

original

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

COMMONWEALTH EDISON COMPANY
(Byron Nuclear Power Station,
Units 1 and 2)

Docket No.

50-454 OL
50-455 OL

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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COMMONWEALTH EDISON COMPANY	:	
(Byron Nuclear Power Station	:	Docket Nos. 50-454 OL
Units 1 and 2)	:	50-455 OL
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Eighth Floor Courtroom
Winnebago County Courthouse
Rockford, Illinois

Wednesday, April 20, 1983

Hearing in the above-entitled matter was re-
convened, pursuant to adjournment, at 9:00 a.m.

BEFORE:

IVAN W. SMITH
Administrative Law Judge

A. DIXON CALLIHAN
Administrative Judge

RICHARD F. COLE
Administrative Judge

APPEARANCES:

On behalf of Licensee:

VICTOR COPELAND, Esq.
ALAN P. BIELAWSKI, Esq.
MICHAEL GOLDFEIN, Esq.
Three First National Plaza
Chicago, Illinois 60602

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On behalf of the Regulatory Staff:

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On behalf of the Intervenors DAARE/SAFE and
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25WITNESSES: DIRECT CROSS REDIRECT RE CROSS BOARD CROSS ON BOARDDavid E. Ed) 5182 5364 5371 5332 5361
David L. Smith)
 (Resumed)

Thomas Urbanik 5390 5392 5421

Exhibits: -- NONE --

P R O C E E D I N G S

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(9:06 a.m.)

JUDGE SMITH: On the record. Is there any preliminary business?

(No response.)

You may proceed.

Whereupon,

DAVID D. ED and

DAVID L. SMITH,

the witnesses on the stand at the time of recess, resumed the stand and, having been previously duly sworn, were examined and testified further as follows:

MR. SAVAGE: Let me show the witnesses a notebook which contains the affidavits that the Intervenors have filed in this proceeding. I'm sorry I have only this one copy.

JUDGE SMITH: Also, I do not understand the point in having direct testimony and having the affidavit of that very person as an attachment to his testimony.

MR. SAVAGE: That was an error. We talked about this earlier in the hearing, didn't we?

JUDGE SMITH: Yes. And that problem is going to come up again.

MR. SAVAGE: No.

JUDGE SMITH: All right.

CROSS EXAMINATION -- (Resumed)

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BY MR. SAVAGE:

Q Gentlemen, especially Mr. Smith, I will be addressing these questions to you, but, Mr. Ed, please feel free to join in and answer if you can contribute anything. I'm going to be asking you some questions, Mr. Smith, about Contention 13. Are you familiar with that? Maybe you want to look at it again. Actually, it is probably Issue Number 13 and Intervenors' Amended and Consolidated Emergency Planning Contention.

MR. COPELAND: Does the witness have a copy?

JUDGE SMITH: Mr. Savage, should we have a copy of this affidavit?

MR. SAVAGE: I am not referring to an affidavit now, Your Honor. I am now referring to Issue No. 13, Intervenors Amended and Consolidated Contentions. I will be asking questions about testimony that we filed with attached affidavits. In particular, the testimony of the three school superintendents, Mr. Turner and Mr. Miller and Mr. Maloney.

And so, for the Licensing Board's convenience, you might have those available to you. To a lesser extent, I will also be mentioning Mr. Swann, and perhaps also Mr. Bowes and Mr. Montel.

JUDGE SMITH: Turner, Maloney and who?

1 MR. SAVVAGE: Turner, Maloney and Miller. Those
2 are three school superintendents.

3 MR. BIELAWSKI: Your Honor, one point of clarifi-
4 cation. With respect to Mr. Savage's cross examination on
5 these affidavits, as I stated yesterday, there is, I believe,
6 agreement, although it has not been confirmed by Mr. Savage
7 yet, that various portions of the affidavits will, in effect,
8 be withdrawn from this proceeding at this time.

9 I want to insure that Mr. Savage's questioning
10 does not go to portions which have, in fact, been deleted
11 from the evidentiary presentation in this proceeding.

12 MR. SAVAGE: I can assure you, counsel, that my
13 questioning only goes to sections that you and I both agreed
14 should remain in. I think that if you use -- I was looking
15 at the copies you gave me last night, so if I have not
16 finished with them -- so far I have no objection. If you
17 follow along on your copies you will see that I am going to
18 refer only to sections we had agreed were relevant.

19 MR. BIELAWSKI: Very well.

20 BY MR. SAVAGE (Resuming):

21 Q Mr. Smith, so it is Contention 13, and with
22 respect to your testimony, it is question and answer number
23 8 that I will be directing questions toward. Have you had
24 a chance to look over 13, and question and answer 8?

25 A (Witness Smith) Yes.

1 Q Mr. Ed, I believe that to the extent you are
2 going to have information to contribute here, it will be the
3 last question and answer in your affidavit. Is that number
4 13?

5 A (Witness Ed) It is number 15.

6 Q 15, excuse me. Okay. Tell me if I am wrong,
7 Mr. Smith: Under the regulations isn't ESDA charged with
8 communicating with primary emergency response support organi-
9 zations in order to -- in such a manner as to insure that
10 these organizations will be able to fulfill their responsi-
11 bilities in an emergency.

12 MR. COPELAND: Objection. Can we have a
13 reference to which regulation we are talking about?

14 MR. SAVAGE: It is the regulation cited in
15 Issue No. 13. 10 CFR 50.47(b)(1), as that is developed in
16 NURG-0654. I don't have the cite to the particular part of
17 the NUREG.

18 (Pause.)

19 BY MR. SAVAGE (Resuming):

20 Q If you look at Issue No. 13 in the amended and
21 consolidated contention, it is worded -- it starts off with a
22 reference to that section, in violation of 10 CFR 50.47(b)(1).
23 My question was you understand that under 50.47(b)(1) you
24 have an obligation to communicate to -- in the course of
25 developing your plan, you have an obligation to communicate

1 with primary emergency response support organizations in
2 such a manner as to insure that these organizations will be
3 able to fulfill the responsibilities at the plant. Is that
4 correct?

5 MR. COPELAND: Your Honor, I believe the attorney
6 is asking for a legal conclusion from the witness. And I
7 would also point out that Mr. Smith's agency is not speci-
8 fically named by this regulation.

9 JUDGE SMITH: As to asking for legal conclusions,
10 you are overruled. It may be a legal conclusion, but it is
11 also a question of fact, and it is a circumstance, whatever
12 it is, legal or factual, under which the agency must perform.
13 And his understanding as to how the agency performs is within
14 the purview of his testimony.

15 As to your second point; that is, his agency has
16 not been specifically named, he can address that in his
17 answer, if he wishes. Do you have a copy of that regulation?
18 Do you need it?

19 MR. SAVAGE: I have 50.47.

20 MR. COPELAND: We have got it.

21 BY MR. SAVAGE (Resuming):

22 Q This is not a trick question or something. I
23 probably did not even need to ask it. You address it in
24 your testimony. It is kind of just a foundation. I believe
25 you consider one of your obligations in ESDA and DNS --

1 A (Witness Smith) I think the answer to your
2 question is stated, although during the past three years
3 since we have been involved in the planning for emergencies
4 around nuclear power plants it has been our philosophy that
5 the state would coordinate with all primary response -- not
6 just primary but primary and supporting -- agencies that would
7 respond to a problem at a power plant. And this has been the
8 same philosophy that we have carried on in any other type
9 of disaster.

10 Q That's fine. Is the point of communication --
11 are you after the type of communication with these response
12 organizations that would insure that they will be able to
13 fulfill their responsibilities in carrying out the plan that
14 you have developed for the particular kind of emergency?

15 A Could you clarify that a little bit more?

16 Q What is the point -- my question is about the
17 point of communicating with these organizations. Is the
18 point of communicating with them just to -- is the ultimate
19 point of communicating with them to insure that they have
20 enough knowledge of the plan and their role in it and their
21 concerns about the plan are otherwise satisfied so that they
22 will be able to fulfill their responsibilities as detailed in
23 the plan in case it is put into operation?

24 A I think you mean the purpose of our communication.

25 Q Right.

1 A The answer to that is the purpose of our communi-
2 cation -- it is not just communication with the various
3 agencies, but it is working with those agencies to develop
4 a response plan that reflects their capability. Their
5 normal emergency operating procedures reflect an operation
6 that is developed around the resources that they have or that
7 could be obtained.

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1 In other words, we do not develop a plan in
2 Springfield, so to speak, and then come to the local area,
3 whether it be Byron, LaSalle, or any other sites, and tell
4 the county and local officials that this is their emergency
5 plan, this is a method of operation, and if it doesn't meet
6 what you normally do, you have to change your procedures.

7 We work closely with them to make sure that they
8 have input throughout the planning process to ensure that the
9 plan does reflect the way that they operate.

10 Q And that sounds like a good idea. If I understand
11 you correctly, you are testifying that although you have a
12 generic plan, the particular plan for any site is developed
13 in consideration of the local resources available and the
14 organization of the county in which the plan is to take place.

15 A Our generic plan, referring to Volume 1, which is
16 really the state volume, it is a concept of operations. It
17 is somewhat general in nature. The plans that we develop
18 at each site are site specific. They are based on the situa-
19 tion in the local area, the ten-mile area around the plant,
20 the area outside that that we might use for other functions.
21 So it is tailor-made to the area in a way that would
22 reflect the operations of local government.

23 Q And that is important, I take it, that you do that
24 because it is important; the plan would not function well
25 if it didn't do that.

1 A Probably the most important thing.

2 Q Okay. In question number 8 of your testimony,
3 Mr. Smith, the phrase "primary emergency response support
4 organizations," that is defined to include school superin-
5 tendents, is that correct?

6 MR. COPELAND: I would object to this. This is
7 language that was introduced by the Intervenors in their
8 contention, and he is now asking the witness to define it.

9 MR. SAVAGE: Your Honor, he has used it in his
10 testimony. I am trying to figure out -- I want to ask some
11 questions about the communications that have taken place
12 between ESDA and DNS and school superintendents. I wanted
13 to know whether when the question states or asks is there
14 sufficient communication taking place between IESDA and the
15 primary emergency response support organizations, I want
16 to know if that was a question about communications between
17 IESDA and school superintendents.

18 JUDGE SMITH: Overruled.

19 WITNESS SMITH: You are referring to the last
20 paragraph?

21 BY MR. SAVAGE:

22 Q It is actually in the question, question number 8.
23 When you were being asked whether sufficient communication
24 was taking place between IESDA and primary emergency response
25 support organizations, were you being asked in part and among

1 other things whether sufficient communication was taking
2 place between IESDA and school superintendents?

3 A The term "primary emergency response support
4 organizations" is one that we do not use in the plan. We
5 refer to agencies and their primary function in responding to
6 the emergency. For example, the law enforcement agencies,
7 whether it be at the county level or the local level, the
8 primary responsibility is law enforcement. I guess you could
9 conclude from that that they have a primary function in
10 their response.

11 As far as the school superintendents go, they
12 have somewhat of a limited involvement in the operation.
13 Their primary responsibility is to take care of their school
14 and the students and the staff that might be in it. Their
15 response to the situation at the plant that might have some
16 effect offsite would be to that school situation and also
17 to make sure that they managed their resources that they have.

18 So as a primary response, primary emergency
19 response support organization, they have a primary response
20 for their facility.

21 Q My question was really about whether when you
22 were being asked that question did you think you were being
23 asked in part and among other things about school superin-
24 tendents?

25 A When I was being asked that question, I considered

1 all of the agencies that would play a role in that response.

2 Q And that includes school superintendents.

3 A That would include school superintendents.

4 Q Because they are listed in Exhibit C, aren't they?

5 A Correct.

6 Q And the first sentence in your answer to Question
7 8, you say, "IESDA has developed an emergency response
8 planning" -- "emergency response training plan matrix,
9 attached as Exhibit C, which is a guide" -- "which is
10 essentially a guide to all of the organizations with which
11 IESDA has already had initial contacts and will work with
12 more extensively."

13 When I turn to Exhibit C, although it is really
14 hard to see it -- the print is very small --

15 MR. COPELAND: For the record, I would like to
16 clear that up. A full-size copy of that exhibit is Appli-
17 cant's Exhibit 22.

18 JUDGE SMITH: Twenty-two?

19 MR. COPELAND: Twenty, excuse me.

20 MR. SAVAGE: The size was not really a detriment.

21 BY MR. SAVAGE:

22 Q The Leaf River in the Stillman Valley in Oregon,
23 Mount Morris school superintendents are included in the
24 matrix, are they not?

25 A Yes, they are.

1 Q It is that Exhibit D when read with and considered
2 together with Exhibit D forms your "methodical process by
3 which all primary support response organizations delineated
4 in the emergency plan will be contacted by IESDA and fully
5 informed of and trained in their responsibilities in the
6 event of a radiological accident," isn't that true?

7 A Could you restate that?

8 Q In your answer to question number 8, I assume
9 that part of what you are trying to do is assure the Inter-
10 venors and the Licensing Board that there is a mechanism or
11 some machinery in place that will ensure that sufficient
12 communications, appropriate communications, communications
13 designed to effect the plan are in place between IESDA and
14 the primary response support organizations, is that correct?

15 A I would like to say that there is a planning
16 process in place. I have never used the term "machinery."

17 Q No, you didn't. That was my contribution to it.

18 A There is a planning process in place that is a
19 deliberate process. It has been a process that we have been
20 involved in, as I said earlier, for about the last three
21 years concerning specifically nuclear power plants. The
22 process, the planning process, is really no different in
23 developing a radiological emergency response plan than it is
24 for developing any other type of disaster plan.

25 So what we have done is to put a planning process

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1 in place that started some time ago and was -- still in that
2 process. Maybe I can explain just a little bit what the
3 planning process is in very general terms, and that might
4 demonstrate where we are right now.

5 Q If you feel that would be helpful. I certainly
6 do not want to stop you. I have a point I am trying to make.
7 Go ahead, though. I don't want to keep you from giving any
8 information that is helpful.

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1 A It will be general and brief. When we started
2 the process we had to, obviously, determine what we were
3 planning for. We started this past fall in October, and we
4 had a plan -- excuse me, I do not want to confuse you. We
5 had a plan to develop the plan, if you will.

6 We have gone through the steps and, of course,
7 the first thing is collecting information, letting the
8 people know what we are doing, what our goal is. We develop
9 a plan and review the plan, do the necessary training to
10 insure that the officials understand the plan, understand
11 their roles, have the necessary training to conduct the
12 operation.

13 It is necessary to test that plan to see if,
14 in fact, it would work. After that test, review it again
15 and make any necessary changes. At this point, we are
16 finalizing the plan itself. On this bar chart that I talked
17 about yesterday, it illustrates that planning process.

18 Q Let me ask you a question about the attachment
19 to Exhibit D. I believe the attachment is described in your
20 testimony as a draft standard operating procedure form; is
21 that correct?

22 A That is correct.

23 Q What is a draft standard operating procedure
24 form? When is it used?

25 A When is this form used?

1 Q Right.

2 A This is a form, or actually it is a format, that
3 is not set in concrete. It can be changed as the conditions
4 dictate. But one of the parts of developing a plan is to
5 develop operating procedures, standard operating procedures,
6 is how we refer to them, SOPs. SOP is that part of the plan
7 that is probably the most detailed. In other words, to give
8 you an example, let's take an ambulance service that is going
9 to go out and respond to a highway accident. They probably
10 have some procedure that they follow to do that.

11 They go to the ambulance, they get in it, they
12 drive it out there, they do whatever, they make their radio
13 calls. We will assist any of the local government officials
14 in developing SOPs for their operation. This format is an
15 example of how it would be put together. I can go through it
16 if you like.

17 Q What I'm interested in, the last paragraph on
18 page 7 of your testimony you say the attached charts,
19 [Exhibits C and D] -- and I assume the attachment to
20 Exhibit D, also -- demonstrate a methodical and comprehensive
21 process by which our primary support response organizations
22 delineated in the emergency plan will be contacted by IESDA
23 and fully informed of and trained in their responsibilities
24 in the event of a radiological accident.

25 That is what I refer to as the machinery that

1 was designed to guarantee that the communications which are
2 required of you under the regulations are going to take place.
3 And I am wondering what the role of this operating procedure
4 is in making that guarantee.

5 A Well, I guess, to relate it to what you are
6 saying, for us to develop a standard operating procedure for
7 an given emergency department or any agency involved in the
8 plan, we would have to sit down and meet with them. We could
9 not develop that standard operating procedure without
10 meeting with them.

11 I guess in that respect it would, to some extent,
12 guarantee that we meet with them. That is not the purpose
13 of it. The purpose of it is to give us a format in which we
14 can develop the SOP.

15 Q Let me see if I have it, then. In other words,
16 in order to fill in the blanks under Sections 1.02, .03, 6.0
17 of your standard operating procedure, you say that this
18 guarantees communication because in order to fill in the
19 blanks you have to meet with them?

20 A In order to develop a standard operating procedure
21 we would have to meet with the local agencies that we are
22 developing that procedure for or in conjunction with, yes.
23 I might say that that is not the reason we developed this
24 form, to insure that we would meet with them.

25 Q Are you familiar with the communications which

1 have taken place between IESDA officials and Messrs. Turner,
2 Miller and Maloney?

3 MR. COPELAND: That is a compound question, I
4 believe, Your Honor.

5 JUDGE SMITH: That is a what?

6 MR. COPELAND: That is a compound question. Can
7 we have broken down into the specific persons?

8 MR. SAVAGE: I am not sure that I see how it is
9 compound, but let me ask it over again.

10 BY MR. SAVAGE (Resuming):

11 Q Are you familiar with the communications that
12 have taken place between IESDA planners in the course of
13 developing the Byron site-specific plan and the following
14 school superintendents.

15 MR. SAVAGE: Should I ask them one at a time?
16 Is that what you're worried about?

17 MR. COPELAND: That is what I was asking.

18 BY MR. SAVAGE (Resuming):

19 Q Mr. David Miller.

20 A (Witness Smith) I could respond to the question
21 as it was originally asked. The answer is I am aware of some
22 of the communications, but I am sure I'm not aware of all of
23 the communications that have taken place.

24 Q Did you initiate any of the communications?

25 A Can you clarify that? Do you mean was I the

1 person that made the call?

2 Q Let me start with another question. When did the
3 communications begin? Do you know?

4 A I can talk in general and then get a little
5 more specific.

6 Q Whatever.

7 A I think it would help you understand.

8 JUDGE SMITH: Counsellor, excuse me, are you
9 going to try to test his memory as to these communications?

10 MR. SAVAGE: Memory as to some of them, Your
11 Honor. I would just like some information about them,
12 like when they began and whether several people are in charge
13 of directing them to the officials, or whether they all come
14 back to Mr. Smith.

15 JUDGE SMITH: Does the witness, or do you have
16 the communications you are referring to?

17 MR. SAVAGE: I have one of them, but I'm really
18 inquiring about others. I will ask Mr. Smith some questions
19 about a letter that was sent out to Messrs. Turner, Miller
20 and Maloney. I am -- in that sense, the questions are a bit
21 redundant, but I'm also wondering about other information
22 like when they began.

23 BY MR. SAVAGE (Resuming):

24 Q Do you know when they began?

25 A (Witness Smith) I cannot tell you specifically

1 when the communications began with those three individuals
2 that you mentioned. I can tell you in general terms when
3 we began our activity up in this area. Although we had
4 direct communications with those individuals, we were
5 communicating with selected public officials in Ogle County.

6 Q I am really at this point interested in Messrs.
7 Turner, Miller and Maloney.

8 A You have a letter in your hand. I did send a
9 letter. I would have to review it.

10 Q Let me ask you a question about the letter. Let
11 me hand you a letter which is dated November 29, 1982, signed
12 by Mr. David L. Smith and you can tell me -- excuse me, it
13 is signed by Mr. Paul Sereg for David L. Smith. This
14 particular copy is addressed to Mr. David Turner, the
15 subject is what is the Illinois plan for radiological
16 accidents.

17 MR. COPELAND: May I see it first?

18 MR. SAVAGE: Certainly.

19 (Counsel handing document to other counsel.)

20 MR. COPELAND: This is the same letter that was
21 attached to the testimony of Mr. Turner, Mr. Miller and Mr.
22 Maloney?

23 MR. SAVAGE: Right. Not Mr. Smith's testimony,
24 you are right. Messrs. Maloney, Miller and Turner.

25 (Counsel handing document to witnesses.)

1 MR. SAVAGE: I have a loose copy. I thought it
2 might be a little more convenient to read from that instead of
3 flipping through an affidavit.

4 WITNESS SMITH: I am familiar with that letter.

5 BY MR. SAVAGE (Resuming):

6 Q First of all, did you dictate that letter, or
7 author it?

8 A It was drafted for me.

9 Q By whom?

10 A By Paul Sereg.

11 Q Did you see it before it went out?

12 A Yes.

13 Q And you approved of it and adopted its contents?

14 A Yes.

15 Q Who directed Mr. Sereg to draft that letter?

16 A I don't recall who did. It would have been under
17 my direction. I have to back up and tell you what my role --

18 MR. COPELAND: I am going to object this line of
19 questioning. The time of discovery has passed in this case
20 in questioning who directs what letters.

21 JUDGE SMITH: You are assuming it's for discovery
22 purposes. I don't know, since we don't have a cross
23 examination plan, I don't know what it is for.

24 MR. SAVAGE: Your Honor, I think it is relevant
25 to this. I am not conducting this for discovery purposes.

1 We are long past that point, as counsel has pointed out.
2 I would like to know how the communications take place between
3 IESDA officials and the primary support response organiza-
4 tions. Mr. Smith has testified that there is a methodical,
5 comprehensive process in place that is going to guarantee
6 that adequate communications take place, and I want to know
7 who is in charge, if the process has changed since this all
8 began and so on and so forth.

9 Even if I found this out in discovery I could
10 ask it again.

11 JUDGE SMITH: Proceed.

12 MR. SAVAGE: I forgot what I asked.

13 I think I can proceed with another question.

14 BY MR. SAVAGE (Resuming):

15 Q Who directed that that letter be drafted?

16 A (Witness Smith) Like I said, I cannot recall
17 the specific person who directed that this be drafted. In
18 our planning process we come to a point when we send the
19 initial plan, if you will, out to the local officials for
20 their review. That happens. Our planning staff knows that
21 that happens, and on November 29th is when we came to that
22 point.

23 The letter was put together, not really under
24 anybody's direction; just that we had reached that point in
25 our planning process, and Paul Sereg is our regional

1 coordinator in that area, and we have contact with local
2 officials. Many times the letter will be drafted by him,
3 sometimes it goes out over his signature, sometimes over mine.
4 So although there is probably no direction to write that
5 letter at that time, we had just reached that point in our
6 planning process.

7 Q Is it a responsibility of divisions that you
8 are in charge of to send the plan out for review? Is that
9 your responsibility?

10 A Yes, it is.

11 Q So either yourself or somebody under your
12 direction would do that.

13 A Right.

14 Q Is Paul Sereg the one in charge?

15 A Of what?

16 Q For sending the plan out for review, or did he
17 just happen to do it?

18 A Paul Sereg is our regional coordinator as to
19 Region 2. His office is located in Dixon. The Byron
20 plant falls within the boundaries of his region. He works
21 under my direction, my supervision. There are times when
22 the letter goes out under his name, and there are times
23 when I do it. It depends on what the subject is, what the
24 purpose is.

25 Q Does he report back to you about the results of

1 his communications with primary support organizations?

2 A Yes.

3 Q Does he report back routinely or just when he
4 encounters serious or odd or peculiar problems?

5 A Routinely.

6 Q So would you know, then, about all of the communi-
7 cations that took place between Mr. Sereg and -- assuming --
8 and primary response organizations -- primary support
9 response organizations?

10 A Not necessarily.

11 Q Not necessarily. That's what I'm trying to get
12 at. He reports back routinely and he does not tell you just
13 about the odd cases, but you wouldn't necessarily know about
14 his efforts to communicate.

15 MR. COPELAND: Your Honor, the previous question
16 was -- he asked if he knew about all communications and now
17 he is paraphrasing it --

18 MR. SAVAGE: That's correct, I did change. Let
19 me ask a direct question.

20 BY MR. SAVAGE (Resuming):

21 Q When Mr. Sereg reports back routinely, are you
22 satisfied that in so doing he tells you about any significant
23 communications that he has had with primary response support
24 organizations?

25 A (Witness Smith) Yes.

1 Q Let me refer to the letter that is before you now.
2 The letter sends out IPRA Byron Revision O to Mr. Turner
3 for his review, or that portion of it that deals with his
4 school district, is that correct?

5 A That is correct.

6 Q What is the purpose of getting his review?

7 A As I stated earlier, and I believe as you referred
8 to, regulation that we are required to be in communication
9 with these local response agencies. Our purposes of having
10 them review this section is to ensure that it reflects their
11 mode of operation during emergencies; that it reflects the
12 resources that they have or that they anticipate on having.
13 It ensures that it reflects their organizational structure.
14 It ensures that they are part of developing the plan.

15 Q Is it designed to ensure that there are concerns
16 about the plan, whether they fall into any of the categories
17 that you have expressed, that you have considered have been
18 expressed by planners and considered by them?

19 A I think that happens automatically along with
20 that.

21 Q Is that part of what you like to get back? The
22 point is to develop a plan which can be undertaken by these
23 people in case it has to be put into effect. That is correct?

24 A I don't fully understand your point.

25 Q Let me put it another way. One of the things

1 that you might hope to get back, is it not, from a letter
2 like this is just some indication about how comfortable a
3 person is with the plan and whether they think they can
4 carry it out and so on and so forth.

5 A Yes. We hope to find out if they are willing to
6 take part in the response. We're interested in finding out
7 any information like that.

8 Q Would you please turn to page 3 of Mr. David
9 Turner's affidavit, which is before you? Let me apologize
10 to you for not having the questions numbered. It may make it
11 a little more cumbersome to refer to certain questions, but
12 there is only one full question on that page, and it is the
13 question to which I address your attention, the answer to it,
14 the first question on page 4 and the answers to it.

15 Let me just give you whatever time you need to
16 look that over. Have you looked it over? I know you're
17 familiar with it.

18 A Yes.

19 Q Have you seen it before this date?

20 A Yes.

21 Q When did you first see it, do you remember -- the
22 questions I have just referred your attention to?

23 A I cannot recall what the date was when I first
24 saw this.

25 Q Did Applicant's attorney show it to you, is that

1 how you got a hold of it?

2 A Yes.

3 Q Were you surprised by it?

4 A By what part of it?

5 Q Were you surprised by the answer to question
6 number 4, particularly the sentence, "This was not sufficient" --
7 "This was not a sufficient length of time for me to fully
8 consider the draft plan, nor did I have enough time or informa-
9 tion to bring the draft plan before the Mt. Morris school
10 board. I told IESDA officials on December 6th that Mt. Morris
11 CU would not participate in the plan until the board approves
12 our role. I am of the opinion that neither my input nor
13 opinions were of any significant importance to IESDA
14 planners."

15 A No, that didn't really surprise me. I think it
16 told us something, that we needed to take a little bit more
17 time, to give the local officials a little more time on their
18 review. It was not a surprise as such.

19 Our planning process is a process, and it is
20 flexible. And if we get indications from the local officials
21 that they need more time or they have some desire, we can
22 adapt to that. So it really did not surprise me, no.

23 Q Let me see if I can clarify. When you say you
24 were not surprised, do you mean that when you saw Mr. Sereg's
25 letter go out and give people two weeks or a week -- I don't

1 know how many, whatever number of days in there -- a week to
2 consider the plan, you knew it was probably insufficient time
3 to get a response, a helpful response?

4 A No, I don't think that is true. I think we said
5 we're going to try a week and see if that works. We were
6 well aware that the initial plan, the initial draft, there
7 were going to be numerous changes to it before it was
8 finalized. So actually, if we missed somebody entirely, which
9 we probably did, it really was not a critical issue at that
10 time, because we would be meeting, you know, with the local
11 officials in the future, and we would find these areas that
12 we had left out. It was not a critical concern at that time.

13 Q Do you know whether anybody from IESDA ever met
14 with Mr. Turner after that letter?

15 A After that letter.

16 Q And before -- assuming that Revision 1 has been
17 completed, shortly completed before that.

18 A I would have to check back to see if, in fact,
19 somebody did actually meet with him. I know that tomorrow
20 morning we are going to meet with all school superintendents
21 involved, and this was the point in time where we really
22 start informing them of what we would like their role to be
23 in the plan, finding out from them if in fact it can be done,
24 can be implemented.

25 As far as somebody specifically meeting with Mr.

1 Turner between the time of this letter and today, I would
2 have to check back and find out. I would suspect that did
3 happen. At least I know in fact that he was invited to a
4 meeting, probably last week, when we met with all committees
5 of EPZ. Whether or not he attended that meeting, I don't
6 know.

