" is intended to contain an indication that  
13 there is collusive cross-examination here, I would  
14 prefer that the accusation be made outright.

15 JUDGE GLEASON: Mr. Blum, the Board will make  
16 its comments in whatever kind of manner it cares to make  
17 its comments. It doesn't need help from any party to  
18 characterize them.

19 MS. VETERE: Your Honor, Westchester County  
20 would also seek clarification of the term  
21 "non-adversarial."

22 There are questions I have that seek  
23 clarification of different points that Mr. Morris has  
24 raised. Westchester County has not hired expert in  
25 traffic engineering and in other areas, and we would like

1 to bring out certain points through some of the other  
2 witnesses. So I would like a clarification of the term  
3 "non-adversarial."

4 JUDGE GLEASON: The Board will take a very  
5 brief recess.

6 (Recess.)

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 JUDGE GLEASON: Let's go back on the record.

2 JUDGE SHON: Mr. Kaplan, I would like to ask  
3 you something in the nature of an offer of proof.  
4 Exactly where are you going? What holes do you intend  
5 to fill in? If allowed to ask your series of questions,  
6 what specific facts do you believe they will bring out?

7 MR. KAPLAN: In this particular testimony,  
8 very clearly I believe that the nature of the planning  
9 analysis -- and I believe this witness, or I would hope  
10 this witness, because I haven't spoken with him, will  
11 respond and give me the answers I want -- will show the  
12 limitations on the Parsons Brinkerhof study in terms of  
13 geography, that what the study fails to do is consider  
14 the relationship of the road networks, that the planning  
15 effort in its entirety has failed to consider the  
16 relationship of the communities outside of the ten-mile  
17 EPZ, possibly outside of a 20-mile or a 39-mile area,  
18 such that an accident 30 miles from here will force an F  
19 level on the entire road network, because if you have  
20 cars lined up bumper to bumper to bumper you can't go  
21 anywhere.

22 I think this witness will tell us that there  
23 will be no traffic moving, and thereby the evacuation  
24 and time estimates are in and of themselves inadequate.

25 Why am I interested in that? Because one of



1 the points I have made consistently and had witnesses  
2 testify to "is the failure to communicate through the  
3 planning apparatus, the response apparatus, with the  
4 surrounding communities, in particular New York City,  
5 but I suspect that the point would apply generally as  
6 well.

7 I believe this witness' testimony -- that that  
8 point is inherent in part of what he says in his  
9 direct. I have no opportunity, other than to ask Mr.  
10 Drakowski here, who isn't here right now. Mr. Benneck I  
11 didn't have the opportunity to cross and he may not come  
12 back.

13 This is the appropriate witness, other than us  
14 putting on another traffic expert who has evaluated the  
15 Parsons Brinkerhof program.

16 Now, that is not adversarial, but it is a  
17 relevant point.

18 JUDGE GLEASON: It is all direct testimony,  
19 Mr. Kaplan.

20 MR. KAPLAN: It's not here.

21 JUDGE GLEASON: I say it is direct testimony  
22 and this is not your witness to put on direct  
23 testimony. You had a chance to put on direct testimony  
24 all the week of March the 1st.

25 MR. KAPLAN: It's my understanding, Judge

1 Gleason, that it's appropriate to make one's case in NRC  
2 proceedings through the utilization of cross-examination  
3 of other people's witnesses.

4 JUDGE GLEASON: We have put a restriction to a  
5 degree on that by requiring you, if you're going to  
6 cross-examine, to be adversarial with your  
7 cross-examination.

8 MR. KAPLAN: Even if what is given --

9 JUDGE GLEASON: Even if it is something not  
10 talked about by the witness himself or by --

11 MR. KAPLAN: Does that mean -- so I understand  
12 it, does that mean that I cannot ask Dr. Davidoff --

13 JUDGE GLEASON: I might say, we have a  
14 disagreement on the Board on this.

15 MR. KAPLAN: Well, maybe we should air it for  
16 the record, because it may be a point for future  
17 litigation.

18 JUDGE GLEASON: Well, it could be. Lots of  
19 things could be.

20 MR. KAPLAN: The point is, if Dr. Davidoff is  
21 going to be testifying for New York State, I cannot --  
22 it is not appropriate, because he is not my witness, he  
23 is a witness of New York State, to ask him questions  
24 about communications that he had with New York City  
25 officials, because I could have put on the New York City

1 officials?

2 JUDGE GLEASON: I don't really want to rule  
3 about anything in advance, Mr. Kaplan. All I'm doing is  
4 talking about your questions up to this point with  
5 respect to cross-examining this witness and the last  
6 one.

7 MR. KAPLAN: Well, the last one I think may be  
8 a different situation. But this witness, the burden  
9 that you are throwing on each individual Intervenor,  
10 then, each individual, I guess, Interested State, is to  
11 produce all of their own experts, and that we are  
12 effectively precluded, precluded from cross based upon  
13 your definition of "adversarial." Because the only way  
14 it would be adversarial is if we disagreed with  
15 everything he said.

16 JUDGE GLEASON: That is a conclusion that I do  
17 not necessarily agree with.

18 MR. KAPLAN: Can you give me some guidance,  
19 then, as to what you mean by "adversarial"?

20 JUDGE GLEASON: Well, just go read any  
21 textbook on cross-examination and you will find the  
22 definition.

23 MR. KAPLAN: There's none that requires  
24 cross-examination to be adversarial.

25 MS. POTTERFIELD: Judge Gleason, I've read

1 several textbooks and I'm concerned about --

2 JUDGE GLEASON: Excuse me, I'm talking to Mr.  
3 Kaplan, please.

4 MR. KAPLAN: Could you direct me to a  
5 textbook, sir, that illustrates your point?

6 JUDGE GLEASON: Mr. Kaplan, I'm going to  
7 suggest that you proceed with questions and I will rule  
8 on them as they come up.

9 JUDGE SHON: As the Board presently  
10 understands, you're going to ask this witness a series,  
11 a rather limited series we hope, of questions that will  
12 show that condition F will exist in most of the highways  
13 because of accidents and other such things at distances  
14 up to and including those distances which New York City  
15 is from the plant, is that the idea?

16 MR. KAPLAN: That's right, or outside of the  
17 ten-mile EPZ, which would mean that we would not  
18 necessarily have to have a distance from the plant; we  
19 would merely have to have a distance outside of the  
20 planning zone. In other words, it could be ten miles  
21 from the outer limit of the ten-mile EPZ because that's  
22 the area that we are discussing, yes.

23 But that is functionally what I want to  
24 inquire into.

25 (Board conferring.)

1 JUDGE GLEASON: Go ahead. Try it, Mr.  
2 Kaplan.

3 MR. KAPLAN: I'm going to try to do this very  
4 quickly.

5 BY MR. KAPLAN: (Resuming)

6 Q Mr. Morris, you've heard the colloquy we've  
7 just had.

8 A (WITNESS MORRIS) Yes, sir.

9 Q So you're familiar with the point that I am  
10 hoping you will be able to make, based upon your  
11 expertise?

12 A (WITNESS MORRIS) Yes, sir.

13 Q You have analyzed the Parsons Brinkerhof plan  
14 and are familiar with its use of road networks,  
15 correct?

16 A (WITNESS MORRIS) Yes, sir.

17 Q Is it your professional opinion that an  
18 accident outside of the road network that they have  
19 analyzed, beyond the 10-mile or 12-mile or 15-mile area  
20 that is part of their analysis -- do you have an opinion  
21 as to whether an accident, a serious accident, a  
22 road-blocking accident, say 20 miles from the plant and  
23 10 miles outside of the EPZ itself on a major artery, do  
24 you have an opinion as to what impact that kind of  
25 accident might have on traffic flow within the area

1 modeled by Parsons Brinkerhof?

2 A (WITNESS MORRIS) Well, it's really something  
3 that needs to be modeled. Obviously, an accident  
4 outside of the ten-mile area will have an impact. The  
5 distance is something that you can't respond to with  
6 specificity without actually testing it. It depends  
7 upon how far away you are.

8 Q Are you finished?

9 A (WITNESS MORRIS) Yes, sir.

10 Q If you were modeling the situation or taking  
11 one of the models where we are talking about -- and now  
12 I'm going to show my lack of familiarity with the E's  
13 and the F's -- if we were talking about a situation in  
14 which there was a very high level of capacity, meaning  
15 that cars were -- and I hope I'm using this right --  
16 close together, going at a fairly slow rate because they  
17 are close together, and the area is densely packed in  
18 that 10 or 15-mile area, as a general proposition what  
19 would be the impact of the road blockage 15 or 20 miles  
20 from the plant if we are hypothesizing a density, a very  
21 high density?

22 A (WITNESS MORRIS) Well, it is what the Highway  
23 Capacity Manual refers to as a jammed condition. That is  
24 what is meant by level of service F, and that is why  
25 level of service F as an initial input is so important



1 in this study. The system becomes jammed.

2 Q If we are using a D or an E, which I believe  
3 you said are posited by Parsons Brinkerhof, as the  
4 parameters and there was a serious accident 10 miles  
5 beyond the EPZ, which is 20 miles from the plant or 25  
6 miles from the plant on an artery that was a major  
7 artery, do you have an opinion as to whether or not that  
8 would result in F?

9 A (WITNESS MORRIS) Well, I'm really not  
10 prepared to respond to that. Obviously, you can create  
11 an F level condition with an accident outside the  
12 ten-mile zone. But as to a specific distance, without  
13 actually making the network assignment I can't answer.

14 Q Do you believe that, as an expert on traffic  
15 patterns and traffic control planning, that in order for  
16 there to be any confidence in the validity of the  
17 Parsons Brinkerhof estimates one would have to, one  
18 would be obligated to, model the impact of serious  
19 accidents beyond 10 or 15 miles to deal with the  
20 situation we were just discussing?

21 A (WITNESS MORRIS) You certainly should include  
22 that in your analysis, accidents beyond the ten-mile  
23 zone, certainly.

24 Q And therefore you would evaluate a plan that  
25 does not do that as inadequate to deal with the

1 possibilities of emergency responses?