7 I might, for clarification purposes, because I
8 think I have some idea of where you are leading, you mentioned
9 the two-week time period, and there seemed to be some ques-
10 tion of whether or not we got back to Mr. Turner. If you
11 recall, on December 2, 1982, we experienced a tornado in
12 New Baden, Illinois. We also experienced the beginning of
13 what turned out to be almost record flooding along the Illinois
14 and Mississippi Rivers.

15 At that time we diverted our planning resources --
16 planning staff to responding to that emergency. That
17 emergency, which turned out to be a major disaster declared
18 by the President, in many counties of Illinois, pretty much
19 took up our time for the month of December. Our staff is
20 not large enough to have a separate planning section and a
21 separate operating section. We do both.

22 Q You said that Mr. Turner was probably invited to
23 a meeting last week that was not just a meeting for school
24 superintendents but was a general community response organiza-
25 tion meeting, and that he is invited to a meeting tomorrow

1 morning?

2 A Tomorrow morning there is a school superintendents
3 meeting. We are on the agenda, let's put it that way.

4 Q Would either -- would the meeting last week have
5 occurred in time and will the meeting tomorrow occur in
6 time for any helpful comments from Mr. Turner or any other
7 school superintendent to be included in Revision 1 of IPRA?

8 A The purpose of the meetings last week was to get
9 those comments from the local officials. We went into each
10 community -- when I say "we," I am talking about the planning
11 staff. I did not attend those meetings.

12 The purpose of those meetings was to meet with
13 the county and the six villages -- and I think they are all
14 villages -- in the EPZ to show them Revision 1 of the Byron
15 plan to get their input. It was a workshop-type meeting
16 where they -- if the changes were necessary, they told us
17 what was required, and after the meeting we would go back
18 and incorporate those changes in that draft plan.

19 Q I see. You probably misunderstood my question.
20 I didn't put it well. Those meetings were designed to elicit
21 comments that would be helpful in revising Revision 1. My
22 question was about whether the meeting last week or the
23 meeting tomorrow -- and I guess you have answered it by
24 implication -- could have been held in time to have comments
25 be useful in revising Revision 0 to Revision 1.

1 A That was the purpose of the meeting.

2 Q I thought you said revising Revision 1.

3 A Well, no. We went in with a Revision 1 that was
4 not complete until we received their comments where they
5 told us if in fact that was acceptable to them or if some
6 changes needed to be made. So at this point we do not have
7 a final Revision 1. We are incorporating those changes.
8 So that was the purpose of that meeting.

9 Q You did understand my question. I did not under-
10 stand your answer. Thanks.

11 Do you know whether Mr. Turner or Mr. Miller or
12 Mr. Maloney attended that meeting last week?

13 A I don't know without checking. I know I am recall-
14 ing a conversation I had with Mr. Sereg. I believe in Mt.
15 Morris the school superintendent did not attend. I did not
16 state that as a fact. I would have to check back with our
17 records from those meetings.

18 I believe in some of the other villages where we
19 conducted the meetings, the school superintendents did attend.

20 Q Are you aware of Mr. Turner's concern about who
21 will be liable in case of a disaster of some sort at the
22 Byron plant that would call for the implementation of an
23 evacuation?

24 A Yes, I am.

25 Q How were you made aware of that concern?

1 A He made that concern to Paul Sereg who related it
2 to me.

3 Q Do you know when he made that concern to Mr. Sereg?

4 A No, I don't, not specifically.

5 Q Do you know how long after he made it Mr. Sereg
6 communicated it to you?

7 A Not specifically. I know that Mr. Sereg and I
8 discussed it a number of times.

9 Q Have you ever been asked about liability questions
10 from any other support organizations and EPZs around other
11 nuclear power plants in Illinois?

12 A I personally do not believe that I was asked
13 that, at least not for an actual emergency. I have been
14 asked that in relation to exercises.

15 Q I did not mean to say just you personally. Have
16 representatives from response organizations in any other EPZs
17 in Illinois communicated to IESDA officials concerns about
18 liability in case of an evacuation?

19 A I am not sure.

20 Q For all you know, this may be the first time it
21 has happened.

22 A For all I know, it could be. I have not been
23 involved --

24 MR. COPELAND: Asked and answered, Your Honor.

25 MR. SAVAGE: You can complete your answer, if you

1 like.

2 JUDGE SMITH: Complete the answer.

3 WITNESS SMITH: I have not been involved in the
4 planning of -- development of all the site-specific plans;
5 therefore, I can only speak to those areas where I have been
6 involved, and the question has not come up there until this
7 point.

8 BY MR. SAVAGE:

9 Q You stated that Mr. Sereg and yourself had dis-
10 cussed this problem.

11 JUDGE SMITH: "This problem" being what?

12 MR. SAVAGE: The issue of liability of response
13 organizations in the case of an evacuation.

14 BY MR. SAVAGE:

15 Q What have you said about it?

16 A He called me to tell me that Mr. Turner had asked
17 that question, and at that time we discussed the issues the
18 best we could. I did not have a lot of information on it.
19 I told Mr. Sereg at that time that possibly the issue would
20 be resolved by the American Nuclear Insurers. That there
21 is also a provision in the Emergency Services and Disaster
22 Act of 1975 that provided immunity to volunteers that belong
23 to a local emergency service and disaster agency.

24 I told him possibly the liability would be covered
25 in one of those two areas. However, I did not know. I have

1 mentioned it to our director that there has been this concern.
2 I know that he is aware of it. At this point I don't have
3 a firm answer on how the liability question would be answered,
4 although I think the answer lies within the American Nuclear
5 Insurers program, which I am not thoroughly familiar with.

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1 Q I assume there is no policy in the IESDA organi-
2 zation against answering that question if a member of a
3 primary response support organization raises it.

4 A That is correct.

5 Q On page 4 of Mr. Turner's affidavit, the first
6 answer to the first question on the page, "I told the IESDA
7 officials on December 6th that Mt. Morris CU would not
8 participate in the plan until the Board approves our role."

9 Now, you were aware of that, right?

10 A I read the statement, yes.

11 MR. COPELAND: Can we have a clarification for
12 the record as to which board is being discussed by Mr. Turner
13 in this?

14 MR. SAVAGE: The school board.

15 BY MR. SAVAGE (Resuming):

16 Q Are you aware -- excuse me, strike that.

17 Do you intend to provide Mr. Turner with a
18 written explanation of who IESDA thinks is liable or not
19 liable in case of a nuclear accident?

20 A (Witness Smith) I am sure we will provide him
21 an explanation. At this point I cannot say if it will be
22 a written explanation or not. That is a decision that I
23 have to discuss with the director on how he wants to handle
24 that. I think if we came up with a policy and an answer, we
25 would provide that information to more persons than just

1 Mr. Turner.

2 Q Are you aware that the Mt. Morris Schoolboard
3 has instructed Mr. Turner not to participate in the plan until
4 he gets a written explanation of who is liable and who is
5 not liable?

6 A I read the statement, yes. I did not understand
7 it. I am not sure what participation in that plan means. If
8 it means participation in development of a plan, or partici-
9 pation in the implementation of that plan in an emergency or
10 maybe an exercise.

11 MR. BIELAWSKI: I'm not sure that Mr. Turner's
12 affidavit says what Mr. Savage has characterized it as saying.
13 It says, "I told the IESDA officials on December 6th that
14 the Mt. Morris CU would not participate in the plan until
15 the board approves our role."

16 Therefore, that does not necessarily mean
17 that they told him they would not participate until there
18 was an answer to the liability question.

19 JUDGE SMITH: Are you depending upon the affi-
20 davit for this point?

21 MR. SAVAGE: No, I am not. That was probably
22 unclear.

23 JUDGE SMITH: Are you going to bring this man
24 in here as a witness?

25 MR. SAVAGE: Yes, I am.

1 JUDGE SMITH: Is he really going to tell us that?

2 MR. SAVAGE: I believe that he is, Your Honor.

3 JUDGE SMITH: That Mt. Morris Schoolboard would
4 not participate in an emergency plan until they are assured
5 of liability? I would like to see him --

6 MR. SAVAGE: I cannot speak for him and do not
7 purport to speak for him, but I believe that that is what
8 he will say.

9 JUDGE SMITH: Okay.

10 MR. SAVAGE: If the Board will excuse me for
11 just a second.

12 (Pause.)

13 MR. SAVAGE: I apologize for the delay here, but
14 I need just a second to look at these affidavits.

15 (Pause.)

16 BY MR. SAVAGE (Resuming):

17 Q Would you turn to page 8 of Mr. Maloney's
18 affidavit?

19 MR. BIELAWSKI: Excuse me, Your Honor. Mr.
20 Smith is looking at me; I think he wants a document or
21 something.

22 WITNESS SMITH: What I want to know is if this
23 is the most current document.

24 MR. SAVAGE: It is the most current document.
25 With respect to this answer, it is the most current document.

1 Other portions of the affidavit have been stricken by agree-
2 ment between the parties.

3 MR. BIELAWSKI: Does Mr. Smith's copy reflect
4 that?

5 MR. SAVAGE: No, but it has nothing to do with
6 what I'm asking him about. It is not the most current copy
7 in that sense.

8 MR. BIELAWSKI: Okay.

9 BY MR. SAVAGE (Resuming):

10 Q In Mr. Maloney's affidavit please turn to page 7.
11 I would like you to review the first full question and answer
12 on page 7. The question that begins on the bottom of page 7
13 and the answer to it stated on page 8.

14 A (Witness Smith) What is the first question you
15 want me to review?

16 Q The first question on page 7 and the answer to
17 it. And the question stated on the bottom of page 7 and the
18 answer stated on page 8.

19 MR. BIELAWSKI: Excuse me, Mr. Savage --

20 MR. SAVAGE: A clarification for the Board. I
21 believe that these witnesses will testify that they won't
22 participate in the planning. I do not wish to imply that they
23 will come in here and say they would not evacuate their
24 schoolchildren in case one was ordered.

25 BY MR. SAVAGE (Resuming):

1 Q The first question on page 7 asks Mr. Maloney
2 about his concerns about liability of the school district
3 and its employees for damages caused or injuries sustained
4 during the evacuation -- the execution responsibilities
5 assigned to him in IPRA Byron Revision O. He states in the
6 answer, does he not, that he is worried about placing himself
7 in legal jeopardy by ordering bus drivers or other staff to
8 assist in an emergency activity? That is correct, isn't it?

9 A (Witness Smith) Yes.

10 Q The question that begins on the bottom of page 7
11 states, "Have you made any attempts to clear up this matter
12 via IESDA officials?" And he states that he has. That is
13 correct, isn't it?

14 A Yes.

15 Q And then he describes the contact that he initiated
16 between the IESDA Region 2 office in Dixon to inquire about
17 the liability question. He does not name the person with whom
18 he spoke. And then he states midway down, the answer, On
19 February 1st he contacted Mr. Paul Sereg, the IESDA coordinator
20 for Region 2 and asked him for a copy of the December 1982
21 IPRA plan. And then inquired about liability and, "informed
22 Mr. Sereg that my district's buses would not be available until
23 these questions were answered."

24 Was that concern communicated to you by Mr. Sereg
25 before you saw these affidavits?

1 A The specific concern about the buses.

2 Q Mr. Maloney's concern.

3 A In general, it was related to me. I do recall
4 Mr. Sereg saying -- I don't recall the details of whether
5 the buses would be available and so forth. He did, on a
6 number of occasions make me aware, and I believe he was
7 talking of Mr. Maloney and maybe Mr. Turner at the same time,
8 that they were interested in this liability question and we
9 needed to get an answer.

10 Q Is it correct that you have not replied to Mr.
11 Maloney?

12 A We have not replied in writing, I know that.
13 I am not sure if -- the subject may have been discussed at
14 one of the meetings last week where he was in attendance.
15 I expect that it might come up tomorrow in their meeting.

16 Q Let me see if I can shortcut a lot of this and
17 just move along. Isn't it true that Messrs. Maloney, Turner
18 and Miller have expressed a similar concern about liability
19 in the case of an evacuation?

20 A Were their concerns similar? Is that your question?

21 Q Yes. Have all expressed a concern to IESDA
22 officials about who is going to be liable in case there is an
23 evacuation that calls for the implementation of the Byron
24 plan?

25 A At least Mr. Turner and Mr. Maloney have. We have

1 gone that far. Yes. We know there is a concern among school
2 superintendents on liability.

3 Q Now, my question to you, how does the "methodical
4 and comprehensive process" that is encompassed by Exhibits
5 C and D guarantee that these questions are going to be
6 answered? Where is the guarantee?

7 A The guarantee that a specific question will be
8 answered?

9 Q A question that at least in Mr. Maloney's
10 affidavit he stated has to be answered before the buses
11 are available, has to be answered before you get reasonable
12 assurance that he will carry out his responsibilities.

13 A Well, the question is going to be answered. Like
14 I say, I am only -- I am not thoroughly familiar with the
15 American Nuclear Insurors -- what the program is. I suspect
16 there may be an answer in there. I will have to speculate
17 a little bit here. But if in tomorrow's meeting the issue
18 is discussed, I think that this is the appropriate time in
19 the planning process to make every attempt to get a firm
20 answer on that, not just for the Byron area but for all of
21 the other areas.

22 And the answer to your question is that it's
23 going to be answered prior to that time at which we will
24 need to use their buses for the purpose of responding to an
25 accident.

1 Q And I take it, too, in time for them to get back
2 to their schoolboards and discuss the issue with them and
3 get back to you about whether they have a clear and adequate
4 answer.

5 A Sure, that is correct.

6 Q How many revisions of Byron are there going to
7 be? Can you estimate that?

8 A I can estimate, yes. I would say that my best
9 judgment on this, based on the planning efforts at other
10 sites would be that prior to exercising a plan, we would go
11 through about four revisions.

12 Q Are these concerns about liability going to be
13 addressed in time for comments from Messrs. Turner, Miller
14 and Maloney to get back to you to be used to revise one
15 revision to the next?

16 A I don't think that has any relationship to it.

17 Q My question certainly assumed that it did, and
18 you certainly can object to that assumption. I was assuming
19 their concerns might be used to revise the plan in a certain
20 way so as to relieve them of that liability or that dis-
21 liability. That is speculation you do not have to agree with.

22 A I think the plan can be developed going in one
23 direction, and try to get the answer -- it could be in a
24 different direction. We don't need that answer to develop
25 a plan. I suppose theoretically, we could develop a plan

1 and then all of a sudden, if they say take us out of it, that
2 is not going to happen.

3 Q If -- and I don't know that this is true; I am
4 posing a hypothetical question to you -- if Mr. Maloney and
5 perhaps Messrs. Miller Turner were to say that they would not
6 participate in the exercise plan for late summer until they
7 got their questions answered, then it would be important,
8 would it not, to answer their questions before the exercise?

9 A I think it is important to answer the questions
10 prior to the exercise. There is no guarantee that they would
11 be involved in the exercise, anyway. Maybe I should explain
12 that. As the scenario is developed, it might not require a
13 response from them. Not that we would leave them out.

14 Q Has anybody or any organization -- strike that.
15 Let me preface the question. With respect to
16 planning that you have been involved in for other EPZs for
17 nuclear power plants in Illinois, or for Byron, has any
18 support organization refused to cooperate either with planning
19 or with the implementation of the plan?

20 A We have had a case where a community refused to
21 participate in an exercise, and I think that exercising is
22 part of the planning process.

23 Q Has the Mt. Morris Fire Protection District
24 refused to cooperate with the plan?

25 A No, they have not refused to cooperate with the

1 plan. When we have met with Mt. Morris officials, they
2 indicated the role that they would play in response.

3 Q I'm sorry, I don't understand. What was the
4 dispute between IESDA and the Mt. Morris Fire Protection?

5 A There was no dispute.

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1 Q One more question on this. If an organization
2 refused to participate in the planning -- in the planning,
3 now, not the implementation of the plan -- and they did so
4 because they wanted concerns about the planning answered,
5 would your response be to drop them from the plan or to try
6 and solve their concerns?

7 A Solve the concerns.

8 Q Would you ever drop them from the plan simply
9 for expressing concerns about the plan?

10 A No.

11 Q I think that is all the questions I have to you
12 about liability.

13 Mr. Ed, do you have anything to add to the dis-
14 cussion?

15 A (Witness Ed) Yes. I have two things to add. You
16 start off addressing communications and then ventured into
17 the subject of liability. I would like to make a general
18 statement. I think it would be of interest to the Board
19 and the parties to this proceeding, regarding the communica-
20 tions, my department, the Department of Nuclear Safety
21 Communications' experience with communications with the
22 local people in the Byron area relative to the communications
23 we have experienced around the four other plants for which
24 we have provided training and liaison with the locals.

25 The Byron area is exceptionally good relative to

1 that with one very glaring exception, and that is, the local
2 officials who have become a party to this proceeding. They
3 are somewhat reluctant, understandably so, reluctant to deal
4 with us simply because they have a view that we may be the
5 "opposition."

6 So, actually, their becoming a party to this
7 proceeding, according to my staff, has somewhat impeded our
8 efforts to actually deal with these people. It is an under-
9 standable problem. I don't think it is an insurmountable
10 problem.

11 I would also like to address a moment, bring out
12 a couple of points in liability. I am not sure how familiar
13 with Mr. Smith is with the Price-Anderson Act, but with our
14 dealings in the department I have become familiar with it.
15 I have not worked with it for several years. I am not
16 recently familiar with it, but I believe -- I'm not a lawyer
17 either -- but in reading the act I believe that certain
18 questions of liability may be covered under the provisions
19 of that act.

20 And I also would like to offer the -- another
21 comment on the liability of local officials, or the fear
22 of liability through participation in the planning and
23 response efforts. I think that table can also be turned
24 around, and could they not be liable for possible advantage
25 to those people under -- placed under their care by their

1 position as a public official through refusal or possible
2 harm to those people with refusal to participate in the
3 planning process.

4 Q Please let me interrupt you. I did not say they
5 were going to --

6 A I'm saying if they don't participate in the planning
7 process, they will not be as prepared to participate in an
8 actual evacuation.

9 Q Let me ask you a few questions about your comments.
10 You said that you believe local officials in the Byron area
11 view you as the "opposition," is that correct?

12 A The opposition -- not all of us officials, just
13 the ones that are party to this.

14 Q The parties to the proceeding view you as the
15 "opposition."

16 A As I said, quote, I'm not quoting them.

17 Q That was my next question. Have they ever referred
18 to you as the opposition?

19 A No.

20 Q Have they used any kind of epithet?

21 A That was a generalization.

22 Q What is it a generalization from?

23 A The adversarial relationship in this hearing.

24 Q Do you have any knowledge of their activities or
25 views about you --

1 A No. I am saying they are some -- it is an
2 adversarial position.

3 Q Do you doubt the sincerity of their concerns?

4 A No, not at all. I am just saying that there is --
5 I would like to bring it to the Board's attention and to the
6 parties' attention that there is this impediment that we
7 have come across. As I said, I don't believe it is insur-
8 mountable. We can solve it. There is that problem that
9 is unique to the Byron planning effort. We have not experi-
10 enced that problem for other sites simply because there was
11 not a Licensing Board proceeding going on at the same time
12 while a planning effort was going on.

13 Q Do you think that is because the concern actually
14 does not exist anywhere else? I will leave that as the
15 question.

16 A Concern for what?

17 Q The concerns about liability, for example. You
18 state there is something unique about the Byron site, and
19 our witnesses and their concerns.

20 A The uniqueness is the simultaneous conduct of this
21 hearing with the conduct of our planning effort. That is the
22 uniqueness.

23 Q Do you think that is because there is no concern,
24 no similar concern in any of the other EPZs on the part
25 of response organizations?

1 A I'm not sure that those two things relate.

2 JUDGE SMITH: His answer is it is not related to
3 his judgment. I think he has stated three times that I can
4 recall that he thinks that the adversarial tenor of these
5 hearings has somehow caused an adversarial relationship to
6 percolate down there. And he is not talking about --

7 WITNESS ED: I was not saying the percolating down
8 to be adversarial at that level. It is an impediment of
9 sorts.

10 JUDGE SMITH: Though there are no local officials
11 who are parties in this proceeding that I am aware of, and
12 that is the only way that I can imagine what you mean by your
13 testimony.

14 WITNESS ED: Local officials -- I believe school
15 superintendents can be characterized as local officials.

16 JUDGE SMITH: We don't have any of those who are
17 parties to the proceeding. I think we have some who are
18 going to be witnesses. Are they going to appear here?

19 MR. SAVAGE: That was a question directed to you
20 yesterday, Your Honor. We will certainly make them avail-
21 able for questions by the Board.

22 JUDGE SMITH: You mean that these people whose
23 affidavits you have cross examined on you do not intend to
24 offer as witnesses?

25 MR. SAVAGE: No, sir. Let me explain. We do

1 intend to offer them as witnesses. The Applicant's counsel
2 had expressed no desire to cross examine them if we could
3 come to some agreement about what was relevant in their
4 testimony and what was not relevant; and I think we have
5 come to that agreement.

6 It has always been the Intervenors' intention to
7 make them available for the Board and to use them as witnesses.

8 JUDGE SMITH: I think I would like to know if,
9 in view of Mr. Ed's remarks, if parties to this proceeding
10 have suggested or urged local officials to forbear for
11 planning. If that has happened, that is a serious matter.
12 We want to know about it.

13 MR. SAVAGE: No, Your Honor.

14 JUDGE SMITH: You are making representations,
15 and I think you should, considering the perception that
16 Mr. Ed has gleaned from the relationship, from the circum-
17 stance.

18 MR. BIELAWSKI: Your Honor, may I make a statement?

19 The Applicant has -- there is a number of sections
20 of the testimony of these officials that we have agreed,
21 the parties have agreed to strike. Other portions are in,
22 and we did not intend to call these people as witnesses or
23 present them in this form really, so that we did not propagate
24 the adversarial concern that Mr. Ed has just raised.

25 JUDGE SMITH: Who is the adversary? There are

1 no school boards in this proceeding, no fire chiefs. There
2 is an intervening group and the League of Women Voters.

3 MR. BIELAWSKI: That's right. But their witnesses
4 which I think it is clear from their affidavits, are, you
5 know, they are taking for the purposes of this proceeding an
6 adversarial stance.

7 JUDGE SMITH: I am concerned about the integrity
8 of the hearing process. If parties to this proceeding have
9 interfered with emergency planning to further their litigative
10 posture, I would be very much concerned about that.

11 MR. BIELAWSKI: I think the Board has every right
12 to question these people, to talk to them, and to demand
13 their presence here.

14 JUDGE SMITH: I think if Mr. Ed has perceived,
15 either correctly or incorrectly, that the adversarial nature
16 of this hearing has interfered with planning, that is some-
17 thing I think the Commissioners would like to know and this
18 Board would like to know.

19 MR. BIELAWSKI: I think you have every right to
20 pursue that, Your Honor.

21 MR. SAVAGE: I hope the record is clear. I want
22 to be emphatic about this. I do not want to be rude.

23 Intervenors have never counseled, suggested
24 or tried to get any of its witnesses or local response support
25 organizations or any representative of them to not cooperate

1 with state planners. Our goal is simply to get a better
2 plan, and this is some factual evidence that we have come
3 up with, and we want to present it before you.

4 We are not engaging in any form of civil disobedi-
5 ence --

6 JUDGE SMITH: I understand that.

7 MR. SAVAGE: All right.

8 JUDGE SMITH: You have not done that.

9 Let me ask you this. Have you gone to Mr. Maloney
10 and said have you ever thought about this liability problem?

11 MR. SAVAGE: I have never spoken with Mr. Maloney.
12 Mr. Holmbeck --

13 JUDGE SMITH: Mr. Holmbeck, have you ever done that?

14 MR. HOLMBECK: Your Honor, Mr. Maloney raised the
15 question of liability last November. This was before I believe
16 he knew there was actually an intervention going on.

17 JUDGE SMITH: So he initiated it, the concern.

18 MR. HOLMBECK: Yes, sir, he did. I have had quite
19 a bit of contact with these people. I think I would have
20 to concur with Mr. Ed in the fact that this is in some ways
21 an unfortunate forum for emergency planning to be raised in.
22 It is a very difficult one.

23 I have to say again, as Mr. Savage has, we are
24 interested in the very best plan possible, and to the extent
25 that people have raised concerns -- yes, I went out and asked

1 people questions, sir. And to the extent that they raise
2 concerns, I have tried to represent that as well as possible.
3 And they will certainly be available to make their own repre-
4 sentations. And I think that many of their concerns are
5 being addressed in the commitments, and I think that is a
6 sign that their concerns were legitimate and that they will
7 be addressed, and hence, we might have a better plan.

8 JUDGE SMITH: I recognize that in any hearing
9 where due process is required, there has to be confrontation
10 and usually cross examination, and it creates somewhat the
11 tone of an adversarial relationship. However, I hope that
12 the cognizant local officials will have an opportunity. If
13 they had to use this hearing process, that is unfortunate,
14 but if they have to use it to understand that, we simply
15 will go very, very far to keep the hearing process from
16 interfering with emergency planning. I cannot imagine that
17 this would arise this way.

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1 WITNESS SMITH: May I make a comment?

2 JUDGE SMITH: Yes, please.

3 WITNESS SMITH: I think one of the problems
4 that we faced in our planning process was just the mere fact
5 that the hearings were taking place at the same time. There
6 was coverage in the media about the hearings. There were
7 statements about the emergency planning and local officials
8 that had not been contacted. Mr. Holmbeck was talking with
9 local officials, and in our planning process, as I said
10 earlier, it is deliberate.

11 I am sure there were cases where possibly Mr.
12 Holmbeck talked with the local official that had not been
13 contacted by us but we had not intended to talk to him at
14 that time. Our planning process is deliberate. Specific
15 examples are school superintendents. Those are one of the
16 last groups we talk to to incorporate their operation in the
17 plan, and because these contacts were made, we had to divert
18 from our planning process to put out fires, so to speak. And
19 that was a problem we encountered.

20 It is not something that is unsurmountable; it
21 is just that it took away from our normal procedure of
22 developing a plan. And I think there were some misunder-
23 standings out in the local area because we had not made
24 contact, when it was our intention all along to contact these
25 people at the specific time that they should be contacted.

1 JUDGE SMITH: Getting back to the liability
2 problem, do either of your departments plan to seek an
3 Illinois attorney general's opinion on the problem?

4 WITNESS SMITH: We have not.

5 WITNESS ED: No, not to my knowledge. Our
6 department has not either.

7 JUDGE SMITH: Do you have your own legal
8 resources within your departments to advise the local people
9 on the liability problem?

10 WITNESS SMITH: We have not.

11 WITNESS ED: We have departmental counsel, but
12 this problem has not been raised beforehand.

13 JUDGE SMITH: As I understand, there may be a
14 combination of three or four answers. One is the American
15 Nuclear Insurors, and then you have an Illinois statute
16 which provides immunity for people engaged in emergency
17 services -- and you made a reference to Price-Anderson --
18 and then, of course, another answer may be that you have no
19 remedy. Are you prepared to work with any of those
20 eventualities?

21 When I say you have no remedy, I'm saying you
22 may advise a local official that liability is your concern.
23 That was one of the alternatives.

24 WITNESS SMITH: My answer would be yes to that,
25 and we have made that statement to local officials in other

1 programs, other than the nuclear power plant emergency
2 preparedness program concerning liability at the local level.

3 MR. BIELAWSKI: Your Honor, two points. One
4 point that Mr. Holmbeck made earlier, Commonwealth Edison
5 entered into these commitments because the concerns were
6 raised in the affidavits and they were legitimate concerns.
7 I think that is an inappropriate statement. This was essen-
8 tially a settlement, and it does not necessarily reflect the
9 fact that we thought these concerns were legitimate or not.

10 What it reflected in large measure was the fact
11 that we thought the emergency planning process could be much
12 better dealt with by not having it raised in this forum at
13 great length, so that these people could do their job and
14 deal with the local officials.

15 The second point is that the company is also
16 presuming a liability question, and I think between us we
17 will certainly be able to come up with an answer.

18 JUDGE SMITH: Before we leave this point, I want
19 to invite the parties to recommend to the Board if there is
20 a problem created by the fact of the hearing, to allow us to
21 assist in removing the presence of the hearing as a compli-
22 cating factor. Let's proceed.

23 BY MR. SAVAGE (Resuming):

24 Q I have a few questions on the volunteer issue
25 which I believe is Intervenors' amended consolidated --

1 JUDGE SMITH: If you are changing the subject
2 matter, let's take our mid-morning break of 10 minutes, please.

3 (A short recess was taken.)

4 JUDGE SMITH: We are ready to proceed. Before
5 we resume the examination of this panel, I would like to
6 report a conversation I had with Mr. Savage and Mr. Holmbeck
7 during the break.

8 They expressed their concern that because of the
9 tenor of my voice and apparent expression, I was not convinced
10 that Mr. Holmbeck had not suggested to local officials that
11 they take a position inconsistent with emergency planning
12 as an aid to their litigation. And I stated that I don't
13 believe that to be the case. Furthermore, it would be a
14 totally inconsistent thing for either gentleman to do,
15 given our own observation that they have devoted a lot of
16 effort and time and everything else to improving the
17 emergency planning, and that would hardly interfere with
18 good emergency planning. And this is my belief, this is the
19 Board's belief.