2 A (WITNESS MORRIS) Yes, I would.

3 MR. KAPLAN: Thank you.

4 I have no further questions.

5 MS. VETERE: I have a few questions, Your  
6 Honor.

7 JUDGE GLEASON: Go ahead, Ms. Vetere.

8 CROSS-EXAMINATION ON BEHALF  
9 OF WESTCHESTER COUNTY

10 BY MS. VETERE:

11 Q Good afternoon, Mr. Morris.

12 Are you aware of a revision in the Westchester  
13 County plan that calls for early dismissal of school  
14 children in the early stages of an emergency and makes  
15 it possible for school buses to transport children home  
16 before an evacuation is ordered?

17 A (WITNESS MORRIS) Yes, I'm familiar with that  
18 in a general way.

19 Q My question is, would this revision have any  
20 effect on the traffic patterns and on the traffic time  
21 estimates as contemplated under the Parsons Brinkerhof  
22 plan?

23 A (WITNESS MORRIS) Yes. It changes the basic  
24 inputs of the plan. You need a new analysis. You have  
25 a different set of conditions, you have different travel

1 patterns as a result of this change, and you need a new  
2 analysis.

3 Q In your opinion, should the potential effects  
4 on evacuation time estimates be looked into?

5 A (WITNESS MORRIS) Yes, they certainly should.

6 Q To the best of your knowledge have these  
7 potential effects been considered by the consultants to  
8 the Licensees in developing this plan?

9 A (WITNESS MORRIS) To my knowledge, no, they  
10 have not.

11 Q Are you aware that under the evacuation plan  
12 there are predesignated road routes which the residents  
13 in the ten-mile zone should follow?

14 A (WITNESS MORRIS) Yes, arterial, primary and  
15 secondary; is that what you're referring to?

16 Q I believe so.

17 A (WITNESS MORRIS) We are on the same  
18 wavelength, if that is what you mean, yes.

19 Q Are you aware of a poll that was conducted by  
20 Roger Seasonwein in which 56 percent of the residents  
21 said that they would not follow the predesignated road  
22 routes and that they would leave the best way they knew  
23 how?

24 A (WITNESS MORRIS) I haven't seen that poll,  
25 no.

1 Q Assuming that there were a large number of the  
2 residents in the ten-mile zone who would not follow the  
3 predesignated road routes, what effect would this have  
4 on the evacuation time estimates?

5 A (WITNESS MORRIS) Well, I don't think you can  
6 answer that question without testing it. You need to  
7 test a network that would include all possible routes.  
8 There are obviously tradeoffs. You take some cars off  
9 your main routes and put them on secondary or even  
10 tertiary roads and obviously that reduces the number of  
11 vehicles on the main roads, but then it creates  
12 additional problems, particularly when you try to bring  
13 these vehicles eventually back onto the main roads.  
14 Then you have this conflict that I referred to in my  
15 report that is not considered by Parsons Brinkerhof.  
16 That is your intersection analysis.

17 Q And do you think these potential effects  
18 should be studied by the consultants to the Licensees in  
19 preparing an emergency response plan?

20 MR. CZAJA: I'm going to object. This  
21 question is hypothetical, Judge. Parsons Brinkerhof has  
22 prepared their report. Whatever changes have occurred  
23 -- I don't understand where the question is going.

24 JUDGE GLEASON: Where is the question going,  
25 Ms. Vetere?

1 MS. VETERE: Well, Roger Seasonwein is  
2 presenting testimony that a large number of residents  
3 would not follow the predesignated road routes. What I  
4 am trying to show is that the consultants did not  
5 consider this in their time estimates, and I am asking  
6 Mr. Morris his opinion of whether they should have been  
7 consulted.

8 JUDGE GLEASON: What is the answer?

9 WITNESS MORRIS: Yes. Obviously, there is a  
10 limit to the number of networks you can evaluate, but  
11 clearly I think it is unrealistic to assume that  
12 everybody is going to follow a predetermined path, and I  
13 think that you should consider alternatives that are not  
14 restricted to just those predetermined paths.

15 MS. VETERE: Thank you. I have no further  
16 questions.

17 JUDGE GLEASON: Does anybody else have any  
18 cross?

19 MR. HASSELL: I don't.

20 JUDGE GLEASON: Any redirect?

21 MR. BLUM: Yes, sir.

22 REDIRECT EXAMINATION ON BEHALF

23 OF INTERVENORS UCS/NYPIRG

24 BY MR. BLUM:

25 Q Mr. Morris, you recall earlier when Judge Shon

1 was questioning you?

2 A (WITNESS MORRIS) Yes, I do.

3 Q Do you also recall that you were not able to  
4 get your point across very well?

5 A (WITNESS MORRIS) I didn't do a very good job,  
6 no, sir.

7 Q Do you think it might be done better making  
8 reference to the diagram?

9 A (WITNESS MORRIS) I think that might be  
10 helpful if I can.

11 Q Would you please do so.

12 A (WITNESS MORRIS) The diagram that is referred  
13 to is a drawing I prepared. It is taken directly from  
14 the \*, and it shows the correlation between travel  
15 speeds and travel volumes -- traffic volumes, I'm sorry.

16 And as that diagram indicates, if you start  
17 with the upper lefthand corner, where you are at a level  
18 of service A, the volumes of course are quite low and  
19 the travel speeds are high. And as you increase the  
20 volume of traffic on a road network, your speed drops  
21 and ultimately reach a point, as the turn-back point on  
22 that curve indicates, which is the capacity.

23 Beyond that point you can't get any more  
24 vehicles. When you try to add additional vehicles, you  
25 double back on yourself, so to speak, and that is where



1 you get into level of service F. And as I have  
2 indicated there, the level of service F actually  
3 corresponds with all of the other levels from A through  
4 E. I have indicated where level D would come in the  
5 level F range.

6           And the implications are quite profound if you  
7 are making an analysis where you have as input in a  
8 worst case condition level of service F rather than  
9 level of service D.

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 If you start with the section of that curve  
2 where level F is designated below the level D, then as  
3 you add traffic you proceed downward to the left, to the  
4 limiting point of the curve, where you actually had  
5 zero. That is your jam conditions, where nothing moves.

6 Now if you start with the level of service D,  
7 the upper part of that curve, and then you add volume to  
8 it, you come around past E and enter into a higher level  
9 of F, and this is where Parsons-Brinkerhoff does get  
10 their levels of service F on certain links.

11 But by starting with that level D they come up  
12 with a much better condition than if they had made the  
13 proper assumption that in a worst case condition you are  
14 going to be starting at level F and as you increase  
15 traffic on there you are going to be heading down to the  
16 left toward that ultimate jam condition.

17 MR. CZAJA: Judge, just so we have a clear  
18 record, can we have this document marked? I don't think  
19 it has been marked -- the document the witness has  
20 referred to in this answer.

21 MR. BLUM: This would now be NYPIRG Exhibit  
22 11.

23 JUDGE GLEASON: That will be identified as  
24 UCS-NYPIRG 11.

25 (The document referred to

1 was marked UCS-NYPIRG  
2 Exhibit Number 11 for  
3 identification.)

4 BY MR. BLUM: (Resuming)

5 Q Mr. Morris, you testified earlier that you had  
6 no quarrel with Parsons-Brinkerhoff using capacity  
7 corresponding to level of service E for their optimistic  
8 load time estimates, is that correct?

9 A (WITNESS MORRIS) That is correct.

10 Q What is your opinion of using level of service  
11 D capacity factors associated with level of service D or  
12 those capacity factors minus 20 percent as the upper  
13 bound, high time, pessimistic estimate?

14 A (WITNESS MORRIS) That is the point I was  
15 trying to make. That does not give you a realistic  
16 condition. It gives you an optimistic condition and  
17 does not represent what actually would occur when you  
18 would begin with level of service F rather than level  
19 D.

20 Q How would you describe what would occur?

21 A (WITNESS MORRIS) With level of service F?

22 Q Yes.

23 A (WITNESS MORRIS) You would have, as the  
24 Highway Capacity Manual says, jammed conditions and you  
25 would have some rather serious problems in terms of Q

1 accumulations, in terms of your impacts at  
2 intersections, the whole system backing up, and by the  
3 time that the queues would be released, vehicles, rather  
4 would be released from the queue, you would have  
5 considerably longer travel time clearing away from the  
6 subject site than under the conditions assumed by  
7 Parsons-Brinkerhoff.

8 Q Is it your testimony that that condition might  
9 be better simulated using capacities associated with  
10 level of service A, B, or C, as opposed to D?

11 A (WITNESS MORRIS) No. I would level of  
12 service F, not use A, B, or C. I think what you are  
13 asking is would I assume a lesser capacity.

14 Q Yes, that is what I intended to ask.

15 A (WITNESS MORRIS) Yes, I would assume a lesser  
16 capacity, but it would be on the F portion of the curve,  
17 not A, B, or C. This has been done, by the way. The  
18 West Side Highway in New York was analyzed on the basis  
19 of level of service F, with B over Cs in excess of one.  
20 It is not an unusual kind of approach to a capacity  
21 situation.

22 Q Well, the problem I have is level of service F  
23 could seem to use capacities corresponding to A, B, C,  
24 or D. Is that correct?

25 A (WITNESS MORRIS) It would give you volumes

1 that would correspond the same, but the travel speeds  
2 would be considerably lower.

3 Q Yes, I know that. Does analyzing it in what  
4 you call analyzing it in level of service F give you a  
5 way of choosing which volume to use -- the one  
6 corresponding to A, B, C, or D?

7 A (WITNESS MORRIS) Yes, sure. You can start at  
8 the upper level of F toward E, and as you add traffic  
9 you back down until you get to volumes that correspond  
10 with A, B, or C.

11 Q So there is a proper methodology for doing  
12 that?

13 A (WITNESS MORRIS) Yes, sir.

14 Q Did Parsons-Brinkerhoff employ that proper  
15 methodology?

16 A (WITNESS MORRIS) No, they did not.

17 (Pause.)