20 Would you proceed.

21 MR. SAVAGE: Your Honor, the questions about
22 liability are done. I was going to ask some questions about
23 volunteers, also, but in the limited amount of time we want
24 to get through a lot of witnesses. Mr. Holmbeck is going
25 to ask some questions and he will identify the issues.

1 MR. HOLMBECK: I would like to start with some
2 questions about the use of ambulance services in the
3 emergency planning.

4 BY MR. HOLMBECK:

5 Q I believe both of you addressed at different
6 points in your testimony the use of ambulance services.
7 Mr. Ed, at page 6 the answer to question 8, and, Mr. Smith
8 in his answer to question 6 -- I would like to refer to
9 Mr. Ed's testimony first. The sixth line down in answer
10 8 reads as follows, "The second, Except for certain mutual
11 aid agencies located outside the EPZ, the DNS has contacted
12 local officials and groups identified as emergency workers
13 and determined their requirements for dosimetry equipment
14 and training."

15 That sentence was changed somewhat yesterday.
16 Have I read it correct?

17 A (Witness Ed) Yes, I believe so.

18 Q What mutual aid agencies located outside the
19 EPZ are you referring to here?

20 A Specifically, those in the Rockford area. The
21 City of Rockford and, I believe, Rochelle. The reason --
22 we are not excluding them from the planning process; just
23 in the order that we take things we have not gotten around
24 to them yet.

25 Q Would you add any to those, Mr. Smith?

1 A (Witness Smith) Any specific --

2 Q Ambulance services.

3 A Ambulance services? I think what we are doing
4 right now, when we talk about mutual aid agencies we are
5 looking at obviously the ones that are closest in to the
6 emergency planning zone that might provide assistance. I
7 would say it would be the city of Rochelle. And those counties
8 within Winnebago County we may, after assessing the need,
9 have to include others possibly in the Lee County area.

10 A (Witness Ed) I did not mean in my answer to
11 limit the mutual aid to just that in Rockford and Rochelle.
12 Those were just the two that came to mind.

13 Q Are there any additional ambulance services
14 besides those two who have been included up to this time in
15 the planning?

16 A (Witness Ed) Only the ambulance services that
17 reside within the EPZ -- I don't have the listing of those.

18 Q There are not anymore outside the EPZ; is that
19 right?

20 A There aren't anymore outside --

21 Q That are already integrated into the plan.

22 A Outside the EPZ, we have yet to contact those.
23 The ones inside the EPZ, whether or not they are mutual aid,
24 by definition they are also primary responders simply because
25 they are inside the EPZ.

1 Q Why have you felt the need to coordinate ambulance
2 resources from outside the EPZ?

3 A Who are you asking?

4 Q I'm sorry. Mr. Ed.

5 A Well, these mutual aid agreements between the
6 ambulance services existed prior to our coming into the
7 Byron area and initiating planning. For whatever reason,
8 these mutual aid agreements were put into place. It would
9 be the same reason or same reasons that we would want to
10 contact the people who are party to these mutual aid agree-
11 ments and provide them the same training that we provide
12 the ambulance services within the EPZ.

13 Q Okay, but aren't there a number of other mutual
14 aid agreements between ambulance services with other ambu-
15 lance services outside the EPZ besides Rockford and Rochelle?

16 A Yes, that is correct. As I stated earlier, I
17 did not mean to limit the DNS involvement to the services
18 in those two towns. Those were just the two that came to mind.

19 Q Why up until this point have you chosen that
20 particular number outside the EPZ?

21 A What particular number?

22 Q Two as opposed to bringing in --

23 A I believe you misunderstood my answer. We
24 haven't -- those are two that happened to come to mind. I
25 guess I should have phrased the answer including but not

1 limited to those in Rochelle and Rockford.

2 Q Would there be an upper bound to the number of
3 ambulance services which might be needed in the event of an
4 emergency?

5 A I would venture to guess yes, although I am not
6 an expert in ambulance logistics.

7 Q Would you care to estimate what that upper bound
8 might be?

9 A I have no idea.

10 Q Mr. Smith, would you?

11 A (Witness Smith) Care to -- ?

12 Q Make some estimate of what the demand for
13 emergency medical services might be.

14 A I cannot come up with a specific number. I think
15 by including or having mutual aid arrangements with those
16 ambulance services or fire protection districts that might
17 have an ambulance service that are adjacent to those
18 services that have a primary responsibility, I think those
19 would have sufficient ambulances to respond to an emergency.
20 As far as a number, I really cannot tell you.

21 Q So are we talking about some kind of a range of
22 possible numbers of vehicles here?

23 MR. GOLDBERG: Objection. Could we have some
24 exp. nation here? Are we talking about radiation victims?
25 Are we talking about contaminated, injured? In what context

1 are we talking of medical response here? I think the
2 witnesses are entitled to know, and I think for the benefit
3 of the record and in the context of the regulation which we
4 discussed as interpreted by the San Onofre decision yester-
5 day, I think it would be beneficial to put this line of
6 examination into some context.

7 MR. HOLMBECK: I think that is very appropriate.

8 BY MR. HOLMBECK (Resuming):

9 Q Will these mutual aid ambulance services be
10 transporting injured and contaminated individuals?

11 A (Witness Smith) If they are needed to do that.

12 Q Will they be transporting contaminated individuals?

13 A If they are needed to do that.

14 JUDGE SMITH: Why would an ambulance be needed
15 to transport a contaminated individual -- contaminated,
16 uninjured individual? I will have to ask both the questioner
17 and the answerer as to why that set of affairs would come
18 about.

19 WITNESS SMITH: My answer would be that they
20 would not be necessary to have an ambulance transport a person
21 that is only contaminated unless that person possibly was
22 an invalid that would have to be transported in an ambulance
23 anyway. But to transport just a contaminated person, you
24 can do that in any type of vehicle. As a matter of fact, they
25 could probably drive themselves.

1 MR. HOLMBECK: I had envisioned one other
2 possibility being that a contaminated individual transporting
3 oneself, a seriously contaminated individual, could potentially
4 spread contamination unknowingly, and if taken to a decon-
5 tamination facility by a trained individual who could avoid
6 the spread of contamination it would, I think, be a more
7 advantageous situation.

8 WITNESS ED: I would like to concur with that
9 statement.

10 JUDGE SMITH: Mr. Copeland?

11 MR. COPELAND: Mr. Holmbeck will have his chance
12 to testify at a later date.

13 MR. HOLMBECK: I believe --

14 JUDGE SMITH: I did ask for him to explain what
15 the point of this question was. I will take the blame
16 for that.

17 MR. COPELAND: All right.

18 WITNESS ED: I would like to state that what
19 Mr. Holmbeck says is true. If a person is contaminated, it
20 is best to have some individual familiar with radiation and
21 decontamination procedures with that individual. It does
22 not necessarily have to a trained, medical personnel.

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BY MR. HOLMBECK:

Q I have a number of questions that I think will be largely addressed to Mr. Ed relating to decontamination facilities. If you could turn to your answer to Question 10.

You have referred to decontamination facilities. You anticipate the identification of some facilities around the Byron plant. Have any been identified so far?

A (Witness Ed) I defer that question to Mr. Smith. I believe those are the preliminary identifiers.

A (Witness Smith) We have identified facilities that could be used as a shelter. Most of those lie about 20 miles away from the plant. Most of those are public school buildings. As they provide space, they have restroom facilities, they have cooking facilities; they lend themselves to providing a good shelter area.

We also include the function of decontamination in some of those areas. Not all of them would be good decontamination areas, but schools do provide showers. That could be carried on.

We surveyed I cannot tell you how many schools, but schools in Winnebago County, Carroll County, Lee County, DeKalb County. I believe we surveyed some in Boone County. We're in the process now of identifying which of those facilities would -- we would want to use as a primary shelter site. We are working with the American Red Cross in doing

1 this, as they are the ones that manage shelters, if we would
2 open one. The Red Cross will work with us to tell us if
3 the shelter that we have identified as a primary shelter, if
4 they have agreement with that school district to use that as
5 a shelter. If not, then they will take steps to get an agree-
6 ment. So that is the point we are at right now in the shelter
7 portion of the plan.

8 To sum it up, we have identified the surveyed
9 schools. We are in the process of making a selection of those
10 which we feel would be the primary shelter sites. We will be
11 working with the Department of Nuclear Safety to identify
12 which facilities would also provide the decontamination.

13 Q At this point, decontamination will take place
14 at sheltering facilities, namely public schools approximately
15 20 miles from the plant?

16 A (Witness Ed) That is a generic summary of how
17 we planned at other sites, yes.

18 Q Will you be monitoring everyone who arrives at
19 these shelters?

20 A Yes. Unless there is good reason to believe that
21 there is -- no reason to believe that they are contaminated.
22 If we in any way suspect contamination, yes, they will be
23 monitored. That is the first step as you enter the shelter.

24 Q Does everyone go to these relocation sites?

25 A During an evacuation?

1 Q Yes, sir.

2 A I believe everyone goes as they would be in-
3 structed, probably through the media and the EDS and so
4 forth. I'm sure part of the message would be if you are
5 leaving the downwind sector, which would be identified in
6 some means -- some means where the people leaving the area
7 would know that they are in that area. They would be in-
8 structed before relocating to some location other than the
9 shelter to go by there first to check for contamination.

10 Q So you anticipate a close to 100 percent response
11 to those suggestions?

12 A I would say most rational people who are being
13 moved from an area where public officials were telling them
14 they were possibly contaminated would go by a facility to
15 check if they indeed were.

16 Q Do you have a copy of Volume 6 before you?

17 A (Witness Smith) No.

18 Q Let me ask you a question, and perhaps you won't
19 have to refer to it. Based on your familiarity with this
20 document -- and I think I can assume your familiarity with
21 it -- is it your understanding that the Red Cross will be
22 assisting in the decontamination of evacuees?

23 A No.

24 Q I would refer you to agency responsibility matrix.
25 Any one of them. I happen to be looking at the one for Ogle

1 County.

2 MR. BIELAWSKI: Can you give us a page, Mr. Holmbeck?

3 MR. HOLMBECK: Yes, I'm sorry. Chapter 2, page
4 93.

5 BY MR. HOLMBECK:

6 Q The responsibilities listed there for the American
7 Red Cross are primary agency for field operations under
8 social services, recordkeeping and decontamination of
9 evacuees. Could you explain what their role in decontamination
10 will be?

11 A (Witness Ed) Certainly, they will not be involved
12 in the direct physical act of decontaminating people, but
13 if you look at the procedures attached to my testimony, you
14 will know that there is some paperwork that accompanies con-
15 taminated individuals or potentially contaminated individuals
16 for purposes of later documentation and so forth. And the
17 Red Cross people are actually at these facilities. They
18 run the facilities as Mr. Smith indicated, and they are
19 dealing with the -- with a contaminated person. That would
20 be -- it would be the recordkeeping that person, possibly
21 before and during contamination. But their actual physical
22 contact with that person would be the care, feeding and
23 sheltering of that person after decontamination.

24 Q What are the necessary facilities for decontamina-
25 tion, in your mind, for decontamination of evacuees from the

1 general populace?

2 A It may be best summarized by looking at the table,
3 the attachments to my testimony. I refer to -- it is in a
4 documented identified as 4-SOP-9, page 5 of six pages of
5 that document. Essentially, it is a personnel decontamination
6 guide. I believe the reference for that appears several pages
7 prior in the same procedure.

8 One of the references, the Los Alamos reference,
9 I believe, is documentation for it.

10 Essentially, in answer to your question, any
11 facility which allows the activity -- I guess it is technique
12 as modified by the comments and the methods there -- any
13 facility that allows these activities or techniques would
14 be appropriate for decontamination.

15 Q Would it be necessary -- there is quite a bit
16 of washing going on here. Would it be necessary to contain
17 the water used here?

18 A Usually not. It depends on the amount of radio-
19 activity that would be in that water. Essentially, it would
20 go into the sanitary sewer system of the sanitary district
21 serving that facility, and could be intercepted. We could
22 actually set up sampling points as water comes into the
23 treatment facility, the sanitary sewage treatment facility
24 serving that facility -- test to see if indeed the dilution
25 that has occurred and so forth from other facilities served

1 by that sanitary district would render the concentration of
2 any radioactivity to acceptable levels before discharge to
3 uncontrolled areas.

4 Q I understand that dilution is very important here,
5 but wouldn't it be better to monitor it before it goes down
6 the drain?

7 A In essence, it is. It is monitored on the person
8 before it is washed off.

9 Q And there is some total made? I understand there
10 is between 1,000 and 2,000 evacuees at some of the host
11 facilities.

12 A That is correct. We do not anticipate that many
13 will be contaminated. Yes, there would be some summing of
14 the total activity washed from those people.

15 Q Would you turn to Figure 1 attached to your
16 affidavit? It is right near the end here.

17 A I'm sorry. I haven't found it yet.

18 Q I'm sorry.

19 A Is it Figure 1?

20 MR. COPELAND: This figure was withdrawn from
21 Mr. Ed's testimony.

22 MR. HOLMBECK: I don't believe that is the
23 case. I believe I requested that it remain when some with-
24 drawing was going on, and the Board agreed that it should
25 remain at that time.

1 MR. COPELAND: That is not my understanding of the
2 case. It was merely that they did not throw it away. How-
3 ever, where it is no longer relevant to any contention that
4 is now being litigated. Also, I would add that it was removed
5 from the copies that were submitted to the court reporter.

6 MR. SAVAGE: It does not matter if it was removed
7 as an exhibit if it is relevant to some issue that is being
8 litigated. You can ask him about it.

9 JUDGE SMITH: Wait a minute. Let me catch up.
10 What page is the citation?

11 MR. BIELAWSKI: Our problem, Mr. Savage, it is not
12 so much that you cannot examine based on the DNS document
13 if you establish a proper foundation that it is a DNS docu-
14 ment, number one. We do not have a copy, and we would like
15 to see a copy before you examine --

16 JUDGE SMITH: Do you agree that it is not in
17 evidence; it was not included in the testimony?

18 MR. COPELAND: That is our understanding.

19 JUDGE SMITH: Do you agree with that? I'm trying
20 to find it, and I am trying to listen to what is going on
21 in the meantime. Do I have to find it? Is it in or is it
22 out? You don't know. All right. I will find it.

23 MR. HOLMBECK: It is my understanding it was to
24 remain attached to Mr. Ed's testimony. I made that request,
25 and I believe the Board granted it.

1 MR. COPELAND: It was my understanding that all
2 the Board did was not throw it out, and I hung on to it so
3 that they would have it in this eventuality.

4 MR. BIELAWSKI: Let's shortcut this. If you
5 provide us with copies and the Board with copies, and if you
6 want to conduct questioning on that document.

7 JUDGE SMITH: Whatever, it is not in, it is
8 physically not in the testimony. The last page of the testi-
9 mony is the second page of Table 1 -- I mean the --

10 MR. HOLMBECK: I think I can ask questions which --
11 a little differently so that we can avoid the use of the
12 table.

13 JUDGE SMITH: Use it if you want to use it for
14 cross examination.

15 BY MR. HOLMBECK:

16 Q Mr. Ed, do you have a copy of this before you?

17 A (Witness Ed) No, I don't. It is not attached
18 to my testimony as I entered it.

19 Q I will wing it from here.

20 A I now have a copy of it.

21 Q Do you recognize that as a Department of Nuclear
22 Safety document?

23 A I would not call it an official document. It is
24 a diagram that we came up with.

25 Q There are two relocation decontamination centers

1 pictured on the lower right-hand corner.

2 A Yes.

3 MR. BIELAWSKI: Excuse me, Your Honor. We gave
4 Mr. Ed our only copy. It think it is incumbent upon counsel
5 to provide us with a copy so we can follow the examination.

6 WITNESS ED: I believe the Board does not have
7 copies either.

8 JUDGE SMITH: Yes, we have copies. I will share.

9 BY MR. HOLMBECK:

10 Q Mr. Ed, are those relocation decontamination centers
11 for evacuees?

12 A (Witness Ed) Yes.

13 Q They are pictured in the opposite direction from
14 extension of the plume exposure pathway.

15 A That is purely coincidental.

16 Q So people evacuated from that plume exposure path-
17 way would not be relocated approximately 20 miles in the
18 opposite direction?

19 A No. I should maybe explain. The original purpose
20 of this figure as it is titled is to depict employment of
21 vehicles. These decontamination -- relocation decontamination
22 centers on here simply are placed on here, not to scale,
23 with no rationale to direction in mind. It is simply to
24 show that at each -- we must commit a vehicle and personnel
25 to each one of these facilities. That is the purpose.

1 The geographical depiction is not intended to
2 represent what could actually occur in a real accident.

3 Q Approximately how long would it take an evacuee
4 to arrive at their decontamination site? Can we make an
5 approximation of that?

6 A I believe that was the subject of considerable
7 debate in previous testimony. We can probably come up with --
8 if you give me a set of circumstances, we can probably come
9 up with some kind of a ballpark estimate.

10 Q Let's accept for the moment the evacuation time
11 estimate study's estimate of somewhere between three and
12 four hours.

13 A Then you are assuming conditions comparable to
14 those assumed by the study.

15 Q Yes.

16 A Okay. It would take more time to arrive at the
17 actual facilities. Let's say somewhere around four hours.
18 I am not committing that that is how long it would take, but
19 for sake of argument, yes, that's fine.

20 Q How long would it take after that to monitor
21 an evacuee and perform that -- the minor decontamination that
22 might be necessary?

23 A Monitoring -- the length of time it takes to
24 monitor a person depends on the degree of contamination present
25 on a person. If they are grossly contaminated, it does not

1 take but a few seconds to determine that. If they are very
2 minorly contaminated, you have to essentially monitor
3 somebody -- the monitoring process could take upwards of
4 several minutes.

5 The decontamination is simply how long it takes
6 to effect those actions depicted in that table that I
7 referred to earlier.

8 Q I understand that after a decontamination is
9 completed, a thyroid examination is to be performed.

10 A If it is suspected -- if contamination on the
11 neck area is found. In other words, if in surveying the
12 person to determine contamination a reading is encountered
13 in the neck region, a survey is conducted to determine
14 whether -- conducted after decontamination -- to determine
15 whether the reading was from the externally-deposited contamin-
16 ation or it could possibly be from internally-concentrated
17 radioiodine in the thyroid.

18 Q Is a delay as long as four hours significant as
19 far as getting an accurate determination of the thyroid
20 dose?

21 A It may or may not be. It depends on many, many
22 factors and the isotopes causing the dose.

23 Q If a thyroid in excess of five rems is suspected,
24 I understand that potassium iodide is to be administered.

25 A That is correct.

1 Q Does a delay of approximately, or just about, four
2 hours reduce the effectiveness of potassium iodide as a
3 radioactive-protective drug?

4 A Yes, any delay. The effectiveness of potassium
5 iodide in blocking the thyroid to be as effective as possible,
6 should be administered before --

7 Q How effective will it be after approximately four
8 hours?

9 A I don't have those figures here. There are
10 figures in tables, as a matter of fact, in IPRA that determine
11 that. Without my refreshing my memory from those tables,
12 I am not able to answer that.

13 There would be some effects, some beneficial
14 effects.

15 Q Do you happen to recall if it was less than 50
16 percent?

17 JUDGE SMITH: Do we have all of the information
18 we need to answer the question? Four hours after what?

19 MR. HOLMBECK: Four hours after beginning to
20 proceed out of the emergency planning zone.

21 JUDGE SMITH: Proceeding out of the emergency
22 planning zone does not cause thyroid uptake -- iodine uptake.

23 MR. HOLMBECK: That depends on what kind of an
24 atmosphere you're going through, Your Honor.

25 JUDGE SMITH: That's the problem. I don't know

1 how this witness can answer the question.

2 MR. HOLMBECK: I'm only requiring as to procedures
3 and the timing of those procedures.

4 JUDGE SMITH: If he can answer, fine.

5 WITNESS ED: I think I indicated that without
6 additional information, I cannot answer that.

7 JUDGE COLE: You mean four hours after the
8 dose was received.

9 WITNESS ED: The information is available; I just
10 do not have it readily at my fingertips.

11 MR. COPELAND: Your Honor, I would like to clear
12 up one concern here. Mr. Holmbeck says he is only inquiring
13 about procedures and the timing of procedures. I believe the
14 timing of procedures is an assumption that he has made for
15 his hypothetical here. It is not, in effect, in evidence.

16 MR. HOLMBECK: I believe I did assume the times
17 offered in the evacuation time estimates.

18 I would like to look at some of the standard
19 operating procedures which are attached as Attachments 2
20 through 5 -- 3 through 5.

21 BY MR. HOLMBECK (Resuming):

22 Q Please turn to page 2 of the first SOPs, or
23 SOP-8 entitled, "Monitoring of Evacuees for Contamination
24 and Thyroid Uptake." Attachment --

25 JUDGE COLE: You say it is Attachment 2.

1 MR. HOLMBECK: Attachment 3. It is an attachment
2 to the testimony.

3 BY MR. HOLMBECK (Resuming):

4 Q Under letter A of that attachment procedures
5 provide instructions for the monitoring of evacuees to
6 determine if surface contamination has occurred, or if the
7 thyroid is suspected to be contaminated. Is that correct?

8 A (Witness Ed) Generally speaking, that is a fair
9 paraphrase of this.

10 Q At the risk of -- would you turn to the -- two
11 pages before that Attachment 2 is the proposed general descrip-
12 tion of decontamination for Byron Volume of IPRA. Is that
13 correct?

14 A That is the version that appears in Revision 0
15 of that document, yes.

16 Q Will you look to the last sentence on the first
17 paragraph there. It starts, "If personnel cannot be decon-
18 taminated to acceptable levels due to the inhalation or
19 ingestion of radioactive material, they will be directed to
20 the nearest medical facility capable of providing further
21 decontamination treatment." Is that correct?

22 A That is correct. That is the way it reads.

23 Q Where in 4-SOP-8, which is the procedures for
24 the monitoring of evacuees for contamination and thyroid
25 uptake, where do we find the procedures for detecting internal

1 contamination?

2 A The procedure -- the purpose of the procedure is
3 not to detect internal contamination except for the thyroid.

4 Q Okay, then. I believe only those with some
5 internal contamination, be it from inhalation or ingestion
6 of radioactive material, are to be referred to the nearest
7 medical facility capable of providing care. I am wondering
8 how --

9 A The procedure does not say that. The procedure
10 does not limit referral to medical facilities to just those
11 people. I believe if you look at the note in the procedure --

12 Q But that is according to the proposed general
13 description for decontamination. That is --

14 A That is one occurrence that may cause people to
15 be referred. It is not the only occurrence.

16 Q How is it to be determined whether internal
17 contamination has taken place?

18 A As I said, the purpose of Attachment 3, I believe,
19 is not to determine that. It may, in utilizing this
20 procedure -- internal contamination may be detected. This
21 is internal contamination other than thyroid I am referring
22 to now. The procedure is intended to detect internal
23 contamination of the thyroid.

24 Q Would there be some means at these decontamination
25 centers for the detection of internal contamination other than

1 the thyroid?

2 A Internal contamination to what levels?

3 Q Contamination to the lung, for example, of --

4 MR. COPELAND: I believe he asked for levels of
5 contamination, not where the contamination occurred.

6 BY MR. HOLMBECK (Resuming):

7 Q -- five rems.

8 A (Witness Ed) First of all, you do not measure
9 contamination in units of rems.

10 Q Excuse me. Exposure resulting from external
11 contamination to the lungs.

12 A What we would be measuring if there were contamin-
13 ation in the lungs that would deliver a dose of five rems,
14 the procedure here would detect that level of contamination.

15 Q Are there lower levels of contamination to the
16 lungs, for example, which would not be detected by the
17 procedures at the decontamination centers for evacuees?

18 A Yes. Every monitoring or measurement of radio-
19 activity has some lower limit of detection. So yes, there is
20 some limit below which this method would not detect external
21 or internal contamination.

22 Q What is the level of exposure to -- let's say
23 within the lungs, which is considered dangerous?

24 A I would have to look it up in the appendix to --
25 you gentlemen from NRC have the lung dose. What was your

1 question, Mr. Holmbeck?

2 Q What I am asking is what level of exposure to
3 the lungs is considered dangerous, in the hopes of comparing
4 that level of exposure to the capability -- the monitoring
5 capabilities at these facilities.

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1 A (Witness Ed) I can answer that without referring
2 to the regulatory guide.

3 If levels of contamination posing health threats
4 were present, this method of monitoring would -- let me
5 rephrase that. Levels of contamination from most credible
6 accidents, if they were present in a person's lungs in the
7 amount that would deliver doses causing adverse health effects,
8 this method of monitoring would detect those, that radiation
9 from those isotopes.

10 Q In most cases was it?

11 A Yes. There are certain isotopes that can be
12 deposited in the lung that would not be detected by this
13 method, but those isotopes are not postulated to be present
14 in the consequences of an accident.

15 Q I would like to turn to Attachment 4 which
16 is standard operating procedures for the radiological de-
17 contamination of personnel. Let me ask you first what
18 personnel, the plant or emergency personnel, or both?

19 A This procedure can be used for the decontamination
20 of any person.

21 Q Of any person. All right. I would like you --

22 JUDGE SMITH: Excuse me. You are too close.

23 (Judge speaking to photographer.)

24 BY MR. HOLMBECK:

25 Q I would like to refer you to number 6 under letter

1 F entitled "Procedure." Number 6 reads as follows -- let
2 me preface this with number 5, referring to three conditions
3 which would warrant transportation of a contaminated indi-
4 vidual to a medical facility.

5 Number 6 states that: "Arrange for referral to
6 a medical facility through the emergency medical services
7 coordinator of the Illinois Department of Public Health."
8 Who is this person with respect to the Byron plant?

9 A (Witness Ed) This person can be one of several
10 people who are employed by the Department of Public Health,
11 who would be assigned as the -- their representative fulfill-
12 ing the function of emergency medical services coordinator
13 during the state's response to a nuclear accident. So I
14 cannot really put a name to it, but it would be as part of
15 the state's response to a nuclear accident. As specified by
16 IPRA, the Department of Public Health will appoint an
17 emergency medical services coordinator to assist us in
18 our response to the accident.

19 Q Would this be the emergency medical services
20 coordinator for our region here in northwest Illinois?

21 A It would probably be somebody from the Public
22 Health Regional Office, which is located in Rockford, if
23 they have people from the Emergency Medical Services Division
24 in that office. I'm not that familiar with their staffing.

25 Q I am looking at a procedure here which detects

1 either internal contamination in personnel or that they --
2 there is some wound which has been contaminated, someone
3 has got to be transported to a hospital. And I would like
4 to know who it is that is supposed to arrange for the
5 transportation of these contaminated persons.

6 A That is really an operational function. Once we
7 determine that transportation is necessary, the logistics
8 of that transportation fall under the operational aspects of --

9 Q If Mr. Smith can answer the question --

10 MR. BIELAWSKI: Excuse me, Your Honor. The ques-
11 tions are vague to some extent. We are not talking -- I don't
12 know what level of exposure we are talking about. I don't
13 know whether they can transport themselves, whether they need
14 an ambulance. I think more specificity has to be brought
15 into the question before these witnesses can provide the
16 types of answers that will be helpful for the record.

17 MR. HOLMBECK: Your Honor, I think I have stated
18 the degree of specificity which is given in the standard
19 operating procedures here. If this is the guidance which
20 is given, then this is the guidance under which I should
21 ask my questions.

22 JUDGE SMITH: Can you answer?

23 WITNESS SMITH: Yes, I believe I can answer that,
24 or at least I can tell you the procedure that we would follow
25 to coordinate the transportation of a person -- you were

1 talking about a person from a shelter or from a relocation
2 center, decontamination center. They are determined to be
3 contaminated either internally or have an injury where they
4 have to be transported to a hospital. Is that where we are
5 right now?

6 BY MR. HOLMBECK:

7 Q Well, we have procedures here for the decontamina-
8 tion of personnel. I don't know that it is pointed out
9 exactly where we are here. Could we be at the plant?

10 A (Witness Smith) Okay. I can speak from any
11 location.

12 (Pause.)

13 Q Mr. Smith is going to address the question of
14 who is responsible for coordinating the transportation of
15 either injured and contaminated, as stated in -- under one
16 of three conditions: acceptable levels of contamination cannot
17 be obtained following the standard procedure; the detectable
18 radiation above background exists near or in a wound; c)
19 inhalation or ingestion of radioactive material in excessive
20 PAGs has occurred.

21 A If it is determined that it is necessary to
22 transport a person to a medical facility that can treat such
23 condition, and it is necessary to do that by ambulance,
24 there are a number of ways that that can be arranged.