18 Q Is your major problem with the methodology  
19 they used that they arbitrarily picked D as a starting  
20 point?

21 A (WITNESS MORRIS) Yes, that's right.

22 Q Are you aware of the portion on cross  
23 examination you were asked about Dr. Urbanek's  
24 testimony. Do you recall?

25 A (WITNESS MORRIS) Yes.

1 Q Are you aware of the portion of his testimony  
2 where Dr. Urbanek said there was no technical basis for  
3 choosing level of service D as the basis for a  
4 pessimistic time estimate?

5 MR. CZAJA: I would like a reference to that  
6 page in Dr. Urbanek's testimony.

7 MR. BLUM: It is on pages -- I believe pages  
8 2020 through 2022 of the transcript of June 24, 1982.

9 MR. CZAJA: I think the way the question  
10 should be put, Judge, if he wants to show him that  
11 testimony and ask him if he is familiar with it and not  
12 to browbeat him.

13 JUDGE GLEASON: Let's lay a foundation, Mr.  
14 Blum.

15 BY MR. BLUM: (Resuming)

16 Q Do you recall reading these passages on pages  
17 2020 through 2022 of the June 24, 1982, transcript of  
18 these hearings?

19 MR. CZAJA: Let me just say for the record  
20 that the bottom of page 2021 Mr. Urbanek says something  
21 directly contrary to what Mr. Blum assumed in his  
22 original question.

23 WITNESS MORRIS: Well, in any event, I don't  
24 recall reading it.

25 MR. BLUM: Well, I guess the transcript will



1 speak for itself.

2 (Pause.)

3 MR. BLUM: Well, maybe we should clear it up  
4 now.

5 BY MR. BLUM: (Resuming)

6 Q Could you read, beginning here. Just begin  
7 with "Witness Urbanek" on page 2021.

8 A (WITNESS MORRIS) You want me to read it aloud  
9 or read it to myself?

10 Q Why don't you read it aloud.

11 A (WITNESS MORRIS) You tell me when to stop.

12 Q Okay.

13 A (WITNESS MORRIS) "Witness Urbanek: The  
14 technical basis for doing it all, going back to  
15 NUREG-0654, which is the guidance that the licensee must  
16 follow, specifies capacity. Capacity would be level of  
17 service E and we know that that capacity will only exist  
18 if certain conditions are met.

19 "There is -- the basis for reducing that  
20 capacity is not given anywhere in NRC guidance and the  
21 licensee has no instructions to do that. So basically  
22 -- and I am not aware of anything that would suggest  
23 that that is exactly the right number, but if we look  
24 at, again, experience --

25 "Judge Carter: Excuse me. The question was:

1 Is there any technical basis for it. You have answered  
2 it so far by saying that it is not required by the NUREG  
3 and now you are going into your experience. Is your  
4 experience related to the technical basis? I am trying  
5 to keep you to an answer to the question, if I  
6 understand the question correctly.

7 "Mr. Blum: Yes, that is the question, Your  
8 Honor.

9 "Witness Urbanek: There is a technical basis  
10 for my conclusion that it is reasonable. There is not  
11 in the record -- and I do know what that basis -- I do  
12 not know what that basis -- well, I do know the basis.  
13 The basis that the licensee used is stated in their  
14 report as the recommendation of the New York State  
15 Department of Transportation, so they were going along  
16 with a noted authority in the State to use that."

17 Q Thank you. Are Dr. Urbanek's conclusions  
18 mentioned in those two pages consistent with your own?

19 A (WITNESS MORRIS) Yes, I would say so.

20 Q You mentioned earlier under cross examination  
21 that access onto the major roads was a problem that was  
22 not adequately considered. Could you elaborate on that,  
23 please?

24 A (WITNESS MORRIS) Yes. The constraint on  
25 travel in a network where you have intersections is not

1 the link itself but the intersections which can be at  
2 the nodes or can be anywhere along the link,  
3 particularly where you have very heavy volumes of  
4 traffic on the main road and vehicles try to come in  
5 from the side road.

6           That is where your constraint occurs.  
7 Parsons-Brinkerhoff assumes that the people coming in  
8 from the side roads are just going to wait until the end  
9 of the line and eventually get out onto the main road.  
10 I don't think that is realistic. We have enough  
11 experience with unusual circumstances where you have  
12 very serious problems in terms of people's reaction to  
13 constraints, to people trying to cut in line, to these  
14 interferences with traffic flow.

15           And to just ignore that particular aspect is  
16 clearly improper.

17       Q     Is this problem -- does this occur differently  
18 with regard to the three types of roads -- the  
19 secondaries, primaries and arterials?

20       A     (WITNESS MORRIS) The problem would be  
21 principally on the primaries, which will be the most  
22 heavily used roads, with vehicles trying to enter onto  
23 those primaries. But anywhere, even where you have an  
24 intersection, that situation occurs and that is what  
25 needs to be evaluated -- the impact of those constraints

1 on travel through the intersection on total travel time.

2 Q Would you elaborate on your earlier statements  
3 that the consideration of accidents and so forth ought  
4 to be considered probabilistically?