25 If it is a person, let's say within the EPZ, it

1 would be coordinated at the local level, and the appropriate
2 ambulance service would respond and take that person to
3 the hospital that they are directed to take him to. That
4 would be just a normal function of that ambulance service
5 or fire protection district, whoever has responsibility for
6 the emergency medical services.

7 If the person is at a shelter/decontamination center
8 and it is determined that they need to be transported to a
9 medical facility, we would consult with the Department of
10 Nuclear Safety, with probably the Illinois Department of
11 Public Health, and to determine -- make the determination of
12 which hospital they would want us to take that person to.
13 Once we know where we are going to take them, we can either
14 use local ambulance service in that area, or we can call
15 upon the regional emergency medical services coordinator
16 for the region to see if he has a preference on which ambulance
17 he would like us to use. So we can go a number of ways.
18 But --

19 A (Witness Ed) Looking at the conditions in a),
20 b) and c), item b), if the wound was serious, would require
21 transportation by ambulance.

22 Q So only ambulance referrals would go through
23 the emergency medical services coordinator?

24 A I don't believe item 6 there, which mentions the
25 emergency medical service coordinator, says anything about

1 transportation. It is to identify the facility to which
2 the person is to be referred.

3 Q Mr. Smith, do you happen to know who this emergency
4 medical services coordinator is?

5 A (Witness Smith) For this area I believe it is Mr.
6 Roy Leslie.

7 Q Is he aware of his role in this plan?

8 A His role in this plan is no different than his
9 job as emergency services regional coordinator. I'm not
10 sure of his proper title. But his function is to coordinate,
11 to be the trauma coordinator for this region.

12 Q Is he aware of that?

13 A Is he aware of his job?

14 Q Is he aware of the fact that he will also be
15 coordinating an ambulance or referral response for the Byron
16 nuclear power plant?

17 A That is his job, no matter what the emergency is.

18 Q Have you had any contact with him whatsoever
19 regarding --

20 A I personally have not.

21 Q Has anyone?

22 A I would have to check with the planning staff to
23 see if they have met with him.

24 Q Do you plan to meet with him at some time?

25 A Yes, we will. We meet with -- not only do we

1 meet with local officials in developing this plan, but state
2 agencies have a response, a responsibility in this area. We
3 work with the various state agencies in Springfield to coordi-
4 nate the response. We also work with the various state
5 agency regional offices in this area, and the regional
6 emergency services coordinator is an employee of the Illinois
7 Department of Public Health.

end 10

beg 11

8 A (Witness Ed) To further answer your question,
9 will this person become aware of his role, it is his day-to-
10 day job to be aware of the functions, duties and facilities
11 available at the trauma centers in his region. As the
12 Rockford Memorial Trauma Center is constructed -- I guess
13 it is under construction now -- to accommodate contaminated
14 patients, in the course of his everyday duties this gentleman
15 will become aware of that fact.

16 Q Mr. Ed, I would like to refer to your answer to
17 Question 11. It is on page 8. You refer in the second
18 paragraph there to a list of hospitals capable of handling
19 contaminated patients. What level and types of exposure and
20 contamination must these facilities be prepared to deal with?

21 A The list you refer to is an all-encompassing list.
22 I guess I can say of all of the facilities on that list at
23 least one or more are capable of dealing with just about any
24 level and any type of contamination or radiation injury.

25 Q How do you determine this information? Do you

1 use surveys?

2 A Yes. The department, as a function not really
3 related to nuclear power regulation, also regulates the use
4 of radioactive materials for medical purposes, such as
5 nuclear medicine radiology, radiopharmaceuticals and so forth.
6 And on file in our department are actually license -- the
7 hospitals are licensed to utilize these materials -- not
8 just hospitals but all facilities are licensed to utilize
9 these materials in the practice of medicine.

10 In the planning process for nuclear power, response
11 to accidents at nuclear power plants, we review this list
12 and find out which hospitals in the area are familiar or
13 have nuclear medicine departments, radiology departments and
14 so forth. And by the very fact that they have those facili-
15 ties or those capabilities, are familiar with radiation and
16 decontamination and so forth.

17 We survey those and contact those hospitals that
18 are on that list that are in addition to the ones contracted
19 by Commonwealth Edison which the specifics were brought out
20 in yesterday's testimony.

21 Q Does the Department of Nuclear Safety do an
22 independent assessment of the hospitals with which Common-
23 wealth Edison has contracts?

24 A Only insofar as our licensing of that hospital
25 for the medical use of radioactive materials.

1 Q So that is some form of accreditation that all
2 hospitals have to have.

3 A No. Just hospitals that have programs utilizing
4 radioactivity, radioactive materials.

5 Q So they have programs utilizing radioactive
6 materials. Does that necessarily mean that they are prepared
7 to handle, say, traumatic injuries complicated by contamina-
8 tion?

9 A If you are referring -- I believe your previous
10 question referred to our review of the hospitals contracted
11 by Edison. We are aware of the content of the training of
12 those hospitals provided by Radiation Management Corporation.
13 And after such training are very comfortable with the fact
14 that the staff at those hospitals can deal with the situation
15 you stated in your question.

16 Q How about equipment for decontamination?

17 MR. BIELAWSKI: Equipment of what?

18 MR. HOLMBECK: For decontamination.

19 MR. BIELAWSKI: I still do not understand the
20 question.

21 MR. HOLMBECK: I'm sorry.

22 BY MR. HOLMBECK:

23 Q Does the Department of Nuclear Safety do an
24 independent assessment of the equipment available at these
25 hospital facilities for the decontamination procedures?

1 A (Witness Ed) The facilities contracted by Edison
2 and trained by RMC are provided whatever equipment necessary
3 to undertake the procedures outlined in the training provided
4 by the contractors.

5 So, as I said before, we have reviewed that
6 training and are very comfortable with the fact that not only
7 will the personnel at the hospitals, the staff of the
8 hospital, be competent in treating such patients, but we
9 are also confident that they will have the equipment appropri-
10 ate to do so.

11 Q You are confident based on the assessment of
12 Commonwealth Edison Company and their consultant?

13 A Yes. The training and equipment provided either
14 by the company and the consultant -- and/or the consultant,
15 I should say.

16 Q I would like to refer back on page 8 to your
17 description of the list of hospitals. You state in the
18 fifth line, the second paragraph, "These hospitals were
19 selected by the Department of Nuclear Safety based on a
20 consideration of the adequacy of their facilities in proximity
21 to a nuclear power plant and their relative expertise in
22 dealing with radiation in nuclear materials."

23 Doesn't that imply an independent assessment?

24 MR. COPELAND: Your Honor, I think Mr. Holmbeck
25 is taking this out of context. If you look at the first

1 sentence of the paragraph, it says, "The list of hospitals
2 includes numerous hospitals which DNS has made an independent
3 assessment."

4 The next paragraph on page 9 says that "The list
5 of hospitals also includes those hospitals that are under
6 agreement with Commonwealth Edison Company."

7 There are basically two categories of hospitals
8 on this list. I wish to have that clarified on the record.

9 JUDGE SMITH: We can see that. Does that alter
10 your question, Mr. Holmbeck?

11 MR. HOLMBECK: Yes, it does, Your Honor.

12 BY MR. HOLMBECK:

13 Q Would you be prepared to comment on the capabilities
14 of Rockford Memorial Hospital to respond to the ingress of
15 a number of, say, two traumatically injured and also contami-
16 nated individuals?

17 A (Witness Ed) Their current ability or their
18 ability once they are trained and a facility is built?

19 Q With your understanding of the facility as it will
20 be once the plant starts up.

21 A From my experience with similar facilities
22 around other plants, the one I am most familiar with and
23 I guess can draw an analogy to is the Victor Memorial Hospital
24 in the Zion area. I am familiar with the planning that they --
25 the training that they have been given by RMC and the equipment

1 on hand due to the contractual arrangements with Commonwealth
2 Edison.

3 And if the training provided by the same trainers,
4 RMC, is comparable to that facility with which I am experi-
5 enced, yes, I feel very comfortable that Rockford Memorial
6 will, after all this is completed, be capable of handling
7 two traumatically injured and also contaminated individuals.

8 Q Do you know what equipment will be available at
9 Rockford Memorial Hospital and -- that's the question.

10 A What I am referring to now is Mr. Golden's
11 testimony, which I believe has attached the agreement, both
12 between Rockford Memorial and contractual agreement with
13 RMC. If you can give me a little time, I think I can find
14 an answer to your question.

15 (Pause.)

16 What I am referring to now is Golden Exhibit 6.
17 I believe it is the last exhibit in his testimony. Item
18 number 1 there indicates that inventories of equipment --

19 Q Will the Department of Nuclear Safety --

20 A I haven't finished.

21 Q I'm sorry. You hadn't finished.

22 A Item number 1 in that document indicates that
23 inventories of equipment will be maintained, all of the
24 equipment necessary to undertake the decontamination pro-
25 cedures as trained by RMC.

1 Q Will the Department of Nuclear Safety at any time
2 conduct an assessment of the Rockford Memorial facility?

3 A I believe, yes, we will. As a matter of fact, we
4 have had requests from other hospitals not appearing on
5 the list in my testimony, the list in the attachment -- have
6 requested the department to provide training to their
7 trauma center personnel, training regarding the treatment of
8 traumatized and contaminated individuals.

9 As we develop that program, we will enhance our
10 capabilities of review of hospitals such as Rockford Memorial.
11 So I anticipate that some time in the future we will indeed
12 review and critique the capabilities of Rockford Memorial
13 Hospital.

14 Q Do you know when, sir?

15 A I can only bracket. I would say probably within
16 the next year.

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1 JUDGE SMITH: Golden Exhibit 6 is a letter from
2 Radiation Management Corporation.

3 WITNESS ED: Yes.

4 JUDGE SMITH: I thought you were answering with
5 respect to the equipmen available at Rockford Memorial.

6 WITNESS ED: That is correct. I was referring
7 to item number 1 in that letter. It states that inventories
8 of equipment will be maintained.

9 JUDGE SMITH: Fine, thank you.

10 BY MR. HOLMBECK (Resuming):

11 Q Mr. Ed, do you think it would be a good idea
12 for the Department of Nuclear Safety to investigate the
13 capabilities of Rockford Memorial Hospital to respond to a
14 radiological accident in its assigned responsibilities before
15 the plant starts operation?

16 A (Witness Ed) Would I think it is what?

17 Q Do you think the Department of Nuclear Safety
18 should perform an independent assessment of the training and
19 facilities of Rockford Memorial Hospital before the Byron
20 plant starts up?

21 MR. COPELAND: Can we have a clarification of
22 the question? Are you asking is it a good idea, is it
23 necessary? Or what is it? On what basis --

24 JUDGE SMITH: I think he said a good idea.

25 MR. COPELAND: The way you stated it the first

1 time.

2

BY MR. HOLMBECK (Resuming):

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Q Is it necessary, sir?

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A (Witness Ed) In light of our confidence in the
5 expertise of Radiation Management Corporation, I would say
6 such an independent assessment would be unnecessary.

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JUDGE SMITH: Would you like to break for lunch
now?

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MR. HOLMBECK: I would, Your Honor.

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JUDGE SMITH: All right, we will return at 1:10.

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(Whereupon, at 11:55 a.m., the hearing in
the above-entitled matter was recessed for lunch, to
reconvene at 1:10 p.m. the same day.)

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AFTERNOON SESSION

(1:15 p.m.)

1 JUDGE SMITH: Let's proceed.

2 MR. GOLDBERG: Judge Smith, as a preliminary
3 matter, my office has been contacted by an attorney for
4 the Westinghouse Corporation about their preliminary concern
5 that there may have been some proprietary information imparted
6 in the testimony of Dr. Rajan appearing at the following
7 transcript pages of the April 15 session, 4691 to 4701.
8

9 I do not have any further details about what,
10 if any, of the contents are regarded by Westinghouse as
11 proprietary, nor do I know what their position is at this
12 time. But I think for the present, those persons in posses-
13 sion of that particular transcript ought to regard the
14 information within those pages as proprietary until the
15 matter can be properly determined.
16

17 JUDGE SMITH: Yes. We have already been
18 informed that there is such a problem, and until we can get
19 a complete communication from Washington, we will impose an
20 order that prohibits any person from disseminating or
21 discussing the transcript of April 14th. If anybody possesses
22 any copies of that transcript they are directed and ordered
23 not to duplicate nor reveal the contents until we have
24 additional information.

25 Are there any questions about that?

1 MR. BIELAWSKI: I will contact Mr. Gallo who
2 was handling that portion of the hearings and inform him of
3 your order and perhaps have him pursue discussions with
4 Westinghouse to understand exactly what the problem is.

5 JUDGE SMITH: All right. Moreover, anybody who
6 has been responsible for duplicating the transcript has
7 responsibility to trace out to the end without delay where
8 the information went.

9 MR. SAVAGE: It was Dr. Rajan's testimony?

10 JUDGE SMITH: Apparently. Our information is
11 April 15th.

12 In the interim, let's take all of -- I don't
13 recall if there was anything on April 15th which would be
14 not proprietary, but I see no need right now for -- during
15 the interim until we can find out what has happened -- for any
16 aspect of April 15th to be fully disseminated.

17 MR. GOLDBERG: Thank you.

18 MR. HOLMBECK: I would request at this time that
19 the last three questions and answers be read back from
20 before the break. The court reporter said those questions
21 are upstairs.

22 JUDGE SMITH: While you are consulting, I'm
23 going to take a short break in place.

24 (Pause.)

25 JUDGE SMITH: On the record.

1 Whereupon,

2 DAVID D. ED and

3 DAVID L. SMITH,

4 the witnesses on the stand at the time of recess, resumed
5 the stand and, having been previously duly sworn, were
6 examined and testified further as follows:

7 CROSS EXAMINATION -- (Resumed)

8 BY MR. HOLMBECK:

9 Q Mr. Ed, I believe before the break you indicated
10 that you did not believe that an independent assessment by
11 the Department of Nuclear Safety of the Rockford Memorial
12 facilities would be necessary before the Byron station
13 begins operation. Is that correct, sir?

14 A (Witness Ed) I do not believe that any additional
15 assessment on the part of DNS of the staff or facilities at
16 Rockford Memorial need occur prior to the operation of the
17 plant, if, indeed, the events that are postulated to happen
18 as far as the training and instruction and so forth occur.

19 Q Could you describe for me the assessment that
20 the Department of Nuclear Safety has already performed of
21 the Rockford Memorial Hospital emergency facility's capabili-
22 ties to handle contaminated individuals?

23 MR. BIELAWSKI: Was that contaminated individuals
24 or contaminated, injured individuals? I just did not hear
25 the question.

1 MR. HOLMBECK: It was contaminated individuals.

2 WITNESS ED: That would be the business we would
3 be in. We do not assess their medical capability as it
4 relates to contamination -- or, as it relates to trauma,
5 excuse me. The department is in the business, outside of
6 our field of nuclear power regulation and oversight, it is
7 also in the business of licensing other facilities that
8 use radioactive materials in the course of their business,
9 and one of the major utilizers, the generic type of facility
10 that utilizes these materials, is the hospital. And so, we
11 continually assess the capability of hospitals, including
12 Rockford Memorial which is one of our licensees, as are the
13 other two hospitals in Rockford. We continually assess their
14 capability to handle radiation and radioactive materials.
15 And as a part of the licensing process, we require that they
16 have decontamination procedures for accidents involving the
17 material for which they are licensed to handle.

18 Part of those procedures would be decontamination
19 of personnel who may become contaminated during an accident.
20 So in light of that, we are very comfortable -- I have just
21 spoken with one of our staff who has, in the past, inspected
22 that facility as part of his regular job, and it is a very
23 competent staff for dealing with radiation, radioactive
24 materials and contamination.

25 In the assessment of the Department of Nuclear

1 Safety, that capability should only be greatly enhanced
2 through the efforts of training provided by Radiation
3 Management Corporation and the construction of the facility
4 as contemplated.

5 Q Do you know, sir, whether the facility is
6 prepared to handle contaminated individuals who are trau-
7 matically injured?

8 A I assume a hospital at the trauma center is
9 prepared to handle trauma or traumatic injuries. The staff
10 of the hospital in the Radiology Department and the Nuclear
11 Medicine Department are prepared to handle contamination, and
12 I think the combination of those two staffs, those two classi-
13 fications of staff I just identified at the hospital could,
14 indeed, handle traumatized and contaminated individuals
15 appropriately.

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1 Q Is a traumatized individual who is also contami-
2 nated -- are the procedures for dealing with the trauma injury
3 the same as for an individual who has trauma without contami-
4 nation?

5 A It is very difficult to make a generalization on
6 that. It is incident, specific to the incident. But, in
7 general, I think a general statement, of course, with a
8 conflicting statement that all generalities are somewhat
9 false, which is a generality in itself, one can say that
10 treatment with trauma generally precedes the treatment of
11 contamination simply because it is usually more life-threaten-
12 ing.

13 Q Aren't there procedures for isolating the contamina-
14 tion on an injured individual?

15 A Yes. And if that can be accomplished while treat-
16 ing the trauma or without jeopardizing the treatment of the
17 trauma, it definitely should be done.

18 Q Do you know whether that can be done at Rockford
19 Memorial Hospital?

20 A Once the facility is built as contemplated, it
21 is my understanding -- this is not direct experience on my
22 part from talking with the people at Rockford -- it is my
23 understanding in talking with people who have talked with
24 them that the plan sounds reasonable that contamination can
25 be contained while trauma is treated.

1 Q So, sir, your opinion is based on what you have
2 heard from people in your department who have inquired at
3 Rockford Memorial Hospital with whom?

4 A Which opinion that I have offered are you referring
5 to?

6 Q Your opinion that they are prepared to handle
7 traumatically injured persons with contamination.

8 MR. BIELAWSKI: The opinion was given that in
9 his opinion they will be after having received the training,
10 et cetera, which RMC and Commonwealth Edison will be providing
11 to the hospital.

12 JUDGE SMITH: Provided to whom?

13 MR. BIELAWSKI: The Rockford Memorial Hospital.

14 MR. HOLMBECK: I believe his present self-assured-
15 ness on this came from assurances from someone within his
16 department based on an interview or some contact with a Rock-
17 ford Memorial official whose capacity we have not determined.

18 BY MR. HOLMBECK:

19 Q Besides this source of information, do you have
20 any other reason to believe that Rockford Memorial will have
21 the capabilities necessary to respond to a traumatically
22 injured individual who is also contaminated?

23 MR. BIELAWSKI: Your Honor, this question has been
24 asked and answered this morning and yesterday. He went
25 through a discussion of his having evaluated and dealt with

1 a hospital in the vicinity of the Zion Station having analyzed,
2 and he is familiar with RMC training. And that was also pro-
3 vided as the basis for his opinion that what will occur at
4 the Rockford Memorial Hospital will, in fact, give some
5 assurance that Mr. Holmbeck is looking for.

6 JUDGE SMITH: How does this question differ, if it
7 does, from your earlier discourse on the subject?

8 MR. HOLMBECK: I am not sure that the response
9 which Mr. Bielawski has described was responsive to my ques-
10 tion, which was about Rockford Memorial Hospital.

11 JUDGE SMITH: Continue.

12 BY MR. HOLMBECK:

13 Q Accepting for the moment Mr. Bielawski's descrip-
14 tion of your earlier statement, would you please give the
15 basis for your confidence that -- have you personally worked
16 with Radiation Management Corporation?

17 A Yes, I have.

18 Q Are you aware of the type of equipment which they
19 are going to work with at the Rockford Memorial Hospital?

20 A I may not be aware of all of the types of equipment
21 involved, but I am familiar with some of the equipment, yes.

22 Q But you do not know what equipment will be at
23 Rockford Memorial Hospital based on your experience with
24 Radiation Management Corporation.

25 A No, I have not seen the specifics of the equipment

1 that they will be providing, no.

2 Q Are you still confident that this equipment -- the
3 equipment necessary will be there?

4 A Yes. I have dealt with Radiation Management Corpor-
5 ation, and I view them as professionally very competent in
6 this field.

7 Q I would like to move to another point in your
8 testimony, Mr. Ed. If you could go to Question 13, please.
9 The question reads as follows: "What medical facilities are
10 available that can provide appropriate medical treatment for
11 victims of radiation exposure?"

12 In your response you state that the Northwestern
13 Hospital is capable of sophisticated analysis, diagnosis
14 and treatment of radiation-induced injuries. This capability
15 includes diagnosis of injuries due to exposure to an inter-
16 mediate range of radiation exposure. That is a level of
17 exposure which does not lead to outwardly apparent symptoms.

18 Are you familiar with this facility, sir?

19 A I have some familiarity with it.

20 Q Have you ever been there?

21 A I am not intimately familiar. No, I have never
22 been there.

23 Q So on what basis do you state that it is capable
24 of sophisticated analysis, diagnosis and treatment of radi-
25 ation-induced injuries?

1 A I have reviewed the results of such diagnosis,
2 analysis in certain specific cases.

3 Q What kinds of injuries were these?

4 A These were injuries that were purported to be
5 caused by -- from my own personal experience, injuries that
6 were purported to be caused by -- suspected injuries purported
7 to be caused by radiation. The tests that I am familiar with,
8 the results were negative. No radiation-induced injuries
9 could be found.

10 Q Have you worked with any cases of -- read any
11 diagnoses of cases where there was a serious case of contami-
12 nation and overexposure?

13 A From this facility?

14 Q Yes, sir.

15 A I have read several case histories of diagnosis
16 of overexposures to radiation. Whether or not that diagnosis
17 was performed at Northwestern Memorial or not, I cannot
18 recall.

19 Q So you have never read a sophisticated analysis,
20 diagnosis or read any account of treatment of a radiation-
21 induced injury at this facility?

22 A I said I cannot recall if I have.

23 Q That's fair enough. In the second sentence you
24 refer to a capability to diagnose injuries due to exposure
25 to an intermediate range of radiation exposure. That is a

1 level of exposure which does not lead to outwardly apparent
2 symptoms. Have you seen any cases related to this topic?

3 A Once again, I refer to my previous experience in
4 review of several cases of exposure to radiation in the
5 range I am speaking of here now. Once again, whether or not
6 the actual analysis and tests were performed at Northwest
7 Memorial, I am not sure.

8 Q So these could have been very sophisticated studies,
9 but they don't show any degree of sophistication at North-
10 western Memorial if they were not from Northwestern Memorial,
11 is that correct?

12 A That is not correct. The techniques used, the
13 equipment utilized to perform this analysis, I have been
14 informed -- I have not visually inspected the facility -- I
15 have been informed and have no reason to believe -- to the
16 contrary -- that the equipment is and the expertise to operate
17 the equipment is available at Northwest Memorial.

18 Q Do you have any information that would lead you
19 to believe that these activities could not be carried out
20 at Rockford Memorial Hospital?

21 MR. BIELAWSKI: What activities are we talking
22 about here?

23 MR. HOLMBECK: The sophisticated analysis and
24 diagnosis and treatment of radiation-induced injuries, certain
25 capabilities related to intermediate exposures.

1 WITNESS ED: What was the question?

2 BY MR. HOLMBECK:

3 Q The question was whether -- you stated that you did
4 not have any reason not to believe that Northwestern had
5 these capabilities. I'm asking if you have any reason not
6 to believe that Rockford Memorial has these capabilities.

7 A (Witness Ed) Based on my knowledge -- once again,
8 my department's assessment through the licensing process of
9 what is at Rockford Memorial and the people on the license
10 who are licensed to handle materials, I would say that at
11 that hospital there is some degree or ability to perform
12 some -- there is some degree of competence to perform the
13 operations outlined in my answer 13.

14 Whether that degree is as sophisticated as some
15 facility like Northwest Memorial, I do not know. I would
16 assume it is not. But the radiation and the nuclear medicine
17 departments at Rockford Memorial are quite capable.

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1 Q That opinion is based on what?

2 A Our department's assessment.

3 Q The second sentence refers to certain capabilities
4 to diagnose injuries caused by intermediate exposure. Will
5 these services be available to members of the general public
6 in the event of an accident at the Byron nuclear power plant
7 which causes exposures of this kind?

8 A I would assume that these services are available
9 to any individual who feels he has been exposed to an inter-
10 mediate range of radiation, regardless of the cause of that
11 radiation or the source of that radiation.

12 Q Is it expensive, sir, do you know?

13 A I don't know.

14 MR. BIELAWSKI: Is it expensive? Was that the
15 question?

16 MR. HOLMBECK: Yes.

17 MR. BIELAWSKI: Is treatment expensive?

18 MR. HOLMBECK: This kind of analysis.

19 MR. BIELAWSKI: To the patient, I take it.

20 MR. HOLMBECK: Yes.

21 MR. BIELAWSKI: I do not see the relevance of
22 that question or answer.

23 MR. HOLMBECK: I think expense is relevant to
24 availability, certainly, in this society.

25 MR. BIELAWSKI: I guess that assumes that a

1 person who needs medical treatment will not get it because
2 he cannot pay for it. I don't know if there is any founda-
3 tion for that question at this point.

4 JUDGE SMITH: Was that your point?

5 MR. HOLMBECK: Yes, sir.

6 BY MR. HOLMBECK (Resuming):

7 Q In this same answer, in the next paragraph it
8 begins, -- I think I will read the whole paragraph. "Initial
9 treatment of injury caused by exposure to radiation is
10 generally no differently than a similar injury of a non-
11 radiological origin. As such, radiation victims can receive
12 initial treatment by normally trained medical personnel at
13 most any medical facility."

14 Sir, what injury is caused by exposure to
15 radiation?

16 A (Witness Ed) Is your question, what are injuries?
17 What was your question, again? I'm not sure.

18 Q I will quote a portion of your testimony, and
19 I would like you to explain to me what you meant here. You
20 used the phrase "injury caused by exposure to radiation."
21 What injury is caused by exposure to radiation?

22 MR. BIELAWSKI: He used the term "initial."

23 MR. HOLMBECK: Initial treatment -- okay. Initial
24 treatment of injury caused by exposure to radiation.

25 WITNESS ED: That is correct.

1 BY MR. HOLMBECK (Resuming):

2 Q Could you give me an example of what initial
3 treatment of injury caused by exposure to radiation is?

4 A (Witness Ed) There are several injuries that
5 are known to be caused by exposure to radiation. It depends
6 on what level of radiation, over what period of time. I
7 suppose a very easily understood example involves extremely
8 high levels of radiation, but it is a very easily understood
9 analogy.

10 That is, if you, say, turn an X-ray machine on
11 and place a person in front of it to the point where you burn
12 them, the treatment of that burn is essentially no different
13 than if you held them up to a heat source and burned them.
14 So the burn caused by the radiation would essentially -- the
15 initial treatment of that burn would essentially be no
16 different than the initial treatment of a burn caused by
17 heat or non-ionizing radiation.

18 As I say, that is an extreme example. It takes
19 a huge amount of radiation to do that.

20 Q Could you give me a less extreme example?

21 A Well, radiation has been known to produce
22 carcinoma, as have many other --

23 Q Can you tell me what carcinoma is?

24 A Cancer. Radiation and many others. Radiation,
25 if you believe the FDA, saccharin. Both have some substance

1 in scientific investigation -- some basis in scientific
2 investigation, to be cancer-causing agents. Cancer caused by
3 saccharin or any other carcinogen is treated no differently
4 than cancer caused by radiation.

5 Q So a similar injury of a non-radiological origin.
6 You are drawing the parallel to the injuries. Okay.

7 With respect to the second sentence, you state
8 that initial treatment by normally-trained medical personnel
9 at most any medical facility. You are referring to, I would
10 imagine, any medical facility around the Byron station. Is
11 that correct?

12 A I am referring to most any medical facility.
13 Most any. And that would be almost any in this vicinity
14 as well as any other vicinity, right. There would be excep-
15 tions to that.

16 Q Are you anticipating here the use of these medical
17 facilities for responding to an accident at Byron?

18 MR. BIELAWSKI: What medical facility?

19 MR. HOLMBECK: Sandwich Community Hospital or
20 Rochelle Community Hospital. Highland Hospital in Belvedere.

21 WITNESS ED: Are you referring to a list of
22 hospitals that appears in attachments to the testimony?

23 BY MR. HOLMBECK (Resuming):

24 Q I'm referring to some of the hospitals around
25 the Byron plant.

1 JUDGE SMITH: To be used for initial treatment
2 of injury? Is that what your question is?

3 MR. HOLMBECK: Yes.

4 JUDGE SMITH: By exposure to radiation.

5 WITNESS ED: To go back to the two examples that
6 I just cited, if those facilities are -- personnel at those
7 facilities are competent to treat burns, I assume they can
8 treat a burn caused by either non-ionizing heat or ionizing
9 radiation. I assume they may or may not specialize in the
10 treatment of cancer, but if they do, they should be able to
11 treat cancer caused by cigarette smoking or radiation.

12 BY MR. HOLMBECK (Resuming):

13 Q Will these facilities be asked to do so?

14 MR. BIELAWSKI: To treat people who have cancer,
15 or people who have radiation burns?

16 BY MR. HOLMBECK (Resuming):

17 Q I'm sorry. Mr. Ed, will these facilities be
18 asked to give initial treatment for radiation exposure
19 resulting from an accident at the Byron plant?

20 MR. GOLDBERG: I would like to know asked by
21 whom. By Mr. Ed? By the plan?

22 MR. HOLMBECK: I am assuming his familiarity
23 with the plan and I am trying to determine how this -- if
24 this statement is leading up to something like that.

25 MR. BIELAWSKI: What I would like to do at this

1 point is I would like Mr. Holmbeck to identify the specific
2 hospitals that he is talking about. If he has specific
3 hospitals and he wants to ask Mr. Ed whether or not it is
4 likely that these facilities will be asked to treat people
5 who may be injured as a result of a radiological incident,
6 he should ask those specific questions.

7 MR. GOLDBERG: I would like to know who would be
8 doing the asking.

9 JUDGE SMITH: There is another problem here. The
10 statement which you are cross examining on, the initial
11 treatment of injury, as opposed to other types of treatment,
12 is such a narrow point and we spend so much time on it and
13 we have so much to do this afternoon, I just wonder what the
14 priorities are.

15 MR. HOLMBECK: At the time I asked the question,
16 Your Honor, I thought it was an important question.

17 JUDGE SMITH: Do you still think it is important
18 considering the time it has taken?

19 MR. HOLMBECK: Subject to his answers concerning
20 the first sentence, I think I will -- by your encouragement --
21 withdraw the question and move on to the next one.

22 BY MR. HOLMBECK (Resuming):

23 Q In the next question, you are addressing the
24 relative protection afforded by protective actions such as
25 sheltering and evacuation and the use of potassium iodide.

1 It is my understanding that potassium iodide is to be
2 administered to nursing home residents when thyroid dose
3 projections exceed the PAGs, and the nursing homes have been
4 unable to evacuate. Is that correct?

5 A (Witness Ed) Those are two of the conditions that
6 may precipitate an order to do that. They may not be the
7 only to --

8 JUDGE SMITH: To avoid confusion of yesterday,
9 let's make our timeframes parallel. You are referring to
10 projected doses, and they have not been able to evacuate.
11 And to round out the question, that they won't be able to
12 evacuate. Is that where you are going to?

13 MR. HOLMBECK: Yes. In the short term. Yes,
14 Your Honor, that was the question.

15 BY MR. HOLMBECK (Resuming):

16 Q The uptake of iodine in the thyroid gland is
17 age-dependent, is it not?

18 A (Witness Ed) The metabolism, yes. It is
19 dependent on the metabolism of the thyroid, which is age-
20 dependent, yes.

21 Q Kids have a fast metabolism. If, say, for
22 reasons of serious weather conditions, evacuation is infeas-
23 ible for the general populace, then would it be possible that
24 children in schools would have access to potassium iodide?

25 MR. BIELAWSKI: The question is would it be

1 possible that they would have access to potassium iodide.

2 BY MR. HOLMBECK (Resuming):

3 Q According to the plan, Mr. Ed, will potassium
4 iodide be distributed to schools?

5 A (Witness Ed) No, there is no provision in the
6 plan right now, if it is a school for normal, ambulatory
7 type children.

8 If it were a specialized school, that may be a
9 different situation.

10 Q Are there any specialized schools in the EPZ
11 for which potassium iodide will be provided?

12 A I am not aware of any. I am not aware of the
13 number of facilities to which we anticipate to distribute.
14 I do not have the list in front of me.

15 Q Another protective action considered in your
16 answer to question 14 is evacuation. There has been quite
17 a bit of discussion about the use of evacuation time
18 estimates during this hearing.

19 Mr. Ed, who will be using the evacuation time
20 estimates to assist them in determining recommended
21 protective actions?

22 A A variety of people use evacuation time estimates.
23 I may ask you a question, whose evacuation time estimates;
24 provided by whom?

25 Q Evacuation time estimates provided by Commonwealth

1 Edison Company December 1982.

2 A The study you are referring to?

3 Q Yes.

4 A You're asking who will use those?

5 Q Yes.

6 A I'm not sure who will use those.

7 Q During an emergency, will anyone from the
8 Department of Nuclear Safety make any reference to -- take
9 reference from the December 1982 evacuation time estimate
10 study in order to take recommended protective actions?

11 A Usually not. Directly, anyway. We derive or
12 we obtain evacuation time estimates from our -- the state's
13 evacuation experts, which is the Emergency Services and
14 Disaster Agency. They provide us with a time estimate for
15 evacuation based upon the current conditions at the area to
16 be evacuated. Those conditions may or may not reflect the
17 conditions of that study. If they did reflect the conditions
18 of that study, the estimate, I assume, may approximate the
19 same number that study comes up with. If the conditions at
20 the site were something than that, their time estimate may
21 differ from what is presented in the study. It most likely
22 would.

23 Q Mr. Smith, do you have an opinion as to how the
24 evacuation time estimate study will be used by the Emergency
25 Services and Disaster Agency?

1 A (Witness Smith) It is not an opinion. I can
2 tell you how we do it.

3 Q Thank you.

4 A We would use the evacuation time estimates as
5 provided from the study as a base line, really, to start from.
6 We would not consider the various times to be absolute. It
7 would be, I think, a timeframe. It would depend on other
8 conditions that might make it take longer or increase the
9 speed of evacuation.

10 Q Did you finish your answer?

11 A Yes.

12 Q What other conditions would you take into
13 consideration?

14 A A number of things. We talked about the adverse
15 weather conditions. There could be road construction in the
16 area, there could be special events going on. I was trying
17 to think. There possibly could be an event going on that
18 would actually increase the time of evacuation if there was
19 an activity where many people from a town were attending.
20 Outside the EPZ, I do not know. If there was any activity
21 like that that occurs around here I guess it would be the
22 reverse of people coming into the area. Maybe there is
23 something that would take people out of the area. There is
24 an unlimited number of factors.

25

1 Q I'm sorry.

2 A So we would use the evacuation time figures as
3 a baseline, not as an absolute figure.

4 Q Do you make some attempt to determine a reduction
5 in roadway capacity during adverse weather conditions?

6 A No.

7 Q Do you make an attempt to determine how long it
8 will take to evacuate affected sectors?

9 A Yes. And that would be the evacuation time
10 figures in considering any additional considerations that may
11 have an impact on time.

12 JUDGE SMITH: Are these questions and answers still
13 in reference to the Stone and Webster time study, or are they
14 just general?

15 MR. HOLMBECK: Are the answers?

16 JUDGE SMITH: The questions are still in the
17 context of the time study?

18 MR. HOLMBECK: Yes, they are.

19 JUDGE SMITH: All right. Then the previous answer
20 was will you make any effort to reduce road capacity.

21 MR. SAVAGE: To determine.

22 JUDGE SMITH: To determine road capacity. Does
23 that, over and above the road capacity, the two road capacity
24 figures given in the time study, or is that just independently?

25 MR. HOLMBECK: Independently.

1 JUDGE SMITH: Was that the sense of your answer?

2 WITNESS SMITH: Yes. We would use the time figures.
3 If there was adverse weather, we would use those figures
4 that were under the column "adverse weather," but we would
5 not try to make any determination on our own whether the
6 road capacity had been reduced even further or reduced to a
7 lesser extent.

8 JUDGE SMITH: All right.

9 BY MR. HOLMBECK:

10 Q Sir, what does a 70 percent roadway capacity look
11 like?

12 A (Witness Smith) I have no idea.

13 Q How do you determine whether there is in fact
14 conditions that would result in a 30 percent reduction in
15 roadway capacity?

16 MR. BIELAWSKI: Your Honor, the witness has already
17 answered that he has not made an independent assessment of
18 the reduction in roadway capacity in terms of a percentage
19 from 100 percent to 70 percent. I do not see how he could
20 possibly answer this question.

21 JUDGE SMITH: He's going to have to know which way
22 to use an adverse road capacity or a normal road capacity.
23 We should know something about what a normal road looks like
24 or adverse weather conditions.

25 MR. BIELAWSKI: That is not the way I understood

1 Mr. Holmbeck's question.

2 MR. HOLMBECK: My first question was asking for
3 Mr. Smith's opinion, and my second question was asking how
4 he might determine that such a roadway capacity was indeed
5 the case.

6 JUDGE SMITH: How about dry and wet?

7 MR. HOLMBECK: I meant what other resources would
8 you go to, who would you call to find out what the adverse
9 weather conditions are?

10 WITNESS SMITH: Who would I call?

11 BY MR. HOLMBECK:

12 Q Yes.

13 A (Witness Smith) I wouldn't have to call. We are
14 talking in the context of an emergency at the power plant.
15 We would be provided with the meteorological conditions at
16 the outset as soon as we really are notified that there is
17 a problem, and continually updated on that, the weather
18 conditions, not road conditions.

19 Q How do you translate this meteorological data
20 into the really significant factor which is the road condi-
21 tions?

22 A Well, we would not translate the weather into that.
23 If we wanted to know about road conditions, we would check
24 with the people who are experts on roads. We would check
25 with either the Illinois Department of Transportation to find

1 out what the road conditions were, or we would check with,
2 in this case, the Ogle County highway superintendent to find
3 out what the road conditions were.

4 Q Under what conditions would you -- strike that.

5 You stated earlier that you would follow the
6 figures found in the adverse column in the time study. What
7 conditions would lead you to follow that column?

8 A I don't think it would really make much difference.
9 I did say we would use the figures as a baseline, although
10 they were not absolute figures, and we could assume maybe an
11 hour each way. It is not an absolute figure. I believe the
12 difference in the adverse conditions and the normal conditions
13 is probably less than that. So the final outcome really would
14 not have much of an impact.

15 Q Your statement that adverse is actually less than
16 that --

17 A I don't understand that.

18 Q You stated a moment ago that the difference between
19 normal and adverse weather conditions and its effect on the
20 roadway would probably be less than that, and I assumed that
21 meant the 30 percent reduction.

22 A No. I don't recall --

23 MR. BIELAWSKI: I do not recall the witness having
24 made that statement.

25 WITNESS SMITH: I was not referring to any reduced

1 capacity in percentage figures.

2 BY MR. HOLMBECK:

3 Q I would like to know how you determine how long
4 it is going to take to evacuate the EPZ during adverse weather
5 conditions.

6 A (Witness Smith) The entire EPZ?

7 Q Yes. Or any three sectors, whichever you would
8 like to -- three sectors.

9 A Three sectors. Okay. Again, it would be based
10 on a number of factors. We would start with the evacuation
11 time and use the time that closely relates to the sectors
12 we are considering.

13 The evacuation time study divides the EPZ into
14 four sectors. We deal with 22, so we would not be able to
15 match it up exactly, but we could do our best to be talking
16 about the same area. We would use that as a baseline, and
17 then we would consider what the conditions are -- if it
18 is road-related, if it is road construction-related. It
19 could go on and on. Depending on what those conditions are,
20 we would consult with those people that are knowledgeable
21 about those conditions, and we would provide that information
22 to the Department of Nuclear Safety for their, I guess,
23 analyzing and eventually recommending protective action.

24 Q Would the time estimates have been more useful
25 had they actually presented time estimates for the size sectors

1 that you use for emergency planning evacuations?

2 A No.

3 Q No? Isn't this an additional kind of translation
4 that you have to make?

5 A No. Because I think the EPZ is really kind of
6 generic in nature. There are a few unique things about it.
7 Obviously, a river flowing through the middle is somewhat
8 unique. But I think you can take any three sectors and the
9 time to evacuate those are not going to be greatly different
10 than time to evacuate the other unless it is a completely
11 rural area where you do not have the population to evacuate
12 in the first place.

13 Q If you were to use the adverse weather time estimate
14 in the study, would you be assuming a 30 percent reduction
15 in roadway capacity?

16 A I think we would, because that is what the study
17 assumes.

18 Q Are you aware that the study assumes 30 percent
19 reduction based on the most common weather condition, which
20 is rain?

21 A Yes, I do.

22 Q And you would feel comfortable using this for
23 snow?

24 A Yes, I would.

25 Q Does snow affect driving conditions the same as rain?

1 A It may in some cases. In some cases it may not.
2 It depends on how much and some other factors.

3 Q What if it doesn't? If it doesn't, if there is
4 snow such that it doesn't affect it the same way as rain,
5 then don't you have a different time estimate?

6 A You lost me on that one.

7 MR. BIELAWSKI: I think the reason the witness
8 is confused, the witness has already stated that the evacuation
9 time estimates are used as a baseline, and if circumstances
10 are different than those assumed in the study, then you would
11 simply deal with that situation and either -- I guess gen-
12 erally if the situations were worse you would assume that the
13 estimates -- it would take longer to get out of the particular
14 sector. And I think Mr. Holmbeck's question assumes that
15 Mr. Smith would be using this precise number in a table for
16 adverse weather conditions on which to base his opinion. And
17 that is not what Mr. Smith has already testified to.

18 JUDGE SMITH: I am uncertain now as to what Mr.
19 Smith's testimony really is on that particular issue. I
20 wonder if you could refresh us.

21 I do recall you saying that he will use the adverse
22 weather -- for adverse weather you will use the adverse
23 weather road conditions given in the study. I don't recall
24 saying that you would adjust them. In fact, my memory is that
25 you said you would not.

1 WITNESS SMITH: That is correct. I think if you
2 look at the study, the adverse as compared to normal, there
3 is not a big difference when you consider that we look at
4 those figures as a baseline to start, and they may go -- I'm
5 just going to say an hour one way or the other.

6 JUDGE SMITH: In this instance now I think he's
7 going in the other direction, adverse to more than -- you know,
8 worse than adverse. That's the thrust of his question now.
9 This is where my memory of your testimony is unreliable.

10 WITNESS SMITH: Okay. If the conditions are worse
11 than adverse, we would still use figures provided in the
12 study as a baseline. The information that we are concerned
13 about is the actual conditions in the area.

14 Let's take, for example, snow. We would contact
15 the Department of Transportation, the county highway super-
16 intendent, and we would ask some questions such as how is
17 traffic moving in the area, you know, what is the outlook
18 for the next hour or two hours, whatever time we are concerned
19 with. In your opinion, can we move traffic or possibly it
20 is that we cannot move traffic. If we can move traffic, is
21 it going to be going at a rate that is ten miles an hour or
22 normal driving conditions? Those are the types of factors
23 and conditions that we have to consider after we start using
24 a baseline time.

25 JUDGE SMITH: That's fine.

1 BY MR. HOLMBECK:

2 Q Mr. Smith, if you don't determine a roadway reduc-
3 tion capacity, how can you tell if the conditions which you
4 have outside your door are worse than the conditions used
5 for the study -- because the study measures adverse weather
6 conditions in terms of roadway reduction capacity?

7 A (Witness Smith) I don't understand the question.

8 MR. BIELAWSKI: But the study also defines the
9 adverse weather condition as being rain, and if he is asking
10 how -- if you look out your door and see there is snow and
11 not rain, it is obvious how he can make that distinction.

12 MR. SAVAGE: Does the Board mind if I put this
13 question, since I have been asking Mr. Holmbeck to ask it?

14 BY MR. SAVAGE:

15 Q You are saying that you start with the evacuation
16 time estimate study as a baseline. In any event, you use it
17 as some kind of tool to determine when an evacuation is
18 feasible. The study measures the effect of the adverse
19 weather upon the time for evacuation by measuring roadway
20 reduction capacity.

21 I think in that respect whether it is rain or
22 snow is not important. It is determined whether it is roadway
23 reduction capacity.

24 Now, if you do not measure roadway reduction
25 capacity with respect to what you see outside your door, how

1 can you use that even as a baseline or starting point? How
2 can the adverse weather times be helpful to you if you don't
3 know how much you are deviating from them and how -- I have
4 two or three questions. That's the first one.

5 The second one is -- all right.
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1 A (Witness Smith) I answered that in that the
2 difference between adverse and normal in the study is not
3 that great that it will make any difference in our decision,
4 really. For example, if the evacuation time study says
5 two hours, to us, you know, that could mean three hours.
6 We don't take it as a firm figure.

7 Q Is that to say that the study is really of very
8 little value to you?

9 A It provides us a base line. That part of the
10 study -- I would say that is what it provides.

11 Q What do you mean, a base line?

12 A If we did not have the study, the question
13 arises, do we have -- how much time do we have to evacuate
14 or how long is it going to take to evacuate an area. We
15 are going to have to make a decision on how much time. I
16 think the study is, you know, it is credible. So we can use
17 that figure as a base line in addition to all of these other
18 factors.

19 A (Witness Ed) I think he means by base line,
20 a starting point.

21 A (Witness Smith) A starting point.

22 Q A starting point that gets developed in some way.

23 A (Witness Smith) Yes

24 A (Witness Ed) It is a number that you modify.

25 Q I am really confused about how you can modify

1 the number if you don't measure roadway reduction capacity
2 because that is what the number is all about in the study.

3 A (Witness Ed) The number we look at is time.

4 Q I'm sorry. What?

5 A The number we look at is not roadway reduction
6 capacity, which is a factor utilized to calculate evacuation
7 time. We look at the answer, time. If the county road super-
8 intendent says it is going to take three hours to clear the
9 roads, then we cannot start evacuating for three hours. It
10 is time. We don't care if the roadway reduction capacity is
11 5 percent or 50 percent. If he says it takes three hours,
12 we take his word for it. He clears the roads year in and
13 year out.

14 Q Would the time estimates be more helpful to you
15 if there was an annex in them that gave some kind of table
16 for roadway clearing time, or roadway clearing?

17 A I would much rather have the information from
18 the county highway superintendent than from a table in a
19 study for a given set of conditions.

20 Q Why is that?

21 A Because it is more reliable. I would view it
22 as much more reliable.

23 A (Witness Smith) I would not think that kind of
24 annex would be of value to us.

25 Q Because you would think it was unreliable?

1 A (Witness Smith) I think there would be too many
2 situations we have to consider, and when we are, you know,
3 involved in an emergency situation we don't look at it in
4 terms of how long -- I guess -- how long is it going to take
5 to clear the roads, but how quick do we need to clear them.

6 JUDGE SMITH: Are we asking these witnesses to
7 comment on -- you are still asking them to comment on the
8 evacuation time study?

9 MR. SAVAGE: Yes, sir.

10 JUDGE SMITH: We are also asking them to comment
11 on that study as it was explained by yesterday's witnesses.

12 MR. SAVAGE: Yes.

13 JUDGE SMITH: So let's recall how we ended up
14 yesterday after several hours. That the roadway reduction
15 factor -- roadway reduction capacity under adverse conditions
16 was a circumstance that prevailed after the roads were
17 cleared.

18 MR. SAVAGE: That's right. And I was wondering,
19 as I have asked other witnesses, whether in order to get an
20 accurate evacuation time where evacuation does not mean
21 moving out after everything is cleared but deciding to
22 move out and whether to clear, whether they should have some
23 kind of annex which gives you clearing times. I understand
24 the answer to be no because you don't think it could be done.

25 MR. BIELAWSKI: I don't think that's what the

1 witness has said.

2 MR. SAVAGE: I think he did. Let me see if he
3 did.

4 BY MR. SAVAGE (Resuming):

5 Q Is your testimony that you don't think think it
6 can be done?

7 A (Witness Smith) There are two things. I think
8 it would take extremely -- a lot of work to do it, con-
9 sidering all of the conditions and situations. I don't
10 think it would be of any value if we did do it.

11 Q Wouldn't it save time from calling up to get
12 information? It would be potentially valuable that way?

13 A No.

14 MR. SAVAGE: I'm not going to pursue it any
15 further. That's fine. I have just maybe 10 minutes' worth
16 of question directed primarily to Mr. Smith about question
17 number 7 and the answer to question number 7 in his testimony.
18 And that relates to the Intervenors' Issue Number 10, the
19 volunteer issue in their amended and consolidated contention.

20 BY MR. SAVAGE (Resuming):

21 Q In question 7 you were asked whether Intervenors'
22 assertion that emergency planning for Byron relies too
23 heavily on volunteer personnel to effect an evacuation is
24 something that should -- that you believe to be true. That
25 is the sense of the question, isn't it?

1 A (Witness Smith) Are you asking me that question?

2 Q Let me read the question. "Intervenors assert
3 that emergency planning for Byron relies too heavily on
4 volunteer personnel to effect an evacuation. Do you believe
5 this to be true?" And then you give an opinion. You say
6 no, it is not. I wanted to ask you some questions about
7 the basis of your opinion. You described the basis of your
8 opinion, and absent from that description is any reference
9 to your education.

10 Am I to assume, then, that there is nothing
11 peculiar about your education that would allow you to form
12 an opinion about what is asked of you in question 7? Have
13 you taken any courses in volunteer psychology?

14 A No.

15 Q If there exists such things.

16 A No.

17 Q No special --

18 A It is not based on my education.

19 Q Is it based on any studies you have read?

20 A No.

21 Q Have you ready any studies about volunteer
22 behavior?

23 A Not studies.

24 Q What have you read?

25 A I don't know if it would be considered a study,

1 but we just participated in a publication that I guess some-
2 what approaches being a study by the Governor's Office on
3 volunteers where they -- I guess they did a study on use of
4 volunteers in state government.

5 Q So that is the only report you are familiar with.

6 A That's correct.

7 Q Are you familiar with -- I guess the answer is no.
8 I was going to ask if you are familiar with any of the biblio-
9 graphy in that report.

10 You also say that your opinion is based on your
11 contacts as an ESDA employee with volunteer workers. Does
12 that include any radiological disaster volunteer workers?

13 A Yes.

14 Q What kind of contacts have you had with these
15 people?

16 A I have had contacts everywhere from training them
17 in radiological matters, in assisting them, local governments,
18 in developing their emergency organizations and where the
19 volunteers play a role. I have worked with them in natural
20 disasters.

21 Q You say the same volunteers that will work in
22 radiological disasters. My question is really what are your
23 contacts like with the volunteers who will work in radio-
24 logical disasters?

25 MR. BIELAWSKI: I do not understand what is meant.

1 What are you contacts like?

2 MR. SAVAGE: He says his opinion is based on his
3 contacts as an ESDA employee with volunteer workers. I
4 want to know if some of the volunteer workers with whom he
5 has had contact are workers who will volunteer to help in a
6 radiological disaster. And if they are, I want to know what
7 the contacts are like.

8 MR. BIELAWSKI: I think he has already answered
9 the question, but go ahead.

10 WITNESS SMITH: Like I said, I have had many
11 contacts in a variety of ways. If you are specifically
12 talking about those volunteers that might be involved in
13 responding to a nuclear accident, I have been involved with
14 them in 9 exercises at nuclear power plants to date. I have
15 been involved in the training of those volunteers. I have
16 been involved in working with them to develop their portions
17 of the plan.

18 BY MR. SAVAGE (Resuming):

19 Q Great. You are the person I want to ask this
20 question of, then. What is their perception of the radio-
21 logical disaster before they receive their volunteer training?

22 MR. BIELAWSKI: Before?

23 JUDGE SMITH: Before.

24 BY MR. SAVAGE (Resuming):

25 Q Before. Do they come to you with misconceptions

1 about what a radiological disaster is like?

2 A (Witness Smith) Some do.

3 Q What kinds of misconceptions?

4 A Well, I guess a variety of misconceptions,
5 everywhere from comparing a nuclear power plant to a nuclear
6 weapon, to not considering any risk. You have to remember
7 that our volunteers come from all walks of life, and some
8 of them know much more about nuclear science than I do, and
9 some of them not much less than I do.

10 Q Do a large majority of the volunteers think that
11 the disaster will be more dangerous than it is likely to be,
12 in your opinion?

13 A I have no way to base that statement to that
14 effect. I have not taken a survey. I don't really know.
15 Like I say, there is a variety of misconceptions to begin
16 with.

17 Q Do you think that a volunteer's perception or
18 conception of what the emergency he or she will be partici-
19 pating in will affect his or her response in the emergency?

20 A Prior to training?

21 Q No prior or after. Just their conception of
22 what the emergency is like; will it affect their response?

23 A It may in certain ways. I think the conception
24 of a volunteer, let's say a volunteer ambulance driver,
25 going to his first car accident, his conception of what he

1 might see out there would affect his response in some way.

2 Q Do you think that if volunteers for radiological
3 disasters thought that the disaster that they were partici-
4 pating in was more dangerous than it actually was, that they
5 would be less likely to perform well as a volunteer?

6 MR. BIELAWSKI: Your Honor, there is no founda-
7 tion for the question.

8 MR. SAVAGE: I'm asking him for his contacts with
9 actual volunteers.

10 MR. BIELAWSKI: You asked him about how they
11 come to him before they are trained, and he told you what
12 their misconceptions were. Then I think Mr. Smith would
13 agree that volunteers who would be responding to a nuclear
14 emergency would have received training, and many of their
15 misconceptions would have been cleared up. And now you
16 are still, I think -- the premise of your question is that
17 they would still have these misperceptions when they are
18 being asked to go and respond to the emergency.

19 MR. SAVAGE: My ultimate question is about some
20 training that they are going to get -- I'm leading up to
21 another question, and it is about training. He has por-
22 trayed himself in his testimony as an expert about volunteers,
23 and about how they behave. I want to know, on the basis of
24 his expertise -- apparently he has dealt with hundreds of
25 these people, and I think that is great -- I want to know

1 whether their perception of a disaster influences their
2 behavior, and he says he thinks it might and he gave me
3 an example of an ambulance driver.

4 Now, I want to know if radiological volunteers --
5 and assuming that they have misperception that the disaster
6 they are going to be participating in is more dangerous --

7 BY MR. SAVAGE (Resuming):

8 Q Do you think that would adversely affect their
9 performance?

10 JUDGE SMITH: Which misperception has not been
11 eliminated by training, has not been corrected by training?
12 Is that the question?

13 MR. SAVAGE: That is probably a hidden premise
14 there.

15 MR. BIELAWSKI: If you can accept the premise,
16 you can answer the question.

17 MR. SAVAGE: I don't think you need to accept
18 that premise.

19 WITNESS ED: I do need to accept that premise,
20 and although I did not address my experience with dealing
21 with the people who may or may not be volunteers but who
22 know very little about the hazards associated with radia-
23 tion or radioactive materials, I do not think you can
24 generically classify their misconceptions as all being worse
25 than the actual case.

1 My experience with the people I deal with, if
2 you can't see it, feel it, tast it, it can't hurt you. That
3 is not a misconception in the direction of fear; that is a
4 misconception in the other dirction of not fearing. So, the
5 premise you are putting in your question is that these
6 people, their misconception of the danger is biased in the
7 more dangerous direction. And I think in my experience with
8 the people I have dealt with, it is about an equal bias.

9 BY MR. SAVAGE (Resuming):

10 Q Equal bias, I understand that. I agree with
11 you. All I want to do is pose a hypothetical question which
12 I think is clear enough in the relevant aspects, and I am
13 asking you to assume for the sake of the question that you
14 got a volunteer who still has a misconception about the
15 disaster, and he thinks it is more dangerous than it is. Is
16 that going to adversely affect his performance as a volunteer,
17 in your opinion?

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1 A (Witness Smith) If he thinks it is more dangerous
2 than it actually is. I don't think there would be any differ-
3 ence because he views the danger of that situation at this
4 level. He is not comparing it to something else. He has
5 already accepted in his mind it is this dangerous (Indicating).

6 My experience, my judgment tells me that the
7 volunteers are going to respond.

8 Q No matter how dangerous they think it is because
9 they have already accepted it, right, and they are in there
10 being a volunteer.

11 A Right. After the training they know their role
12 and their responsibility. I think it is obvious that if it
13 is in a situation that is, you know, they know if they go
14 into an area that may be the end for them, I think they will
15 make some decision based upon their training.

16 JUDGE SMITH: Would there be a direct relationship
17 between their perception of the danger and their willingness
18 to make a commitment? They perceive the danger to be at a
19 certain level, but they make a commitment accepting that
20 perception.

21 WITNESS SMITH: I'm not talking that one hundred
22 percent of the volunteers would always go. I suppose as
23 it increases, a few may tend to back out. I don't know. A
24 few may do just the opposite. My experience with volunteers,
25 usually there are too many that show up. They are too willing

1 to help out.

2 MR. SAVAGE: I'm going to stop pursuing this
3 unless the Board wants to.

4 JUDGE SMITH: The point that I thought might be
5 established is assuming there is a perception by the volunteer
6 that the danger is greater than it really is, there is an
7 adjustment for that in that he is willing to accept that
8 danger, perception of the danger, perception of the danger.
9 Doesn't this sort of wash out?

10 MR. SAVAGE: It could. That is certainly one way
11 it could go.

12 BY MR. SAVAGE:

13 Q Do you think that is the way volunteers actually
14 make decisions about volunteering?

15 A (Witness Smith) No. You mean as the level of
16 danger --

17 Q Do you think that their decision to be a volunteer
18 is based on their assessment of the level of danger, so that
19 the higher the danger that the less volunteers you would get
20 out of any given group?