5 A (WITNESS MORRIS) Surely. The State  
6 Department of Transportation obviously know where the  
7 high accident locations are. Everybody keeps accident  
8 records. There are certain places where accidents are  
9 more likely to occur than others, and they also keep  
10 records of the accident rates in terms of the number of  
11 accidents and their severity per million vehicle miles  
12 or per hundred million vehicle miles.

13 And built into an appropriate analysis for a  
14 situation of this kind would be the likelihood of these  
15 accidents occurring during this evaluation period, where  
16 they would be most likely to occur, and what the effects  
17 would be in terms of restraint on travel and additional  
18 travel time.

19 Q Were these prospective accidents considered by  
20 Parsons-Brinkerhoff in their study?

21 MR. CZAJA: Judge, I'm going to object. We're  
22 now going into testimony which, if he was going to  
23 offer, he should have offered as direct testimony. We  
24 have had the licensees' limited cross. We then had Mr.  
25 Kaplan's so-called cross in which this probabilistic

1 notion came up, and now Mr. Blum is bringing them up.

2 If this witness wanted to offer this model, it  
3 should have been in the direct testimony.

4 JUDGE GLEASON: Mr. Blum, say something.

5 MR. BLUM: To the witness or to the Board?

6 JUDGE GLEASON: No, to the Board. Answer that  
7 question, please.

8 MR. BLUM: Well, I believe this is redirect.  
9 It is very close in the area of what was being discussed  
10 before about the ways in which the simple input of a  
11 level of service D was not adequate to take care of the  
12 pessimistic condition and the witness had gone through  
13 at some length as to accidents and weather conditions  
14 and other things that needed to be specifically analyzed  
15 as part of calculating the pessimistic time estimate.

16 JUDGE GLEASON: And your question again was --  
17 what was your question?

18 MR. BLUM: The question was whether  
19 Parsons-Brinkerhoff had adequately or in any way taken  
20 account of the likelihood of accidents.

21 JUDGE GLEASON: How many times do we have to  
22 have that testimony in?

23 MR. BLUM: Does the witness recall having  
24 answered that previously?

25 WITNESS MORRIS: Yes, I believe I did.

1           MR. BLUM: All right. I will withdraw the  
2 question, Your Honor.

3           JUDGE GLEASON: I might say I recall it  
4 several times.

5           BY MR. BLUM: (Resuming)

6           Q     I believe you, Mr. Morris, also testified  
7 about a false assumption of perfect balance. Could you  
8 elaborate on that, please?

9           A     (WITNESS MORRIS) Sure. I don't believe I  
10 said "perfect balance". What I said was an assignment  
11 is made to a road network and then the constraints are  
12 noted and that affects the travel time on certain links,  
13 and adjusting those travel times through another network  
14 assignment gives a different distribution.

15                   And going through this iteration several times  
16 you arrive at a distribution of trips through a network  
17 which would be most likely to result in normal  
18 circumstances. This is a typical transportation  
19 planning technique. This is if we are planning for  
20 people to commute to work in White Plains or whatever  
21 and we know that people tend to find the least congested  
22 route and that the system tends to some degree to  
23 provide some balance.

24                   In an emergency situation obviously this does  
25 not apply. The people are going to take a road which



1 they perceive to be the best one, whether it turns out  
2 to be or not. They have no possiblility of going back  
3 and starting over and finding a less congested route,  
4 and so there should be no balancing of the network.  
5 There should be no iterations. There should be just one  
6 assignment to the network and see what happens then and  
7 evaluate the situation on that basis.

8 Q Are you aware of whether or not  
9 Parsons-Brinkerhoff dealt with the problem of gridlock?

10 MR. CZAJA: I would object again, Judge. This  
11 is something that should have been in the direct  
12 testimony, if we are now going into this. This wasn't  
13 raised on cross.

14 MR. BLUM: Again, it was raised on cross, not  
15 under the word "gridlock", but he was impeached and  
16 attacked for what basis he would have for questioning  
17 the adequacy of level of service D as a pessimistic  
18 bound, and this is one of his bases for that.

19 JUDGE GLEASON: Go ahead. Respond to the  
20 question, Mr. Morris.

21 WITNESS MORRIS: The Parsons-Brinkerhoff study  
22 did not address the issue of gridlock.

23 BY MR. BLUM: (Resuming)

24 Q Do you have any basis for believing that  
25 gridlock might be a significant problem?

1           A       (WITNESS MORRIS) Yes. When you are talking  
2 about level of service F, that is what gridlock is. It  
3 is jammed conditions and nothing moves, and that needs  
4 to be analyzed.

5           Q       Do you recall what assumptions  
6 Parsons-Brinkerhoff made about motorists wanting to get  
7 onto an evacuation route but having cars continuously  
8 going in front of them on that route?

9           A       (WITNESS MORRIS) Your question is do I recall  
10 how they addressed that point?

11          Q       Yes.

12          A       (WITNESS MORRIS) Yes. They said that the  
13 cars waiting to get on the main route would wait until  
14 the end of the line and then that they would be the last  
15 ones out.