21 A I think you would get different volunteers. For
22 example, I think it is maybe a different type of person that
23 volunteers to be a fireman than the person that volunteers to be
24 an ambulance service member.

25 Q Do the people that volunteer to be -- do the people

1 that volunteer in radiological disasters, are they people who
2 in your opinion, have an accurate understanding of the danger
3 of radiation?

4 A Before or after training?

5 Q After training. That still agree to be volunteers.

6 A After training I believe the volunteers that we
7 train have the proper conception of --

8 Q Do you tell them that there is a dispute in the
9 scientific community about the effects of even low level
10 radiation on human health?

11 A I will have to led Mr. Ed talk about that. The
12 Department of Nuclear Safety is the agency that provides the
13 emergency worker training.

14 A (Witness Ed) We inform the workers as to what
15 levels of radiation we -- "we" meaning the Department of
16 Nuclear Safety -- consider safe. In other words, we don't
17 conduct the debate of the effects of low levels of ionizing
18 radiation when talking with a bunch of volunteer firemen. I
19 think that would be a bit much. But we do inform them of
20 what levels we feel are warranted, what levels of exposure
21 we feel are warranted for the activities they have to under-
22 take, or they may have to undertake in response to an
23 accident. And we hope that they accept our assessment of
24 that level as being safe, or at least the risk of that level
25 being worth the activity they have to undertake.

1 Q Mr. Smith, was it your testimony that the purpose
2 of the training is to give -- is to give volunteers or potential
3 volunteers an adequate understanding of the disaster they
4 will be participating in so that they can decide whether to
5 be volunteers or not?

6 A They can always make the decision on whether or
7 not they want to be volunteers.

8 Q And is it part of the purpose of the training,
9 though, to make them decide that they really do want to be
10 volunteers in the face of the danger they are going to be
11 volunteering in?

12 A No. The purpose of the training is to train them
13 in the various roles and responsibilities that they will have
14 to undertake.

15 Q Mr. Ed, one last question and then I'm going to
16 stop this.

17 You don't tell them -- you tell them about the
18 exposure levels that DNS thinks are safe, right?

19 A (Witness Ed) Yes. We don't discuss how we
20 arrive at that number with them, no.

21 Q Is there a debate in the scientific community
22 about whether those levels are actually safe?

23 MR. BIELAWSKI: What does Mr. Savage mean by
24 "debate?"

25 MR. SAVAGE: Are there respectable members of the

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1 scientific community, health physicists, who think -- who
2 disagree with DNS about whether those levels are safe?

3 MR. GOLDBERG: What's the relevance of the question?

4 MR. SAVAGE: Because the next question is what
5 if they find out some other way; do you think that that --
6 I assume you're going to say yes, and my next question was
7 going to be what if they find out some other way that there
8 is a debate, a substantial debate in the scientific community
9 about what they have told them. Do you think that that will
10 affect their performance as a volunteer?

11 MR. BIELAWSKI: I don't think there's any real
12 foundation for the fact that there is a substantial debate
13 with respect to the doses that they are talking about here.

14 MR. SAVAGE: I asked him the foundation question
15 and you interrupted and would not let him answer. He is
16 knowledgeable. I want to know if he knows if there is a debate
17 in the scientific community about whether the levels that DNS
18 says are safe are safe.

19 MR. BIELAWSKI: I guess I would like some clarifi-
20 cation as to what these levels are.

21 JUDGE SMITH: When you speak of levels that are
22 safe for emergency workers, what are the nature of those
23 levels? Do they compare to the acceptable levels for occu-
24 pational exposure?

25 WITNESS ED: They are less than those levels.

1 JUDGE SMITH: Less than occupational exposure levels.

2 WITNESS ED: Occupational exposure levels are
3 set at roughly for a whole body of five rem per year. The
4 administration of that dose cannot exceed like three rem or
5 three and a quarter rem for a three-month period. What we're
6 talking about here, what IPRA specifies is limiting the dose
7 commitment received by emergency workers, which is an acute
8 dose, as compared to the chronic dose probably received by
9 a worker, an acute dose of three rem, an acute dose commit-
10 ment of three rem whole body.

11 I do not think there is a substantial debate in
12 the scientific community that an acute dose of three rem is
13 unsafe. There may be advocates, and even myself, that that
14 dose should be avoided if at all possible.

15 BY MR. SAVAGE:

16 Q Why?

17 JUDGE SMITH: Do you tell your workers that very
18 thing, that the dose should be avoided, if possible?

19 WITNESS ED: Oh, yes. The principle of the lowest
20 reasonably achievable ALARA prevails in our training. We
21 don't go out there and try to get three rem. That is brought
22 out. The entire purpose of the training is to limit these
23 people's exposures to radiation at some number below three
24 rem. When they reach that three rem number, they are removed
25 from the emergency worker force. We no longer utilize them.

1 So the training is focused upon keeping their exposure during
2 the performance of their duties as low as can be achieved.

3 JUDGE SMITH: Now, before you pursue this line
4 of questioning, you should quantify your doses.

5 MR. SAVAGE: I was just getting ready to do that.
6 I don't know if I can pull this question off.

7 BY MR. SAVAGE:

8 Q I do believe that Dr. Carl Morgan, who testified
9 here, would argue that the dose down to one rem is dangerous,
10 and there is some dispute about the debate in the scientific
11 community about that.

12 Now, do you believe that if one of your workers
13 who does not know this were to read Dr. Morgan's articles
14 or talk to him or somehow else find out that there was a
15 debate about this supported by people like Dr. Morgan, that
16 that would affect adversely their performance as a volunteer?

17 MR. GOLDBER: Judge, I object to the question.
18 Even assuming that Mr. Savage has properly characterized
19 Dr. Morgan's position in this area, it still assumes facts
20 not in evidence; and that is, widespread debate over the
21 validity of Dr. Morgan's position. I just don't see how
22 this witness can be expected to comment on unknown literature,
23 unknown debate, unknown hypothetical --

24 MR. SAVAGE: If you cannot answer, tell me you
25 cannot answer.

1 MR. GOLDBERG: I'm just not sure --

2 JUDGE SMITH: We accepted Dr. Morgan as an
3 expert and his testimony. It is in the context of his
4 testimony that he should be permitted to speak. My concern
5 is I am not sure that everyone would agree that he is repre-
6 senting Dr. Morgan's testimony accurately.

7 MR. BIELAWSKI: I certainly would not. I think
8 Dr. Morgan's testimony as far as it was presented in this
9 proceeding did not deal with acute doses. It dealt with
10 doses received over time by workers at very low levels, and
11 that is not what Mr. Savage is postulating for this question.

12 MR. SAVAGE: This is going to be a desperate
13 attempt. The Board would not like to take judicial notice
14 of the fact that there is a debate in the scientific community
15 about the danger of exposure to even one rem, that it may
16 be very dangerous?

17 JUDGE SMITH: We could take some official notice
18 of information such as you suggest, but we could not take
19 official notice of the word "danger."

20 MR. SAVAGE: How about adverse health effect?

21 JUDGE SMITH: I don't know. We would have to --
22 official notice is not just zapping out and absorbing some
23 knowledge in the scientific literature or papers. Official
24 notice would also require that it be -- that the parties be
25 given an opportunity to confront it and that it be reliable

1 and that it be not subject to dispute.

2 MR. BIELAWSKI: Your Honor, you can take official
3 notice of anything. You can take official notice o' Part 20
4 of the Commission's regulations dealing with occupational
5 exposure. Mr. Ed stated that the exposure that a volunteer
6 would receive would be less than that of a worker.

7 JUDGE SMITH: We could take official notice of --
8 as a matter of fact, as Dr. Cole points out, we don't have
9 to take official notice. We have Dr. Morgan's testimony in
10 evidence. I am not sure -- well, if we have his testimony
11 in evidence, whatever his testimony is, it is there.

12 I think that you have a basic problem. I think
13 that -- you have gone very far afield. The relevance now --
14 and we have to go back to where this all began -- the relevance
15 now is not should emergency workers be exposed to radiation.
16 Your question is if emergency workers had heard about -- had
17 heard Dr. Morgan's testimony instead of the training course,
18 and they suddenly found out about it, would they refuse
19 to be volunteers. Is that what you are suggesting?

20 MR. SAVAGE: Not only Dr. Morgan's testimony --

21 JUDGE SMITH: Let's take Dr. Morgan's. That is
22 a pretty good example of what we're talking about.

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1 It is in evidence, and that is your point,
2 isn't it?

3 MR. SAVAGE: Yes.

4 BY MR. SAVAGE (Resuming):

5 Q You are here as experts on volunteer behavior.
6 I'm wondering if you -- if you can't answer this, just tell
7 me you can't answer it. If people find out this kind of
8 thing, do you think they will be effective volunteers?

9 MR. GOLDBERG: I think the question is vague.
10 What kind of thing? I think Mr. Ed is entitled to be pro-
11 vided, or at least the parties are entitled to be provided
12 with the origin for --

13 MR. SAVAGE: There is a debate in the scientific
14 community about whether lower levels than 3 rem affect your
15 health adversely. That's the thing.

16 MR. GOLDBERG: I do not think there is an
17 evidentiary basis for "the thing" --

18 (Laughter.)

19 -- in this proceeding.

20 JUDGE SMITH: I hesitate to try to recall Dr.
21 Morgan's testimony. It's been several weeks ago. If we were
22 to take Dr. Morgan's testimony, I believe the question should
23 be properly put of increased -- recalling his super linear
24 theory -- an increased risk of early fatalities, somewhere
25 on the order of in huge megalopolises, as I recall.

1 The question then would be, if a volunteer worker
2 should suddenly find out that, do you think that might turn
3 him off.

4 WITNESS ED: Are you asking me that question?

5 JUDGE SMITH: Yes.

6 WITNESS ED: I don't think so. That is more of
7 a personal opinion than anything else. The differences we
8 are talking about are between 3 and down to 1. I am sure
9 I could not get Dr. Morgan to commit that if we sent 15
10 volunteer firemen into a field of radiation where they
11 received 3 rem -- I hate to speak for the doctor, but I
12 don't think we could get him to commit that those people,
13 during their lifetimes, anybody, through any scientific
14 means and statistical means, could prove that anything that
15 happened to the health of those people during their lifetime
16 could be attributable to those 3 rem.

17 MR. SAVAGE: One last question for Mr. Smith.

18 BY MR. SAVAGE (Resuming):

19 Q Would you turn to Carl Swann's testimony.

20 A (Witness Smith) I don't have it.

21 Q Let me give you a copy. I'm referring to the
22 first question on page 5 of Carl Swann's testimony. I
23 believe, Mr. Smith, in your testimony you said that volunteers
24 would behave exactly as paid workers in an emergency if they
25 were trained the same way.

1 Now look at the first question and the answer
2 to that --

3 MR. BIELAWSKI: Excuse me, Your Honor. There
4 is some uncertainty as of this morning whether Mr. Swann is
5 going to appear as a witness and offer his testimony in
6 evidence. If he is, the question is fine; if he is not, I
7 don't know if the question based on pre-filed testimony
8 which will not come into evidence is appropriate.

9 MR. SAVAGE: Counsel is right. There is some
10 doubt that Mr. Swann will appear. It depends on time, so
11 I withdraw the question. I don't think we have anymore
12 questions of these witnesses. Thank you.

13 JUDGE SMITH: Mr. Goldberg?

14 MR. GOLDBERG: Yes, Judge, I have one or two
15 follow-up questions. I did not have a prepared examination
16 plan.

17 BY MR. GOLDBERG:

18 Q Mr. Ed, you are the -- I looked for your position
19 here -- you are the nuclear safety executive with the Illinois
20 Department of Nuclear Safety. Is that correct?

21 A (Witness Ed) I am one of the people who hold that
22 title at the department. One of the three people.

23 Q And you just testified that the Department of
24 Nuclear Safety trains emergency workers in radiation, nuclear
25 radiation. Is that correct?

1 A That is not entirely correct. The purpose of
2 our training is to provide these individuals with some
3 very rudimentary knowledge of radiation; what it is,
4 essentially. Ionizing radiation, that is. That is not the
5 ultimate purpose of our planning, I shouldn't say that. That
6 is one part of the planning. But the ultimate purpose is to
7 give these individuals enough information to be able to
8 protect themselves, protect their own wellbeing when
9 responding to a nuclear incident, be it at a power plant or
10 anything involving radiation.

11 Q I guess I want to get some kind of sense of what
12 kind of expertise the department has to provide that kind of
13 rudimentary training or instruction. Can you give me some
14 idea of the composition of the Department of Nuclear Safety
15 insofar as it would have expertise to perform this role?

16 A What we have are technical staff, I think com-
17 prised of roughly 60 people. Their backgrounds vary all the
18 way from health physicists to nuclear engineers, technicians.
19 We have radiochemists, radiation biologists. Essentially, it
20 is the type of field with professionals in the field of
21 radiation. Our department not only deals with nuclear
22 power, but also, the uses of ionizing radiation for medical
23 purposes, both machine-generated, X-ray type stuff, and
24 isotope-originated material, also. As well as the transpor-
25 tation and the waste issues. And everything. It is a fairly

1 well-rounded staff of experts in various fields.

2 Q And does the department take the benefit of these
3 various disciplines that are employed within it in the
4 formulation and presentation of this training and instruction
5 that you have been testifying about?

6 A Yes.

7 MR. GOLDBERG: Thank you.

8 BOARD EXAMINATION

9 BY JUDGE COLE:

10 Q Just a few general questions about the exercises
11 and drills. Mr. Smith, you indicated that you had partici-
12 pated in 9 exercises. What is your role in those exercises?
13 These were for nuclear power plants, right, sir?

14 A (Witness Smith) That is correct. The 9 exercises
15 have been over a period of about three years, and I have
16 performed different roles in various exercises. My most
17 recent role was that of what we refer to as a player; a
18 participant, and my position within our agency is to coordin-
19 ate our field operations. Therefore, in an emergency around
20 a nuclear power plant, my function is to coordinate the
21 field operations from our forward command post, wherever it
22 may be. That would be the coordination of the various state
23 agencies responding to that situation.

24 I have also participated as a player in our
25 state operating center in Springfield. I have been the

1 controller of the nuclear accident reporting system which is
2 a dedicated system for transmitting information between
3 the utility, the state and local governments.

4 I have assisted our operations officer in con-
5 ducting the operations in our Springfield emergency operating
6 center. I have also participated as a controller at various
7 exercises. A controller is a person who might be located at
8 any of the facilities. I have been located at county
9 emergency operating centers and municipal operating centers
10 to make sure that the exercise flows in a manner that will
11 demonstrate their capabilities.

12 I think that covers it.

13 Q Mr. Ed, have you participated in any of these
14 exercises?

15 A (Witness Ed) I have participated in all of these
16 exercises, both as a player and an actor in the scenario,
17 and as a controller or overseer of the activities.

18 Q All right, sir.

19 A As a player, my activities have ranged from
20 everything to -- from a nuclear analyst type position where
21 you actually operate sophisticated laboratory equipment and
22 gamma spectroscopy equipment and so forth and try to
23 determine environmental levels of radiation through command
24 of the entire Department of Nuclear Safety's emergency opera-
25 tions during an exercise, to actually going out with field

1 teams, running samplers, air samplers; everything from the
2 top to the bottom I guess is what I'm trying to say.

3 Q I understand in these exercises and roles, all
4 aspects up to but not including public participation are
5 involved. Is that correct, sir?

6 A That is only partially correct. I think in almost
7 every instance, some limited public participation has
8 occurred. I think Dave Smith could address that.

9 Q For each of these exercises, a scenario is set
10 up; is that correct, sir? Who sets up the scenario?

11 A Development of the scenario is really -- we have
12 a lot of cooks in the kitchen on that. The utility gets
13 involved, we invite members of the Regional Advisory
14 Committee, which is a FEMA-headed group who brings their
15 technical consultants, usually members from FEMA internally,
16 of course, and NRC and DOE primarily. Of course, the Depart-
17 ment of Nuclear Safety and ESDA, the Emergency Services
18 agency that's involved heavily. I mentioned the utility.

19 If we are dealing with a bordering state, we
20 deal with the department that is our counterpart, and the
21 department in that bordering state which would be Mr.
22 Smith's counterpart. So the scenario is developed by repre-
23 sentatives actually from all of these entities. It is very
24 difficult sometimes because objectives -- the scenario, of
25 course, has to have various objectives, and the objectives

1 that NRC requires the utility to meet are not always com-
2 patible with what FEMA wants to see the state do in one
3 region. And if we into another FEMA region it gets more
4 complicated. They may want to see something else from
5 another state.

6 Essentially, you have to be very ingenious to
7 come up with a scenario that meets all of the purposes that
8 everybody wants to see.

9 Q Could it be said that the scenario is made up
10 by all of the major participants in the study? Your office,
11 FEMA, NRC, the applicant or licensee? Who are the major
12 participants in the study, in the exercise; formation and
13 then conduct of?

14 A The major participants in the exercise are the
15 utility, the state, all of the government agencies, actually.
16 In most instances, the federal governmental agencies are
17 overseeing and critiquing the exercise. In at least one
18 instance they did participate on a limited basis. Govern-
19 mental agencies on the state level all the way -- county,
20 township, village and so forth -- get involved.

21 Usually, governmental organizations below state
22 level do not get involved in the scenario development.

23 Q Is there any one agency or institution that takes
24 the lead, or is this a headless body?

25 A (Witness Smith) In scenario development?

1 Q Scenario development and the conduct of the
2 exercise. It seems to me that somebody has got to be in
3 charge.

4 A The Illinois Emergency Services and Disaster
5 Agency develops the scenario and the exercise in general. I
6 do not think it is a question of taking the lead; it is just
7 that we coordinate the program.

8 A (Witness Ed) You mentioned that somebody has to
9 be in charge. It depends on where. Inside the plant, the
10 utility is in charge until -- hopefully, would remain in
11 charge throughout the entire scenario. Outside, it is the
12 state, be it the state of Illinois or the state of Wisconsin,
13 Iowa or the ones we deal with. Below that level, who is in
14 charge for the state, it is the governor. He makes the
15 ultimate decisions based on the information we give him.

16 Q All right, sir. How many people would you say
17 are involved in an average exercise?

18 A (Witness Smith) I don't know if there is an
19 average exercise. The reason I say that is we are involved
20 with -- take, for example, Byron I believe has an EPZ
21 population of about 18,000, and then we have Zion on the
22 other hand. The number of responding agencies are propor-
23 tionate really to the population, and it depends on if it
24 is a full-scale or small-scale exercise.

25 But I think we could have as many as a few

1 thousand people involved, or somewhat less than that,
2 depending on the site. This would be all participants.

3 A (Witness Ed) If you take into consideration
4 the utility participants, the participants from the federal
5 government who are either participating and are observing,
6 the state, local, county and everything, I would say it is
7 at least on the order of 1000 people on the average.

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1 Q There has been an allegation that too many volun-
2 teers are used. How many volunteers -- please define
3 volunteer for me as you use it. How many volunteers are
4 used in these exercises?

5 A (Witness Ed) Are you trying to arrive at how
6 many of the thousand people, the average thousand people
7 are volunteers?

8 Q They would be people that worked for the state
9 and for the federal government and worked for the counties
10 and paid employees, and I assume that the non-paid people
11 would be volunteers.

12 A Yes.

13 Q Have you had some other definition?

14 A The definition of volunteer is non-paid. That is
15 the way we define it for purposes of reimbursement and other
16 purposes really.

17 A (Witness Smith) Percentagewise it would depend
18 on the site. You get into an urban area, many of the
19 emergency workers are fulltime paid employees; for example,
20 the fire department. You get into a more rural area, their
21 counterparts, the same people, are volunteers, such as
22 volunteer firemen, volunteer ambulance service people, the
23 Red Cross volunteers.

24 We work with the Civil Air Patrol. That is a
25 volunteer organization. As far as numbers of volunteers, that

1 depends on the exercise and what site it was at. I don't
2 think you can break it down as far as percentage either.

3 Q In these typical exercises for power plants
4 similar to the one that you're going to have late this summer
5 at Byron, would you set up and operate decontamination reloca-
6 tion centers as it's visualized in an emergency situation?

7 A I believe so.

8 A (Witness Ed) To answer that, I am not privy to the
9 scenario being developed or even if there is one yet being
10 developed for Byron, but the scenario would have to involve
11 release from the plant of other than noble gases for us to
12 consider contamination to be a possibility. So it depends
13 on the scenario, in other words.

14 If the scenario involved materials that would
15 possibly contaminate people, we would set up decontamination
16 centers. Along that same line, we have done that, I think,
17 at every exercise except one, possibly two, to demonstrate
18 to the appropriate federal authorities that we know how
19 to set up, man and operate such a center.

20 Q That was my next question. What have you done in
21 the past?

22 A A lot of the volunteers used in these exercises
23 are the "contaminated" people that you parade through one
24 of these centers. It really would not be used in a real
25 incident. There would possibly be real contaminated people

1 there. You would not need any volunteers.

2 Q I don't know whether this question is applicable
3 here, but how much notice is given to the people that
4 participate in this exercise, or do they all know about it
5 so far in advance that there is no special planning involved,
6 timewise, I mean.

7 A (Witness Smith) Are you asking how far in advance
8 do they know of the exercise, or do they know?

9 Q You have one thousand people that are going to be
10 involved in an exercise. Do you ever anticipate having some
11 exercise where you give them four hours' notice, just say
12 yes, we're going to have a drill in four hours, or are the
13 kinds of exercises that you are conducting the type that
14 are planned months in advance?

15 A The kind of exercise we are conducting at this time
16 and have up to this point, the participants have known in
17 advance, considerable time. There has been a lot of exercise
18 preparation that needs to be done, facility development and
19 so forth.

20 I do expect in the future to reduce that as the
21 need for pre-exercise activities decreases, and some day I
22 can see the possibility of starting an exercise without advance
23 notice possibly.

24 Q Mr. Smith, you have been involved in other
25 disasters. How important is the time of notice consideration

1 with respect to the ability to mobilize volunteers and
2 emergency workers?

3 A In an actual situation you are talking about?

4 Q Yes, sir.

5 A It is almost immediate. I will refer to the tornado
6 in Marion, Illinois which was last June, I believe. Once
7 we had information of the tornado, we had volunteer rescue
8 squads on and on responding from surrounding counties within
9 minutes on the tornado. It does not take a long time to have
10 the volunteers respond.

11 Q Thank you, sir. That is helpful.

12 With respect to the nuclear exercises again, what
13 is the average duration of the exercise?

14 A The average duration is about six hours, maybe a
15 little bit more. We have had a two-day exercise. That was
16 our longest.

17 Q Do you typically use the notification system's
18 sirens?

19 A We have used them in the past. It depends on
20 the time of day that we are conducting the exercise, and
21 it also depends on the weather conditions. If it is written
22 to provide for daytime exercises, we try to sound the
23 sirens at the appropriate time in the scenario. If it should
24 be an exercise that starts at midnight and goes throughout
25 the night, we would not sound the sirens at 4:00 in the

1 morning.

2 If the weather conditions were such that there
3 may be severe weather coming in, the possibility of a
4 tornado, we would not use the sirens, and we would inform
5 the public ahead of time that the sirens were going to be
6 sounded that day.

7 Q Who evaluates the exercise?

8 A It is evaluated by a group of -- representatives
9 from the federal government, a number of federal agencies, and
10 they all have a special purpose for being where they are,
11 their expertise; and they evaluate the exercise when it is
12 happening. They give a critique, usually a day or two later,
13 and then sometime after that provide a written evaluation.

14 Maybe you would like to speak, Mr. Ed.

15 A (Witness Ed) Yes. The family of the federal
16 agencies that sweeps down upon you when you undertake one
17 of these exercises once again depends on the objectives of
18 the scenario, but just to cite some examples, of course,
19 FEMA and NRC are always involved. We also get representatives
20 from the Department of Energy, who have on their staff a
21 considerable number of people who have radiological expertise;
22 the Department of Agriculture to see how we handle the
23 possibility of contaminated feedstocks, diversion of livestock
24 from pasturage to stored feed, et cetera; representatives
25 from the U.S. Department of Transportation to see how we

1 handle the road networks, evacuation plans, you know, how
2 you position people to direct traffic and so forth, traffic
3 flow. Just about any federal agency you can imagine could
4 come in and check some portion of our operation.

5 Q How about the feedback from that? How is that
6 trickled down to the thousand people that participate in this?

7 A (Witness Smith) Either one or two days after
8 the exercise there is an oral critique that is conducted by
9 FEMA. It is open to the public. Those that participate
10 could attend that, and many of them do. There is a written
11 evaluation provided at a later date, and we would take that,
12 and when we go back into the area, use that as part of the
13 review process to see if the plan might be updated or if
14 procedures may need to be altered or upgraded at the local
15 level.

16 Q Thank you. I think you gentlemen have very
17 important jobs. Thank you.

18 A (Witness Ed) We hope we can live up to your
19 expectations.

20 MR. SAVAGE: And that goes for the Intervenors.

21 JUDGE SMITH: Let's take our ten-minute break.

22 (Recess.)

23 JUDGE SMITH: Let's continue. We still have quite
24 a bit of business to get done today.

25

1 BY JUDGE SMITH:

2 Q Has there been any formal quantification of the
3 risks of evacuation? For example, I was moved to ask the
4 question by Dr. Golden's testimony about your PAGs. I am
5 wondering if there is any tradeoff considered on establishing
6 rather low PAGs that will perhaps cause an evacuation that
7 would otherwise not be caused.

8 And I just wondered if there was any formalized
9 method of assessing the risk from an evacuation.

10 A (Witness Ed) We have not undertaken any formalized
11 study ourselves assessing the risk of evacuation versus
12 the risk of radiation exposure. What we have used is the
13 protective action guidance provided by the U.S. EPA, and
14 we are not lower than the guides. We just use the low range
15 of the guidance. There guidance is one to five rem whole
16 body and five to twenty-five thyroid.

17 If you read our plan very carefully, we allow
18 ourselves the opportunity to use any number within that range
19 based upon our professional judgment.

20 Q And if you feel that the risk of evacuation itself
21 is greater than the benefit of avoiding the dose, you are
22 free to make that judgment.

23 A And we routinely do.

24 Not dealing so much with the general population
25 but in dealing with special segments of that population such

1 as your nursing homes and hospitals and so forth where the
2 risk to these individuals of evacuation is much greater,
3 the risk of impairing their health because of evacuation
4 is much greater than the normal average person in the EPZ,
5 because of their age and health and so forth, we'd very
6 definitely use professional judgment in determining.

7 Essentially, the decision is are we going to hurt
8 these people more by evacuating than letting them receive
9 two, three, four, five rems. The plan specifies the lower
10 limits of the PAGs, but it also specifies that we have the
11 latitude of using anything within that range.

12 Q I cannot find Dr. Golden's testimony on the point
13 right at the moment, but we were at that portion of his
14 testimony in which he says the direction you are going is
15 that evacuation will always be ordered when the Illinois PAGs
16 are projected. I will find the exact point.

17 (Pause.)

18 MR. BIELAWSKI: Was Dr. Golden speaking -- was he
19 saying that would be the recommendation that Commonwealth
20 Edison would give?

21 JUDGE SMITH: Let's find the exact point.

22 (Pause.)

23 JUDGE SMITH: It is on page 11 of Dr. Golden's
24 testimony, last sentence. He says, "However, these studies
25 indicate that if the potential dose exceeds the PAG,

1 evacuation will always be the recommendation, if it is feasi-
2 ble in the light of known operational conditions."

3 BY JUDGE SMITH:

4 Q I infer from the tenor of his testimony that the
5 PAG he is referring to there is the Illinois PAG. In any
6 event, assuming that it is the Illinois PAG, do you agree
7 with that statement?

8 A The statement probably does reference the Illinois
9 PAG. The recommendation -- the word "recommendation" is
10 the Commonwealth Edison recommendation, not the State of
11 Illinois recommendation I believe he is referring to. I don't
12 think he would testify or would speak out of score and testify
13 for the State of Illinois.

14 Q I inferred that from the preceding discussion in
15 that paragraph in which he indicated that their approach
16 would parallel the Department of Nuclear Safety. However,
17 I understand what your testimony is in any event.

18 A Our approaches are very similar. I just want to
19 make the point clear that our plan -- I was searching for
20 a specific quote I found this morning, but apparently I do
21 not have a copy here.

22 Our plan does allow us the latitude to vary the
23 PAG and still stay within the federal guidance, stay within
24 the range, but vary that PAG and -- as the professional
25 insight of our staff indicates.

1 BY JUDGE CALLIHAN (Resuming):

2 Q Pursuing that just a bit, yesterday, Dr. Golden
3 told us, as I recollect, that Commonwealth Edison would
4 supply to responsible people, yourselves, your organization
5 some information that an occurrence has taken place. I
6 presume some idea of the intensity and some meteorological
7 data. Is that what you expect to get from Commonwealth
8 Edison, or do you expect more?