16          Q       Do you believe that is a realistic assumption?

17               MR. CZAJA: Objection. Asked and answered.

18               MR. BLUM: This has not been asked.

19               MR. CZAJA: I am making the objection. It has  
20 been asked and answered.

21               JUDGE PARIS: Do you remember answering it?

22               WITNESS MORRIS: Well, more or less.

23               BY MR. BLUM: (Resuming)

24          Q       The specific question of whether that was a  
25 realistic assumption, did you answer that question?

1           A       (WITNESS MORRIS) I did not answer that  
2 question, I don't think, and no, it is not a realistic  
3 assumption.

4           MR. BLUM: I have no further questions.

5           JUDGE GLEASON: Does the Staff have any cross  
6 examination?

7           MR. HASSLE: No, we do not.

8                               BOARD EXAMINATION

9           BY JUDGE SHON:

10          Q       I just want to get a quick idea of the kind of  
11 influence you would expect to have -- these  
12 considerations to have on time scale.

13 Parsons-Brinkerhoff told us, if I am not mistaken, and  
14 Dr. Urbanek did too, that one could make a calculation  
15 of the sort they did and discover that there were jams  
16 at certain spots and then by queuing calculations take  
17 care of the jams and allow them to clear off.

18                       And then they got times on the order of  
19 magnitude of a few hours -- hours, at any rate -- to  
20 clear the area, the considerations that you mentioned --  
21 condition F, for example, or gridlock.

22                       In my own experience just driving a car, and I  
23 have never seen these things persist for, say, six hours  
24 or eight hours or such. If the calculations they made  
25 suggested that you could evacuate a place in the order

1 of five or six hours, would you expect that  
2 considerations such as you mentioned -- that is, wrecks  
3 at distances further than they calculated, for  
4 example -- would make this time scale estimate wrong by  
5 a factor of two?

6           Would it, instead of taking five hours, take  
7 ten or twelve? In other words, is this a vast mistake  
8 they made or are they off by that kind of a number?

9           A       (WITNESS MORRIS) Well, Your Honor, I am not  
10 prepared to provide a specific factor. I do think it is  
11 significant. I would point out that while I neither  
12 have I observed a six to eight hour gridlock, so to  
13 speak, I have been involved within the past month in a  
14 four-hour delay and when we have heavy snowstorms in  
15 Washington it is not unusual to have two, three and more  
16 hour delays.

17           You can get that kind of a gridlock in the  
18 District of Columbia. But I would say that the  
19 difference, specifically to answer your question, the  
20 difference would be significant and I think it is one  
21 that needs to be tested. I don't think -- obviously I  
22 can't say a factor of two or a factor of four or  
23 whatever, but I would think it would be quite  
24 substantial and I think it needs to be tested.

25           It hasn't been tested, obviously, and I don't

1 think anybody can make a reasonable decision without  
2 knowing just what the implications are of such a  
3 situation.

4 JUDGE SHON: I see. Thank you. That's all.

5 BY JUDGE PARIS:

6 Q Mr. Morris, could I get you to summarize for  
7 me the more important assumptions that  
8 Parsons-Brinkerhoff have made that you think are  
9 important to the outcome, which you think are invalid?

10 A (WITNESS MORRIS) Yes, sir. I think their  
11 assumption that level of service D is an appropriate  
12 starting point for determining a worst case condition is  
13 a very arbitrary assumption. Level of service D and the  
14 20 percent factor is clearly inappropriate. You  
15 obviously have to start with level of service F or a  
16 worst case condition.

17 I think the fact that they have used,  
18 generally speaking, normal conditions and normal  
19 conditions clearly will not prevail in a situation of  
20 this kind. It is fine for day-to-day transportation  
21 planning.

22 Q Why do you say -- you said that several  
23 times. Why do you say that normal conditions clearly  
24 will not prevail under these circumstances?

25 A (WITNESS MORRIS) Let me give an illustration,

1 if I may, sir. You will recall a few years ago we had a  
2 gasoline shortage in certain areas. I don't know if you  
3 had it here. The larger cities in the east certainly  
4 had it, where people had to wait as much as an hour to  
5 get to the gas pump and there were long lines of cars  
6 waiting to get to the gas pump.

7           And somebody would try to cut into line. Now  
8 I read in the paper about actual shootings in situations  
9 like this. I certainly know from experience people got  
10 in fights, fistfights, when somebody tried to cut in.  
11 These are the kinds of conditions when people are  
12 running for their lives where you have a major arterial  
13 jammed bumper-to-bumper and people are trying to cut in  
14 at every intersection and people don't want anybody  
15 cutting in front of them.

16           You are familiar with Murphy's Law -- what can  
17 go wrong will go wrong. Clearly things are going to go  
18 wrong. You are not going to have a normal situation.  
19 Well, you can, as I say. There are optimistic case, I  
20 think it is quite a reasonable one. If nothing goes  
21 wrong, the forecast is fine.

22           But I would hate to see a life or death  
23 situation planned on the assumption that there aren't  
24 going to be accidents. They say if it is icy -- snow or  
25 ice on the road -- that is going to slow people down.



1 Well, sure it is going to slow people down, but it's  
2 also going to send cars into skids, going off the road,  
3 blocking lanes and so forth.