9 A (Witness Ed) That was somewhat simplistic. We
10 actually get much more. On initial notification, however,
11 you don't have much time to get much more than that there
12 is a problem, we are trying to assess it, we will get back
13 to you.

14 If we allow them to assess -- or if they go ahead
15 and assess the problem that might take two or three hours,
16 so the accident has been occurring for that period of time
17 and we have not yet been notified. So we do like them to
18 notify us as soon as they have some sort of a problem, even
19 though they don't know what it is. The information that we
20 get on that initial notification may be not all we would like,
21 but that is probably all they know at the time.

22 Further, we have developed a rather detailed,
23 what we call nuclear accident reporting system. We refer
24 to it by the acronym NARS, that has 20-some items on it. It
25 appears in our plan. It is sort of a prompt. They should

1 fill out the form and then they transfer the information to
2 us over a dedicated phone system, and on this form is all of
3 the information we feel we need to make a rough estimate of
4 the situation.

5 In addition to that, in Illinois we are installing
6 a completely electronic remote monitoring system whereby
7 we electronically, through computerization and telemetry of
8 data and so forth, we -- we being the department -- keep our
9 finger on the pulse of the plants. They don't have to tell
10 us meteorological information when they call us. Our men
11 can look up at a computer screen in our office, Springfield
12 office, punch a button and there will be the data from the
13 Byron meteorological tower.

14 So we have come a long way in accident assessment
15 in Illinois. We have come further, I believe, than anybody
16 else.

17 As I mentioned, the immediate availability of
18 today, though today's technology, is one of those things,
19 one of the tools that we use. Not only meteorological data,
20 but other data on effluents, discharged radiation amounts
21 going out the stack, out the liquid discharge, radiation
22 levels in containment and so forth. We also have radiation
23 monitors in the environment around the plant. Very sensitive,
24 pressurized ion chambers capable of measuring background
25 levels of radiation all the way up through extremely high

1 levels, and these continuously relay these readings to our
2 Springfield office, also. And we have 16 of these, or will
3 have 16 of these around each operating plant within the
4 next year. As well as, I said, the computer-to-computer
5 hookup whereby we get all of the -- some plant status data
6 and meteorological data and the like. We have a quite
7 sophisticated system for the transfer of information and we
8 feel we are getting everything we need to make the decisions.

9 Q You have foreseen my next question, but I still
10 will pursue it. I also realize the answer to my next question
11 is as impossible as knowing what you're going to do when an
12 accident occurs, but pick up from there and tell us in very
13 general terms, very brief terms even, down to the point of
14 where you start evacuation, what you do.

15 A How we come to the decision to evacuate or not
16 to evacuate?

17 Q Yes. Let's suppose you decide to evacuate.
18 Suppose that is the condition. Take us down to that point
19 at any rate.

20 A Okay. Usually, the first step at that point is
21 to decide which dose will be delivered to the population
22 should whatever is occurring at the plant cause a discharge
23 of radioactive material. That can be based upon the amount
24 of activity bottled up in containment available fo release
25 or the amount of activity being released.

1 As I said, we have electronic relay of all of that
2 information immediately to Springfield. It is real time, as
3 it happens. We know it. It is real time. As real time as
4 the people in the control room of the plant get the information.
5 With that radiological information source term information
6 combined with meteorological information such as the wind
7 speed, wind direction, temperature differential with height,
8 variance in wind direction and so forth, you can plug into
9 sophisticated computer models and come up with an estimated
10 downwind dose at some XYZ point of several points.

11 And if this dose approaches a protective action
12 guide or exceeds one, and then we go on with the next step, if
13 enough dose is there to provoke us to go further -- enough
14 potential dose to provoke us to go further -- then we look
15 at the conditions of well, is evacuation feasible. And that
16 is when we start studying the road conditions, the time it
17 would take to evacuate versus the time to release.

18 This stuff is bottled up and appears that the
19 pressure is low is low in the containment, the building can
20 be held for another three hours. It only takes two hours
21 to evacuate. It appears that you can get all of the people
22 out before the accident occurs. We would probably suggest
23 evacuating if there were no obvious impediments to evacuation.

24 On the other hand, if the release was going to
25 occur within a short time, say, one hour, and our estimates

1 say it would take sometime longer than that to evacuate, say
2 four or five hours, quite obviously, the release would have
3 come and gone while these people were being evacuated and
4 there would be essentially no dose reduction through evacuation.
5 So our suggestion would be sheltering, which does provide
6 some dose reduction.

7 That is pretty much how we arrive at the situation.
8 It becomes a little more complicated when it is not quite as
9 clearcut as that; when you are actually -- the time to
10 release and the time of evacuation approach each other,
11 then you have to do some calculations on will sheltering
12 afford more protective action or will evacuation. But by
13 using the lower level of protective action guides which may,
14 in certain instances lead -- quite admittedly, may lead to
15 an unnecessary evacuation, we feel there are enough variables,
16 enough uncertainties in the numbers that have been -- such
17 as evacuation times -- that these numbers can be off if we
18 are using the low level, lower end of the protective action
19 guide. They can be off by a factor of 5.

20 So, the evacuation can take five times as long
21 and these people can be in the plume five times longer than
22 we thought, and they are still only going to get the upper
23 level of the dose of 5 rem. So there is a built-in conserva-
24 tism in there. And we feel that we need that simply because
25 of the uncertainties in the decision process to implement

1 these protective actions.

2 Q Sheltering in this context is merely staying
3 indoors?

4 A It is called sheltering in place. It is staying
5 indoors and minimizing air exchange in whatever shelter you
6 are in. Turning of air conditioning systems and things
7 like that.

8 Q There was a hint earlier that my follow-on
9 interest may be outside your expertise, so don't hesitate.
10 This goes back to the iodide intake, potassium iodide pills,
11 whatnot. To your knowledge, does the administration of
12 iodide saturate thyroid and prevent further uptake, or does
13 it produce an exchange whereby radioiodine is replaced by
14 non-radioiodine administered through potassium iodide?

15 A The former in combination with -- when you
16 saturate the thyroid, since it is stable with non-radioactive
17 iodine, once it has all of the iodine it needs, the iodine
18 uptake metabolism of the thyroid through endocrine feedback
19 systems slows down the metabolism of the thyroid and actually
20 retards the uptake, further uptake of iodine. So there are
21 two factors that come into play; the saturation with stable
22 iodine, and then the slowing of the metabolism.

23 That is what makes administration of potassium
24 iodide after exposure ineffective in that it slows down
25 the metabolism in certain instances, and in certain instances

1 would encourage the retention or slow down the turnover rate
2 of the radioactive iodine that was there. Actual administra-
3 tion of potassium iodide many, many hours after exposure
4 really does very little good.

5 Q Turning to a point under considerable discussion
6 this morning, and one in which I have a little concern has
7 to do with what I guess was referred to as the schoolboard
8 problem, and the apparent hesitancy is perhaps the word I
9 can use -- of cooperation. It is a rather strong statement,
10 but I use it just for identification.

11 Do you feel that there has not been time yet to
12 work these things out, or are we talking about emergency
13 plans too early in your schedule? What do you think about
14 that?

15 A The entire problem is one of timing. The timing
16 of these hearings and the timing of our plan preparation,
17 unfortunately, are somewhat simultaneous. If that were not
18 the case, the problems -- and they are not insurmountable
19 problems, but the problems that we are facing would not
20 occur. It is simply a matter of timing. It is unfortunate
21 that we plan or we scheduled the preparation of the plan
22 without regard to the schedule of this hearing. In other
23 words, our planning effort at Byron is not as yet complete.
24 We are in the midst of it, and yet, we are here telling
25 you what we are going to do rather than what we have done.

1 And our timing, our scheduling is not purposely set that
2 way. It was set that way, I believe, before these contentions
3 were even raised. But we are adhering to our own schedule
4 and anticipate that the plan will be completed, even with
5 these problems we brought up. Like I say, they are not
6 insurmountable. We feel that the plan will be completed as
7 we have testified, and it is unfortunate that our scheduling
8 for the plan preparation and the hearing schedule tended
9 to coincide.

10 Q Based on your experience in other parts of the
11 state of Illinois, and perhaps even other types of
12 emergencies, do you have a fairly optimistic outlook on
13 this problem of liability, using local public transportation
14 for evacuation and that sort of thing?

15 A I think I will refer to the route you offered
16 me in the thyroid question. Really, that is beyond me. I
17 don't know enough about the problem to be optimistic or
18 pessimistic; whereas, I know a lot about thyroid uptake,
19 I know very little about liability.

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1 A (Witness Smith) The statement I could make is
2 that we will have an answer for everybody involved prior to
3 the submission of this plan for final approval by the federal
4 agencies. I hope we can get that answer as soon as possible.
5 We are working on it, and I think at this point there has
6 not been a real sense of urgency to get that answer immedi-
7 ately, because we can foresee when we will actually need
8 that answer based on our planning process and when the
9 plan is going to go into operation -- when the plant is
10 going to go into operation.

11 Q I apologize for not having said to answer as you
12 feel, as the panel feels.

13 What has been the state's practice and policy
14 on public education in potential radiation risks, and if
15 necessary, evacuations?

16 A (Witness Ed) You mean education to the general
17 populace in contrast to education presented to emergency
18 workers.

19 Q Yes.

20 A I'm not sure that we as a department undertake
21 any of that.

22 Q Has any agency of the state done this, to your
23 knowledge?

24 A Other than the state educational institutions in
25 their normal programs, to my knowledge there has been no

1 concerted effort on the part of the state to go out and
2 educate the general populace in the EPZs as to the potential
3 hazards or the lack thereof posed by the presence of a
4 nuclear generating station.

5 Q On the basis of your extended experience with
6 volunteers, and again speaking broadly, the fire department
7 and what not, are volunteer organizations organized on some
8 sort of a "shift" basis so that one has guarantee of around-
9 the-clock coverage? Again, this is a matter of going back
10 to your experience in other fields even.

11 A (Witness Smith) Yes. It depends on what type
12 of volunteer we are talking about. For example, a volunteer
13 ambulance service I would say I would believe in most cases
14 that there is a system worked out within that service to have
15 people on call at certain times. They may even carry a pager
16 where they can be contacted, or if they don't have that
17 system, they may know that on Tuesday of this week it is
18 their day to be on call and maybe have to be close to the
19 telephone.

20 There are various systems for activating the
21 volunteer fire department, whether it be through telephone
22 notification or on a paging system, so those volunteers that
23 are needed for first response for responding to the emergency
24 immediately, there usually is a system set up so there is
25 always somebody available. Those volunteers that are not

1 needed in a first response capability, they have got more
2 time. They can be contacted at work, or you can leave a
3 message at home, or they get the word somehow. An example
4 of that would be the Red Cross people; if they have to manage
5 a shelter that usually is not immediate; they do not have to
6 jump in their car and race to the shelter. They have time
7 to drive over there and set up. There could be other cases
8 like that.

9 So it depends on the function; if it is a first
10 response or a support function that occurs later on.

11 Q That sounds fine as a policy. Now, what is your
12 experience and practice?

13 A Experience and practice with first response agencies,
14 very good. I can base that both on my experience as a
15 volunteer ambulance service member, and we had a system where
16 we had a schedule, and we knew what day we were to be on
17 call, and that was it. We were around. We had our pager.

18 My experience with volunteer fire departments is
19 that there is always personnel around close by that can respond,
20 you know, to that fire. My experience with volunteers has
21 been good in response to actual emergencies.

22 A (Witness Ed) I would like to go a little further
23 on that and maybe pat myself and some others on the back;
24 that our definition of "volunteer" here has been defined
25 as serving without pay, and even salaried individuals or

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1 people who are paid for an eight-hour day, when they hang
2 a pager on their belts or have to call in every three hours
3 and so forth, are somewhat volunteering their off-time to
4 remain available to respond to potential emergency, be it
5 radiological or whatever.

6 And I know in the case of the people within our
7 department and the state government, there is no financial
8 remuneration for this voluntary or volunteering availability.
9 So I just wanted to put that out; that there are other people
10 who remain on call during off-hours. They kind of volunteer
11 availability, and define the word "volunteer" as without
12 pay.

13 A (Witness Smith) I might also add to that, I guess
14 to make an example to illustrate a point about volunteers,
15 it has been my experience that if we conduct a training
16 session in the evening and that training session is open
17 to paid employees and volunteers, the volunteers will show
18 up, but the paid employees want us to come when they are on
19 duty.

20 Of course, this is a livelihood, but I think that
21 says something about a volunteer that has worked all day but
22 is still willing to come out and volunteer his services to
23 attend that training session.

24 Q Mr. Ed, I want to come back to a point that I
25 missed before, and I apologize. This has to do with your

1 decisionmaking and the basis -- the data available for that
2 decision. And you spoke of pushing a button and looking at
3 an indicator or a readout for meteorological data. Where
4 is that centered?

5 A (Witness Ed) that is what we call an acronym.
6 REAC. Radiological Emergency Assessment Center in our offices
7 in Springfield, Illinois.

8 Q Is that manned 24 hours a day, seven days a week?
9 Or will it be?

10 A It will -- the system is just being installed.
11 The people to man it 24 hours a day have been hired as of
12 about two months ago. They are still undergoing training.
13 So the actual manning of the center 24 hours a day is not
14 yet accomplished. We are available 24 hours a day because
15 ESDA does have a 24-hour communications -- we call it dis-
16 patcher, I guess, who can contact our people who can be at
17 the center where the screen is within -- we run drills. We
18 can get people there, people competent to make decisions,
19 within 10 to 20 minutes.

20 Q Is this a center for information on other potential
21 emergencies other than radiological from Byron?

22 A No. This center is totally dedicated to -- I
23 should say the electronic monitoring equipment in the center
24 is totally dedicated to the monitoring of nuclear generating
25 stations in Illinois. The center is utilized because of its

1 communication radio and elaborate communications capability
2 for response to a non-nuclear plant, but still a radiological
3 accident such as a transportation accident or somebody dropped
4 a container of radiopharmaceuticals at O'Hare Airport, that
5 is one of our common responses. We use that center simply
6 because of its communications capability and computational
7 capability. We have computers that can figure doses and the
8 like.

9 Its primary purpose and its funding were derived
10 from the Nuclear Safety Emergency Preparedness Fund, which
11 is a special -- a fund comprised of special fees we assess
12 for nuclear facilities. Its purpose is primarily for the
13 monitoring of nuclear generating stations.

14 Q I understood you made a very broad remark that
15 I interpret as -- this is a statewide center in its coverage.
16 Does it cover Clinton, for example, or will it?

17 A It will when Clinton is in operation. It is
18 designed to cover in the future seven nuclear generating
19 stations located in -- at Dresden, Quad Cities, Zion, LaSalle,
20 Braidwood, Byron and Clinton.

21 MR. SAVAGE: I would like to ask one question in
22 response to a question that Dr. Callihan asked Dr. Ed.

23 JUDGE SMITH: Yes.

24

25

1 CROSS EXAMINATION ON BOARD EXAMINATION

2 BY MR. SAVAGE:

3 Q I believe that Dr. Callihan asked you about the
4 hesitancy of the school superintendents to participate in
5 the planning, and you accounted for the hesitancy in terms --
6 you said you thought the hesitancy was present because of
7 the hearing. Is that correct?

8 A (Witness Ed) Because, more specifically, generally
9 because of the superintendents submitting testimony to this
10 proceeding.

11 Q When you say that, do you mean also that the problem
12 does not have anything to do with the fact that IESDA has
13 not answered the questions about liability, hearing or no
14 hearing?

15 A Can you restate that a little bit?

16 Q Yes. I'm wondering whether there would be still
17 hesitancy on the part of those people to cooperate with you
18 if there was not a hearing just because IESDA has not yet
19 answered their questions about liability?

20 A You're asking me to conjecture. I don't know.

21 Q You don't account for their hesitancy in those
22 terms, I take it?

23 A No.

24 JUDGE SMITH: Mr. Goldberg.
25

1 BY MR. GOLDBERG:

2 Q I have a question posed to you, Mr. Smith, by
3 Judge Cole about the advance notice that the state organiza-
4 tions have about the emergency exercises. Do they also have
5 advance notice about the specific scenario that is going
6 to be exercised?

7 A (Witness Smith) No. The local governments, or
8 actually any participant, as an employer does not have
9 advance notice of what the scenario is going to be or what
10 it contains. What they do know -- and we always start out
11 saying it is going to be the week of such and such. But
12 when you have to make all of these arrangements, they do know
13 the day of the exercise, and I think they probably have a
14 general idea of what time, but they do not know the scenario,
15 they don't know what is going to be expected or what their
16 response would -- what response would be required of them
17 during that exercise.

18 MR. GOLDBERG: Thank you.

19 WITNESS ED: I would expand on that. We mentioned
20 that members of each of these organizations above the
21 county level -- in other words, state -- and the utility and
22 so forth, participate in constructing the scenarios. And
23 usually the members of those organizations who so participate
24 become exercise controllers. They go out and actually observe
25 what is going on, and then input into internal critiques

1 after the exercise. So -- the actual players are people
2 who are unaware of the content of the scenario. The parti-
3 cipants as controllers are aware simply because it helps them
4 critique what is going on if they have knowledge of what
5 should be done.

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1 JUDGE SMITH: How much more do we hope to get
2 done today?

3 MR. SAVAGE: If the Board wants to stay beyond
4 5:00, I have very few questions of Mr. Urbanik, and I
5 believe that Mr. Holmbeck has just a few. I would like to
6 get through two NRC witnesses. I would like to still finish
7 on Friday.

8 JUDGE SMITH: Do you have redirect?

9 MR. BIELAWSKI: About 10 minutes of redirect,
10 maximum.

11 JUDGE SMITH: All right.

12 REDIRECT EXAMINATION

13 BY MR. BIELAWSKI:

14 Q With respect to the liability issue, I know
15 neither one of you is experts but the record as it now
16 appears might be perceived as showing a certain insensitivity
17 toward the issue of liability. The issue has, in fact, come
18 up in the past, has it not? I will ask you the question
19 whether it has.

20 A (Witness Smith) Yes.

21 Q Is that in the context of emergency exercises?

22 A It has been in the context of emergency exercises.
23 I am sure it has also been discussed as a real situation,
24 although I was not a part of that discussion.

25 Q Is the insurance provided to officials or

1 agencies, schoolboards or whatever who participate in
2 emergency exercises for any potential liability that might
3 occur as a result of their participation? Do you know?

4 A It is if it is an activity that their liability
5 coverage does not cover.

6 Q Mr. Ed, I have a few questions for you with
7 respect to hospitals. As I read your testimony, I think
8 it would be fair to characterize your testimony as saying
9 that there are three general types of hospitals, in terms
10 of dealing with contaminated, injured individuals, and let me
11 explain myself. The first are the hospitals included in
12 your list in the procedure which are hospitals, as you state
13 on page 8, which you have determined are capable of giving
14 treatment to these individuals.

15 The second -- and within that group are the
16 hospitals that Commonwealth Edison has contracted with to
17 provide services to its workers. The second group of
18 hospitals are hospitals that you license to handle radio-
19 active materials, and, therefore, as a result of that
20 licensing I believe you state that there is a certain
21 degree of confidence that they will be able to deal with and
22 be familiar with the dangers of radiation and treatment.

23 The last group of hospitals, I would take it,
24 are hospitals that fall in neither of those groups; neither
25 licensed nor are they on your list.

1 Now, I will ask you whether you are familiar
2 with the testimony, the pre-filed testimony, of Paul
3 Holmbeck insofar as it identifies hospitals which responded
4 to a survey questionnaire that Mr. Holmbeck sent out. Are
5 you familiar with his testimony insofar as --

6 A (Witness Ed) I have some recollection of it.

7 JUDGE SMITH: Wait a minute, where are you going
8 to go with this line?

9 MR. BIELAWSKI: I'm going to ask whether the
10 hospitals that Mr. Holmbeck has identified as having been
11 identified -- as having been responded to in his questionnaire,
12 what group those hospitals fall under.

13 MR. SAVAGE: I object.

14 JUDGE SMITH: We have a motion to strike that
15 very survey, don't we?

16 MR. BIELAWSKI: Yes, we do. This is evidence --
17 Mr. Holmbeck earlier mentioned the very hospitals that
18 are listed in his testimony. I think it is appropriate to
19 get evidence from the person who evaluates the hospitals in
20 terms of their ability to treat contaminated, injured indi-
21 viduals as to what his view is with respect to the four
22 hospitals who responded to the questionnaire.

23 That does, in fact, go to the relevance of the
24 survey, I agree with that. But Mr. Holmbeck earlier was
25 asking whether any hospital in the area would be called upon

1 to treat these individuals. And it is a fair question for
2 someone --

3 JUDGE SMITH: You are using the survey as an
4 identification means. Or are you anticipating rebutting
5 the survey which you have moved to strike?

6 MR. BIELAWSKI: I would anticipate, depending
7 on Mr. Ed's answer, I would anticipate arguing, if he says
8 these hospitals are not the hospitals which would be called
9 upon, I would anticipate arguing that based on his testimony,
10 the relevance of their answers to the questionnaire is --
11 it is irrelevant.

12 JUDGE SMITH: It is going to be relevant to your
13 motion to strike.

14 MR. BIELAWSKI: That's right.

15 JUDGE SMITH: Do you withdraw your objection?

16 MR. SAVAGE: Yes.

17 JUDGE SMITH: You may answer, then.

18 BY MR. BIELAWSKI (Resuming):

19 Q Mr. Holmbeck identifies four hospitals; one
20 is the Rochelle Community Hospital in Rochelle, the second
21 is the Highland Hospital in Belvidere, the third is the
22 Sandwich Community Hospital in Sandwich, the fourth is the
23 Savannah City Hospital in Savannah.

24 Are any of those hospitals on the list in your
25 procedure attached to your testimony?

1 A (Witness Ed) No, they are not.

2 Q Are any of those hospitals licensed by your
3 agency?

4 A Not to handle radioactive materials. They have
5 no materials license.

6 Q What conclusions do you draw from that fact in
7 terms of the likelihood that these hospitals would be called
8 upon to treat people who would be injured and contaminated
9 as a result of an accident at Byron?

10 A In the categorization of hospitals -- you men-
11 tioned three categories, the one being -- I think the most --
12 hospital most appropriate to treat the group, the category,
13 most appropriate to treat contaminated, injured individuals
14 are the ones who both hold a DNS license for materials and
15 also, have had the specialized training provided by RMC.
16 I consider the class one, most prepared hospital.

17 Quite obviously, these hospitals would not fall
18 into that category. The second category is the hospitals
19 that are licensed to handle radioactive materials, have
20 people on their staffs who are knowledgeable in radiation
21 and nuclear materials, and are licensed by our department and,
22 therefore, our department has some insight into the
23 capability of these facilities to deal with materials. Those
24 hospitals, simply by their lack of a materials license, do
25 not fall in this category. It would only be hospitals in the

1 two categories I just discussed that we would even consider
2 to put on this list. Since Rockford has two extremely well-
3 equipped hospitals with very nice nuclear medicine departments,
4 being Rockford Memorial and, I believe, the Swedish American,
5 not to leave out St. Anthony's, it has a department not quite
6 as elaborate as the other two, but given that -- those
7 resources, we would not consider it necessary at all to
8 consider these other hospitals as additions to this list.

9 Q Thank you. Mr. Smith, I have a few questions
10 for you. Did you have an opportunity to review the results
11 of the survey of ambulance services conducted by Mr.
12 Holmbeck and attached to the testimony of Joel Cowan?

13 A (Witness Smith) Yes, I did.

14 Q Are you familiar with the findings reported, I
15 believe, on page 1 of the findings of the survey insofar as
16 they relate to the number of ambulance services within the
17 10-mile EPZ?

18 A Yes.

19 Q I believe it is the third finding on the first
20 page. I believe the finding states that four of the five
21 ambulance services in the 10-mile EPZ responded to
22 questionnaires. Do you know -- are you informed of which
23 ambulance service did not respond to the questionnaire?

24 A Yes, I understand it was the Byron Fire Protection
25 District.

1 Q Is that the same ambulance service that is
2 contracted with Commonwealth Edison Company to respond to
3 emergencies onsite?

4 A Yes, it is.

5 Q Now, that survey -- the summary of findings
6 states that in the emergency planning zone, there were four
7 responding ambulance services of the five services in the
8 area; 78 members, 51.3 of whom are E&Ts. In an emergency
9 they can transport 18 trauma or 25 non-ambulatory persons.

10 What conclusions do you draw from this finding,
11 assuming the survey was conducted properly and everything
12 else, insofar as the ability of the ambulance resources
13 within the EPZ, remembering that the Byron Fire Protection
14 District was not included in this survey?

15 A Can you restate what the four services that did
16 respond were -- the number of patients they can transport?

17 Q It says they can transport 18 trauma or 25 non-
18 ambulatory persons.

19 A I think what that says to me is that those
20 ambulance services, in addition to the ambulance belonging
21 to the Byron Fire Protection District, could probably transport
22 between 22 and 30 patients at the first trip.

23 Q Do you know whether the members of the ambulance
24 services within the 10-mile EPZ will receive training from
25 ESDA and DNS?

1 A They will receive training from both ESDA and DNS.
2 Our training is of a --

3 MR. SAVAGE: I have an objection. Isn't that
4 something covered by the commitment? Are you going to go
5 into the nature of the training and whether it is adequate
6 to do the job? Isn't that covered by a commitment? Didn't
7 we agree not to discuss the ambulance issue insofar as it
8 dealt with training? Isn't that crossed out now in our
9 affidavits?

10 MR. BIELAWSKI: I would agree it is an issue of
11 training. It is just the number of people who can be trans-
12 ported. If the resources of these ambulance services is
13 what remains in contention 3, I believe, and Mr. Holmbeck's
14 survey, then I would withdraw the question because training
15 is definitely --

16 MR. SAVAGE: Didn't we agree that we weren't
17 going to discuss training?

18 MR. BIELAWSKI: Certainly. I will withdraw the
19 question. I have no further questions of these witnesses.

20 MR. SAVAGE: I just have one or two generated
21 by Mr. Bielawski's redirect.

22 RE CROSS EXAMINATION

23 BY MR. SAVAGE:

24 Q Mr. Smith, do you find the results of the survey
25 distributed by Mr. Holmbeck useful to you?

1 A (Witness Smith) Not really. From the results
2 of the survey we could not determine which ambulance
3 services we were talking about. I believe the area surveyed
4 was the -- I cannot recall the name of the organization. It
5 is the health planning --

6 Q Region 1.

7 A Okay. I believe that covers quite a large area
8 and many of those ambulance services will never have a
9 response role to a situation at Byron. If those were the
10 ambulance services that responded, then the information
11 contained in the survey really did not provide useful
12 information to us.

13 Q When you answered Mr. Bielawski's question about
14 how many people do you think now the ambulance that responded
15 could -- how many people they could transport in one trip,
16 isn't that useful information to you? And didn't you get
17 that from the survey, so don't you find the survey useful?

18 A We would get that information through our normal
19 planning process when we go out and talk to all of the
20 ambulance services, you know. We need to know what their
21 resources are. The information did appear in the survey
22 but I would not use that information without verifying it
23 with those ambulance services.

24 Q Assuming that the survey was reliable and could
25 be shown to be reliable, isn't that useful information to
you?

1 A The fact that the ambulances in the EPZ could
2 carry a specified specific number of patients is information,
3 like I say, that we will obtain in our normal planning
4 process. I did not take the survey, when I received . .
5 and say this is important information that we need. No.

6 Q I don't think you are answering my question.
7 Isn't the information useful?

8 MR. BIELAWSKI: I think it has been asked and
9 answered.

10 MR. SAVAGE: I don't think he has been answering it.

11 WITNESS SMITH: The fact that we know how many
12 injured persons the ambulances can carry is good information
13 to know. We did not depend upon the survey to get that
14 information.

15 BY MR. SAVAGE (Resuming):

16 Q That is an answer to my question. That's fine.
17 I'm wondering about the demand for ambulance service that
18 you anticipate. Are you telling me that the survey is not
19 useful to you because it surveyed such a wide group of
20 ambulances that would never be called upon to meet a demand
21 for a radiological disaster in the Byron area?

22 MR. BIELAWSKI: Objection. Now I think Mr.
23 Savage has clearly gone beyond what is required. As the
24 Commission has stated by the regulations, in terms of
25 preparedness you handle injured, contaminated individuals.

1 MR. SAVAGE: Is your objection that this is
2 irrelevant because of the decision in San Onofre?

3 MR. BIELAWSKI: Yes, that's right.

4 MR. SAVAGE: How do you construe that decision
5 to make this irrelevant?

6 MR. BIELAWSKI: I construe the decision the
7 Commission interpreted the language of the regulation and
8 set bounds on the degree of preparedness that you have to
9 plan for. I think your question assumes that there are
10 planning requirements which go well beyond what the Commission
11 has stated must be done.

12 (Board conferring.)