4           You have to take this into consideration. I  
5 think the only way an intelligent decision can be made  
6 is through this probabilistic analysis that I mentioned,  
7 where they can say we have 95 percent confidence that  
8 such-and-such conditions are going to occur, given the  
9 situation with wind conditions and all the rest -- what  
10 they are.

11           I think you have to have this whole range and  
12 not to assume that you're not going to have any of these  
13 things go wrong. To me, it is like designing a building  
14 and assuming, well, the beams will probably hold up and  
15 maybe one or two will fall down, but on an average it is  
16 not likely. You don't design a building like that  
17 because it is a matter of life and death.

18           You make sure that that building is going to  
19 stand up. You have an adequate factor of safety. You  
20 have to have the same thing in this kind of analysis.  
21 It is not a routine kind of situation that you just  
22 assume normal conditions. Some things are going to go  
23 wrong.

24           What is the probability that you are going to  
25 have a major accident on you main arterial? You know

1 what the accidents are, you know where your high  
2 accident locations are. Make a calculation. Do a  
3 statistical analysis. What is the likelihood of that  
4 happening? I would not want to make a decision on the  
5 assumption that nothing is going to go wrong.

6           The worst case they have here is bad weather,  
7 and the bad weather just means that people drive  
8 slower. I don't think that is realistic. I don't think  
9 that is a safe way to evaluate a condition where people  
10 are fleeing for their lives.

11           Q     Okay. Did you finish listing the major  
12 assumptions that you think are invalid in the  
13 Parsons-Brinkerhoff study?

14           A     (WITNESS MORRIS) I think those are the major  
15 assumptions. I would very frankly, sir, like to go on  
16 the record as saying that Parsons-Brinkerhoff is a very  
17 competent organization. They do good traffic analyses.  
18 They do good transportation work.

19           Q     But they really botched up this one?

20                     (Laughter)

21           A     (WITNESS MORRIS) No, I don't accept this one.  
22 As I say, for the normal conditions, I have no quarrel.  
23 It is proper. I just think in these circumstances you  
24 must go beyond normal conditions. You must start with  
25 that level of service F, which certainly is going to

1 happen, and you must take into account the unexpected.  
2 Those are the principal concerns.

3 Q The starting points on their curve were all in  
4 D, right?

5 A (WITNESS MORRIS) Yes, sir, for the lower  
6 speed, for the long distance, yes, sir.

7 Q Where would you start on your curve if you  
8 were going to do an analysis like they did? You say you  
9 would start in service level F. Where would you start  
10 on the curve?

11 A (WITNESS MORRIS) Underneath the D, beyond  
12 service level E, so that we are in F to begin with, and  
13 as you add traffic and conditions get worse, then you  
14 drop farther down on that F scale and your speeds drop  
15 down and the volume that the road can handle drops down.

16 Q And what is your reason for picking the area  
17 below D?

18 A (WITNESS MORRIS) Well, it is past D. It is  
19 the starting point. It is something worse than E. E is  
20 the maximum number of cars you can handle and the worst  
21 condition is something less than the maximum number, and  
22 it is obviously a lower travel speed. It is a worst  
23 condition, so I would start at the point just beyond D  
24 and see what happens after that -- see how far down it  
25 drops.

1 JUDGE PARIS: I think that's all. Thank you.

2 BY JUDGE GLEASON:

3 Q Mr. Morris, did I recall some time ago that  
4 you indicated that you were not familiar with the  
5 regulations regarding emergency evacuation or emergency  
6 planning?

7 A (WITNESS MORRIS) That is correct, Your  
8 Honor. I haven't read that.

9 JUDGE GLEASON: All right. Thank you. You  
10 are excused. We appreciate your testimony.

11 (The witness was excused.)

12 JUDGE GLEASON: Do you have another witness?

13 MS. POTTERFIELD: Dr. Zelman is on standby,  
14 but he is not available now.

15 JUDGE GLEASON: Does that conclude the list of  
16 witnesses for today?

17 MS. POTTERFIELD: Yes, sir.

18 JUDGE SHON: What about Miss Blattstein and  
19 Miss Burgher?

20 MS. POTTERFIELD: I had indicated that I  
21 thought Mrs. Blattstein would be here later on this  
22 afternoon and apparently I completely misunderstood and  
23 it was next Tuesday that she was scheduled to appear.

24 JUDGE SHON: I see.

25 JUDGE GLEASON: All right, then. Well, that

1 is going to conclude the hearing for today. We will see  
2 everybody tomorrow at 9:00.

3 (Whereupon, at 4:35 o'clock p.m., the hearing  
4 recessed, to reconvene at 9:00 o'clock a.m., Wednesday,  
5 March 16, 1983.)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

in the matter of: CONSOLIDATED EDISON COMPANY OF NEW YORK (Indian Point  
Unit 2) - POWER AUTHORITY OF THE STATE OF NEW YORK (Indian Point Unit 3)

Date of Proceeding: March 15, 1983

Docket Number: 50-247 SP and 50-286 SP

Place of Proceeding: White Plains, New York

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

Ray Heer

Official Reporter (Typed)

Ray Heer

Official Reporter (Signature)