13 BY MR. SAVAGE:

14 Q Correct me if I'm wrong. Didn't the Commission
15 rule that --

16 JUDGE SMITH: Wait a minute. What is the question?
17 Would you restate it?

18 MR. SAVAGE: The question -- I asked Mr. Smith
19 whether he found the results of the survey useful. He said
20 no. And one of the reasons he gave for no was that it
21 surveyed too wide an area, that the demand for the ambulances
22 surveyed would never exist. And I am wondering whether he
23 is confident that there would never be a demand for ambulances
24 that involved other regions of Region I besides the six
25 ambulance companies listed in IPRA, especially in light of

1 his testimony that they started to talk and will have mutual
2 aid agreements with ambulance services in Rockford and
3 Rochelle.

4 JUDGE SMITH: You may answer.

5 MR. BIELAWSKI: What is the question? I have
6 lost track of the question also.

7 BY MR. SAVAGE:

8 Q The question is can you ever imagine a demand for
9 ambulance services that would expand -- can you imagine a
10 disaster, radiological disaster at Byron which would neces-
11 sitate using ambulance services in Region I in addition to
12 those within the EPZ, the six listed within the EPZ?

13 A (Witness Smith) What counties are in Region I?

14 Q Ogle, Stephenson, Winnebago, Boone --

15 MR. HOLMBECK: It is the nine counties of north-
16 west Illinois, Ogle being in the center and every county
17 which is around that or bordering on that in northwest
18 Illinois.

19 WITNESS SMITH: Nine counties, you say.

20 MR. HOLMBECK: Yes.

21 WITNESS SMITH: It goes over as far as Kane
22 County?

23 MR. HOLMBECK: No. It is Boone, DeKalb, Lee,
24 Whiteside, Carroll, Joe Davies, Stephenson, Winnebago, and
25 Ogle.

1 WITNESS SMITH: May I have the question again?

2 BY MR. SAVAGE:

3 Q Let me try and put it more clearly even. Can
4 you imagine a radiological emergency involving the Byron
5 Power Station which would necessitate calling upon ambulance
6 services in Region I other than those and in addition to those
7 designated in the Byron IPRA, the six listed in your testimony?

8 A (Witness Smith) I think I stated that this
9 morning we're going to be working on obtaining mutual aid
10 agreements. I suspect that we will be talking with the
11 ambulance services that are adjacent to those ambulance service
12 districts in EPZ which -- I could not tell you what that
13 would encompass, but it would not encompass that entire area.

14 Q It is important to talk to more than six ambulance
15 companies. You seem to find it important, don't you?

16 A Certainly we plan on doing that.

17 Q To the extent then that the survey, assuming it
18 is reliable, gives you some information about those ambulance
19 services and their preparedness, wouldn't it give you useful
20 information?

21 A No.

22 Q Why not?

23 A Because the information that -- some of the
24 questions -- and I think it was a majority of them -- that
25 were on the questionnaire really did not relate to their

1 potential response to an emergency at Byron. I had a problem
2 with the survey and -- in that I don't think that they
3 really understood what they were responding to. I think
4 they related it to the Byron situation. They indicated in
5 there that -- I cannot tell you what percentage, but it
6 was a relatively low percentage that said they were trained
7 in handling a contaminated person.

8 I know for a fact that all of the EMTs received
9 the training. There was 50 percent EMT membership to the
10 ambulance services just within the EPZ.

11 MR. SAVAGE: Excuse me for a second.

12 (Counsel conferring.)

13 MR. SAVAGE: I would like to move to strike that
14 last remark from Mr. Smith, because I think in order to make
15 it, he has to have some expertise in judging whether a
16 questionnaire has been designed in a manner to ensure that
17 the information it gathers is reliable.

18 JUDGE SMITH: That's not the basis. When he
19 sees the results of a survey that he knows to be inaccurate,
20 then his testimony is it is not useful. Is that basically
21 it?

22 MR. SAVAGE:

23 Q Your testimony was not that it was inaccurate --

24 MR. BIELAWSKI: Furthermore, Your Honor, Mr. Smith
25 earlier in his testimony said that he is an EMT. He has

1 been trained. So he is certainly capable of being able to
2 read those questions to see whether or not they raise ques-
3 tions which would give you an idea of whether the ambulance
4 services are prepared to respond to an emergency at Byron,
5 whether it is relevant really.

6 JUDGE SMITH: A better question is what is the
7 relevance of his evaluation of the survey.

8 MR. SAVAGE: I think if he finds the information
9 useful, this survey is obviously relevant to emergency
10 planning.

11 JUDGE SMITH: I don't think anybody's going to
12 argue that the survey is not relevant.

13 MR. BIELAWSKI: Actually, there is another part
14 of my argument which I'm not going to put on today dealing
15 with the methodology involved.

16 Here, the question I asked Mr. Smith was simply
17 assuming that the information given is reliable, what
18 conclusions can he draw from Intervenors' own findings, and
19 his conclusions were that you could -- there is a capability
20 right now within the ten-mile EPZ for handling somewhere
21 between I think 22 to 25 -- I don't really recall exactly
22 what the numbers use -- injured, contaminated individuals.
23 And he also stated that one important ambulance service was
24 not -- did not respond to the questionnaire, and that
25 is the Byron protection district, Byron fire protection,

1 which has a contract with Commonwealth Edison. That the
2 question is did he perceive that information as being
3 reliable.

4 MR. GOLDBERG: There is a relevant aspect to the
5 surveys. I don't think we need to present those arguments
6 today.

7 MR. SAVAGE: I never intended to. I thought they
8 had been raised by Mr. Bielawski, so I thought I ought
9 to address them.

10 MR. BIELAWSKI: They had been raised. I said
11 even if the information is as the Intervenors say, even if
12 the information they provide in the survey is reliable, good
13 information, I am asking Mr. Smith to draw conclusions from
14 that information, and he has done so.

15 BY MR. SAVAGE:

16 Q What conclusion have you drawn, Mr. Smith?

17 A (Witness Smith) Well, the conclusion -- you asked
18 the question if the information was useful. I believe --

19 Q In response to Mr. Bielawski's question, what
20 conclusion have you drawn?

21 MR. BIELAWSKI: In terms of the number of injured,
22 contaminated people.

23 WITNESS SMITH: In terms of that one, I guess,
24 question on the survey about how many injured people they
25 can transport, I can draw the conclusion that they can

1 transport I believe it was 18, in addition to whatever the
2 Byron fire protection district can transport.

3 BY MR. SAVAGE:

4 Q You mean injured, contaminated?

5 A (Witness Smith) I mean injured.

6 Q Just injured.

7 A If they are contaminated, they can carry the same
8 number of injured, contaminated as just plain old injured.

9 MR. SAVAGE: What is the point? Would you explain
10 it to me? What is the point?

11 MR. BIELAWSKI: My only point is I wanted this
12 testimony on the record because I think it is important. I
13 think this is a person who evaluates the preparedness of
14 ambulance services, and he is the one who determines whether
15 the resources are sufficient.

16 There is a question about training. I did not go
17 into it, because it is a subject of a commitment. But I
18 think Mr. Smith's testimony would have been that not only is
19 training going to be provided to the personnel of those
20 services; it will also be provided to at least the first
21 level of mutual aid ambulance services which have agreements
22 with the services.

23 JUDGE SMITH: Gentlemen, I have lost the thread
24 of the entire exchange. I don't know what you are talking
25 about any more.

1 MR. SAVAGE: I don't know either, and I am going
2 to stop.

3 (Laughter.)

4 MR. SAVAGE: I have lost it. I thought I knew in
5 the beginning.

6 JUDGE SMITH: Do you have any more questions?

7 MR. GOLDBERG: I have questions, one or two questions
8 based on Mr. Bielawski's redirect. I don't know if I'll be
9 able to get an answer from the gentlemen.

10 BY MR. GOLDBERG:

11 Q If either of you have an opinion again on the
12 ambulance and hospital surveys, have you had an opportunity
13 to review the questionnaires that comprise those surveys?

14 A (Witness Ed) I have, and I believe Mr. Smith said
15 he had.

16 Q Let's start first with the hospital survey. Do
17 either of you have a professional opinion on whether the
18 information requested of the hospitals surveyed are necessary
19 to enable those hospitals to be prepared to treat contaminated,
20 injured individuals?

21 JUDGE SMITH: Before you answer, we were aware
22 that there was going to be a motion to strike the survey.
23 However, I have not had an opportunity to prepare to hear
24 arguments on the motion. I don't know what the parties'
25 approach is. It looks like you are trying to develop the

1 evidentiary record while these witnesses are available to
2 support your position when it comes to argue the motion. Is
3 that where you are going?

4 MR. GOLDBERG: I am not sure what inspired Mr.
5 Bielawski's redirect.

6 JUDGE SMITH: I thought I knew myself at the
7 beginning, and then I lost the purpose.

8 MR. GOLDBERG: There may be a purpose, and assuming
9 it is a purpose, I think it is a valid purpose given the
10 expertise and position that these witnesses occupied vis-a-vis
11 the expertise and positions that the proponents of the survey
12 occupy.

13 JUDGE SMITH: I don't question for the purpose of
14 this moment's discussion the -- whether it is appropriate
15 to ask their opinion as to the quality of the survey, but
16 you are beginning an endeavor to which the Board has not
17 been invited, and, in effect, we're not with you. I do not
18 understand the survey. I cannot follow the line. We're just
19 not with it. It is premature for us.

20 MR. GOLDBERG: Mr. Bielawski only had the one
21 question about the information requested on the hospital
22 survey, if the individuals have an opinion. And I would ask
23 the same question about the information requested in the
24 ambulance survey, and then I would move on. I'm not going
25 to make any arguments.

1 I hope nobody objects. Let's go with it, let's
2 try it and see what happens.

3 WITNESS SMITH: To clarify what I said, I am
4 familiar with the ambulance survey but not the hospital.

5 WITNESS ED: I am familiar with only the
6 hospital survey in that it brought to my attention the
7 four hospitals mentioned in the testimony referenced there.
8 I am not familiar with the actual structure of either
9 questionnaire. I cannot comment.

10 BY MR. GOLDBERG (Resuming):

11 Q You have my question in mind and you have no
12 comment?

13 A (Witness Ed) I don't.

14 MR. SAVAGE: What was your question?

15 WITNESS ED: The question was our opinion of
16 the validity of the questionnaire for hospitals.

17 BY MR. GOLDBERG (Resuming):

18 Q My question really was the -- is the informa-
19 tion requested in the survey of the responding hospitals the
20 kind of information that hospitals should have in order to
21 treat contaminated, injured individuals.

22 MR. BIELAWSKI: I think both of these witnesses
23 have said they have not looked at the questionnaire, so
24 they cannot possibly answer that question.

25 BY MR. GOLDBERG (Resuming):

1 Q Would the answer be the same, Mr. Smith, relative
2 to the ambulance survey questionnaire? Let me ask the
3 question affirmatively. Are you familiar enough with the
4 ambulance survey to form an opinion about whether the infor-
5 mation sought of the ambulance services to whom the survey
6 was sent would be required of those services to perform their
7 role in a radiological emergency involving the transportation
8 of contaminated, injured individuals?

9 A (Witness Smith) Some of the questions did and
10 some did not. I think one of the biggest problems is that
11 the survey was conducted at the wrong time.

12 MR. SAVAGE: I object to that. I think that has
13 to do with how you conduct a survey. There is no foundation
14 for his expertise to give an opinion on that.

15 MR. GOLDBERG: My question was not about the
16 conduct but the contents, and trying to relate the contents
17 of the information sought to the required level of preparedness
18 an ambulance should have, which is clearly in Mr. Smith's
19 area of expertise. And I even heard him offer an opinion
20 about some of the questions in an earlier exchange with Mr.
21 Savage, so I hazard to ask the question. If he has an
22 opinion I think --

23 MR. SAVAGE: Your question was okay. It was
24 the answer that he was beginning to give.

25 JUDGE SMITH: The time.

1 MR. SAVAGE: The wrong time to conduct the
2 survey.

3 JUDGE SMITH: He knows when information -- he
4 has a time sense of information, apparently. Within his
5 expertise, he would know whether the survey was premature
6 or not, wouldn't he? Isn't that the point? Overruled.

7 WITNESS SMITH: That is my point. The results of
8 the survey did not surprise me when they said, for example,
9 they had not been contacted by Illinois Emergency Services
10 and Disaster Agency personnel concerning the Byron plan
11 when we had not even started really developing the plan at
12 that time. And I think because of that now, they got
13 concerned that they were not contacted and they thought
14 something was wrong.

15 I guess I can talk on one specific question on
16 the survey, and that referred to if -- I believe if they
17 had radiological survey meters. That would be something that
18 they would not need in responding to an accident at Byron.
19 I think that relates to what you are asking. Their role is
20 not to do monitoring; their role is to provide emergency
21 medical services.

22 MR. GOLDBERG: I have nothing further, Judge.

23 JUDGE SMITH: Did you notice on one of the survey
24 questionnaires the response has to be sent to the Public
25 Health Preparedness Survey. Have you talked to anybody who

1 has received the surveys?

2 MR. SAVAGE: Are you wondering what the Public
3 Health --

4 JUDGE SMITH: That's you, isn't it?

5 MR. SAVAGE: It's not me. It's Mr. Holmbeck.

6 JUDGE SMITH: Never mind my remarks. Never mind.

7 MR. SAVAGE: Would it be inconvenient for the
8 reporter to read back Mr. Smith's last response to Mr.
9 Goldberg's question? He has raised the question that we
10 have to address.

11 JUDGE SMITH: Sure.

12 (The reporter read the record as requested.)

13 JUDGE SMITH: It was that answer which prompted
14 my concern that the survey requested a return to the Public
15 Health Preparedness Survey, which tended in my view to give
16 sort of an official connotation which would support his
17 concern that the people receiving this were led to have
18 expectations from the survey.

19 However, since I made that remark, I also note
20 that the survey says clearly on the front of it, Rockford
21 League of Women Voters and DAARE/SAFE.

22 MR. SAVAGE: When Mr. Murphy is here tomorrow,
23 Your Honor, if you still feel like it, I wish you would
24 address that concern to him. He will be our expert about
25 surveys and cover letters and how they affect results.

1 JUDGE SMITH: Mr. Murphy?

2 MR. SAVAGE: Mr. James Murphy.

3 JUDGE SMITH: I don't need him to tell me what
4 I read. It has an official connotation to it. Public
5 Health Survey.

6 MR. SAVAGE: I know. I was not asking you to
7 ask him whether it had an official connotation, but given
8 that it might, whether in his expertise he thought that would
9 affect the reliability.

10 (Laughter.)

11 I guess you don't need to ask him.

12 JUDGE SMITH: I don't. Each of us has received
13 mail that has a return address of some official-appearing
14 agency on it telling us that we have won a prize or --

15 (Laughter.)

16 I am skeptical about it. We will address that
17 point.

18 MR. SAVAGE: Fair enough.

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1 MR. SAVAGE: I don't have any further questions.

2 JUDGE SMITH: Anything further with this panel
3 this evening?

4 MR. BIELAWSKI: No, your Honor.

5 JUDGE SMITH: Then you are excused, gentlemen.
6 Thank you very much.

7 (Witnesses excused.)

8 MR. GOLDBERG: Yes, Judge.

9 I would like to call Dr. Thomas Urbanik II to
10 the stand, please.

11 JUDGE SMITH: While he is approaching the stand,
12 I am concerned about several things. I am concerned that we
13 are going to come here next week and there has been no re-
14 presentative of the crew for next week here and have some
15 confusion about what is going to happen. I just wonder; will
16 there be an opportunity for us to discuss the schedule next
17 week this week.

18 Mr. Goldberg will be here. Is Mr. Rowsome going
19 to be responsible for part of next week?

20 MR. GOLDBERG: Yes, the hydrology portion. And I
21 will endeavor to consult with my office and give you what
22 ever information we can have set aside.

23 JUDGE SMITH: For Example, I know that Mr. Gallo
24 proposes to have Mr. Levine here next Friday. But we don't
25 know if the parties agreed to that.

MR. BIELAWSKI: I don't know, either. Mr. Miller

1 will be coming in tonight. He will be here tomorrow morning.
2 I think he has general familiarity with Mr. Gallo's inten-
3 tions, and will probably address that.

4 JUDGE SMITH: All right.

5 MR. BIELAWSKI: I will try to call Mr. Gallo.

6 MS. JOHNSON: Mr. Thomas tried to get in touch
7 with Mr. Gallo.

8 JUDGE SMITH: There is in progress communication to
9 work out the problems that we see for next week; that is what
10 I am trying to find out.

11 MS. JOHNSON: It will be a very tight schedule to
12 have another person.

13 MR. SAVAGE: We would still like to finish this
14 week. I know it is looking bleak, but --

15 JUDGE SMITH: We have been, I think, rather extra-
16 vagant of our time today. It is going to be difficult.

17 Dr. Urbanik?

18 Whereupon,

19 THOMAS URBANIK II

20 was called as a witness on behalf of the Nuclear Regulatory
21 Commission Staff and, having been first duly sworn, was ex-
22 amined and testified as follows:

23 MR. GOLDBERG: Judge, I have preliminarily some
24 expectation from the parties that a conclusion that -- of Dr.
25 Urbanik's appearance today is achievable perhaps with some

1 additional time beyond our customary 5:00 o'clock recess.

2 JUDGE SMITH: Our customary 5:00 o'clock recess
3 is seldom realized. The problem -- you are a notable excep-
4 tion, Mr. Goldberg, but the problem has come up again, that
5 people have come in here Monday saturated with emergency
6 planning information, all fired up, ready to go. But last
7 week we were not working on this. It takes us time over-
8 night to catch up with the testimony.

9 MR. GOLDBERG: I appreciate that. Let's see what
10 we can do.

11 DIRECT EXAMINATION

12 BY MR. GOLDBERG:

13 Q Dr. Urbanik, you have before you the testimony of
14 Dr. Thomas Urbanik II on League and DAARE/SAFE Consolidated
15 Emergency Planning Contentions 2(c), 2(e) and 2(k).

16 A I do.

17 Q Does that consist of six pages of written ques-
18 tions and answers, and a four-page written statement of your
19 professional qualifications?

20 A Yes, it does.

21 Q Do you have any changes you wish to make to that
22 document?

23 A No.

24 Q Are its contents true and correct?

25 A Yes, sir.

1 Q Do you adopt it as the statement of your testi-
2 mony and professional qualifications in this proceeding?

3 A I do.

4 MR. GOLDBERG: Judge, I would like to move that
5 the described testimony and accompanying statement of pro-
6 fessional qualifications be received in evidence and bound
7 into the transcript as if read.

8 JUDGE SMITH: Are there any objections?

9 MR. BIELAWSKI: No objections from Applicant.

10 MR. SAVAGE: No objection.

11 JUDGE SMITH: The testimony is received.

12 (Testimony of Dr. Thomas Urbanik follows.)
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
COMMONWEALTH EDISON COMPANY)
(Byron Station, Units 1 and 2))

Docket Nos. 50-454
50-455

TESTIMONY OF DR. THOMAS URBANIK II ON LEAGUE AND DAARE/SAFE
CONSOLIDATED EMERGENCY PLANNING CONTENTIONS 2(c), 2(e) and 2(k)

URBANIK SUMMARY

This testimony addresses the evacuation time estimate issues raised in League AND DAARE/SAFE consolidated emergency planning contentions 2(c), 2(e) and 2(k). The following points are made:

1. The evacuation time estimate study assumptions are properly indicated and are reasonable.
2. The evacuation time estimate study considers the impact of peak populations including behavioral aspects.
3. The evacuation time estimate does consider site weather characteristics to the extent that they are meaningful in the analysis and to the extent intended by the guidance of NUREG0654, Appendix 4, Revision 1.
4. The evacuation time estimates should provide to emergency response decisionmakers the necessary information on which the proper decision could be made relative to the feasibility of evacuation.

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Q1. State your name and occupation.

A1. My name is Thomas Urbanik, II. I am an Assistant Research Engineer associated with the Texas Transportation Institute of the Texas A&M University System, College Station, Texas.

Q2. Have you prepared a statement of your professional qualifications?

A2. Yes. A statement of my professional qualifications is attached to this testimony.

Q3. In what capacity are you testifying in this proceeding?

A3. I am testifying on behalf of the NRC Staff, for which I serve as a subcontractor through the Battelle Pacific Northwest Laboratories which is responsible under contract to the Nuclear Regulatory Commission for reviewing evacuation time estimate of nuclear facilities.

Q4. Briefly summarize your experience with evacuation time estimate studies for nuclear facilities.

A4. I was principal author of NUREG/CR-1745, "Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones" (November

1980), which described the limitations of several methodologies and some alternatives for determining evacuation time estimates. Also, I provided input to the development of the current guidance for evacuation time estimate studies which appear in Appendix 4 to NUREG-0654, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (NUREG-0654/FEMA-REP-1, Rev. 1, November 1980). In addition, I reviewed the initial evacuation time estimate study submittals of approximately 52 operating and near term nuclear facilities for the NRC against the guidance of NUREG-0654/FEMA-REP-1, Revision 0, the results of which are published in NUREG/CR-1856, "An Analysis of Evacuation Time Estimates Around 52 Nuclear Power Plant Sites" (May 1981). I am currently reviewing revisions to evacuation time estimate studies and new submittals against NUREG-0654, Revision 1.

Q5. What is the purpose of this testimony?

A5. The purpose of this testimony is to address evacuation time estimate issues raised in League and DAARE/SAFE Consolidated Emergency Planning Contentions 2(c), 2(e) and 2(k).

Q6. What was the scope of your review of the applicant's (Commonwealth Edison Company) evacuation time estimate study?

A6. I reviewed the applicant's December 1982 study entitled "Evacuation Time Estimates Within the Plume Exposure Pathway Emergency Planning Zone for Byron Nuclear Generating Station" against the guidance of NUREG-0654/FEMA-REP-1, Revision 1.

The study was found to be adequate in all respects except for consideration of those with out autos. This is primarily a planning

issue that needs also to be referenced in the evacuation time estimate study. That is, the evacuation time estimate would be unaffected if sufficient buses are available to transport those without autos. If insufficient buses are available for those without autos, then the evacuation time estimate for only those without autos would have to be increased by the amount of time required for an additional round trip by the buses.

- Q7. What were the criteria that you used during your review of the study?
- A7. In conducting my review, I considered various elements set forth in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, which the NRC and FEMA believe should be included in evacuation time studies. These considerations include: (a) an accounting for permanent, transient, and special facility populations in the plume exposure EPZ; (b) an indication of the traffic analysis method and the method of arriving at road capacities; (c) consideration of a range of evacuation scenarios generally representative of normal through adverse evacuation conditions; (d) consideration of confirmation of evacuation; (e) identification of critical links and need for traffic control; and (f) use of methodology and traffic flow modeling techniques for various time estimates, consistent with the guidance of NUREG-0654/FEMA-REP-1, Revision 1, Appendix 4.
- Q8. For the applicant's study, briefly describe the methodology employed in the study for analyzing evacuation times.
- A8. The applicant's study used the NETVAC2 computer simulation model developed by Yosef Sheffi of the Massachusetts Institute of Technology for

HMM Associates of Waltham, Massachusetts. NETVAC2 is fixed-step, macro traffic simulation model which uses traffic flow relationships to calculate and record traffic densities, speeds, flows, queues at bottlenecks, spill back, and other relevant information. The model was specifically developed for evacuation times estimates for Nuclear Power Plants. The model is an acceptable methodology under the guidance of NUREG-0654/ FEMA-REP-1, Revision 1, Appendix 4.

Q9. Does the applicant's study use methodologies for analyzing evacuation times that are reasonable or customary?

A9. The methodologies use accepted and proven transportation planning techniques. The methodologies represent years of experience in transportation planning, modeling and operating transportation systems, and are consistent with NUREG-0654/FEMA-REP-1, Revision 1, Appendix 4.

Q10. Are the demand estimates (estimate of the number of people to be evacuated) for the study reasonable?

A10. Yes. The study considers all population components (permanent residents, transients, and special facility populations).

Q11. Does the study use traffic capacities that are reasonable?

A11. Yes. The roadway and intersection approach capacities are based on the Highway Capacity Manual (Highway Research Board, Special Report 87, 1965) which is a generally accepted reference.

Q12. Does the study use site weather characteristics?

A12. The study uses a 30 percent reduction in capacity for adverse conditions. This is an appropriate reduction to account for site specific conditions to that extent that they are meaningful in the analysis.

Available research indicates a capacity reduction range from 8 to 24 percent for a variety of conditions including wet weather or light snow. The adverse weather scenario is not intended as a worst case scenario. It is intended to reflect conditions under which an evacuation is feasible, but would take longer due to environmental conditions. The estimate is consistent with the intent of NUREG-0654/FEMA-REP-1, Appendix 4, Revision 1. Heavy snow would require road clearing time to be considered by the decision maker in addition to the estimated evacuation time.

Q13. Does the evacuation time estimate study address the significance of alternative assumptions?

A13. The importance of the time dependent loading as referenced on page 4-7, of NUREG-0654/FEMA-REP-1, Revision 1, reflects a concern at the time the guidance was drafted in 1980 that alternative loading assumptions might significantly affect evacuation times. Experience with evacuation time estimates since 1980 has indicated the importance of time dependent loadings such that assumptions can be selected without the necessity of specific analysis. For low density sites such as Byron, it is important that public response time be long enough to reflect the time for the public to prepare to evacuate. The assumptions made in the study are all indicated and are reasonable based on existing knowledge.

Q14. Does the study properly consider peak populations, including behavioral aspects.

A14. The evacuation time estimates include peak populations including behavioral aspects. Experience with large scale evacuations does not

reveal any aberrant behavior on the part of evacuees despite their large numbers and stressful environment. This conclusion is based on examination of the literature concerning evacuations including large scale evacuation of Texas and Louisiana during Hurricane Carla and the evacuation of Missasauga, Canada (216,000 people) following a train derailment involving hazardous chemicals.

Q15. Did you attempt to verify the accuracy of the estimates made by the applicant?

A15. I performed several independent calculations of volume-to-capacity ratios to determine if any parts of the network appeared to require times longer than those indicated in the applicant's study. My calculations lead me to conclude that the analyses are reasonable.

Q16. In your opinion, how will emergency response personnel be able to utilize the applicant's evacuation time estimates?

A16. The applicant's evacuation time estimates should provide to emergency response decision makers additional information and a basis on which a decision as to the feasibility of an evacuation could be made, in the event of an emergency at Byron Station.

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EDUCATION

Ph.D., Civil Engineering (Transportation), Texas A&M University, 1982
M.S., Civil Engineering (Transportation), Purdue University, 1971
B.S., Civil Engineering, Syracuse University, 1969
B.S., Forest Engineering, State University of New York, 1968

PROFESSIONAL POSITIONS

Assistant Research Engineer, Texas Transportation Institute, Texas A&M University, 1977 to Present.
Lecturer, Civil Engineering, Texas A&M University, 1982 to present.
Traffic Engineer, City of Ann Arbor, Ann Arbor, Michigan, 1972-1976.
Transportation Planning Engineer, City of Ann Arbor, Ann Arbor, Michigan, 1971-1972.
Research Assistant, Joint Highway Research Project, Purdue University, 1970-1971.

PROFESSIONAL LICENSES

Registered Professional Engineer, Texas and Michigan

MEMBERSHIPS

American Society of Civil Engineers
Institute of Transportation Engineers
Sigma Xi
Chi Epsilon

EXPERIENCE

Principal person responsible for the evaluation of evacuation time estimates for the Nuclear Regulatory Commission. Work includes review of all evacuation time estimate submittals and the preparation of recommendations for revisions. Principal investigator on a study to develop a technique for relating traffic delay to traffic volume for statewide planning in Texas.

Principal investigator on several studies concerning public transportation planning at the state and local levels. Areas include general transit, intercity bus service, rural public transportation, elderly and handicapped transportation, and priority treatment of freeways and arterial streets. Other transportation planning studies include hurricane evacuation, nuclear evacuation and truck routing for hazardous materials.

Michigan. Responsible supervisory and professional traffic engineering work in directing the traffic engineering function of the department. Work involved responsibility for the application of professional engineering skill and knowledge to difficult traffic engineering problems in traffic regulation and control, street use, street lighting, geometrics, parking, school safety, curb cuts, and related traffic engineering activities. Was directly responsible for the supervision of the traffic signal and traffic sign maintenance personnel.

Responsible to Director of Traffic Engineering and Transportation, Ann Arbor, Michigan. Reviewed transportation aspects of all plans for development in the city. Staff member to the Ann Arbor Transportation Authority responsible for budget and union negotiations. Staff Coordinator for the planning, design, implementation, and operation of the Dial-A-Ride demand-responsive demonstration project.

Under general direction of Dr. Kenneth W. Heathington, Purdue University, designed attitudinal questionnaire concerning public transportation for a home interview survey Lafayette, Indiana. Also analyzed survey results for inclusion in a report which was the basis for improving public transportation in Lafayette.

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EXPERT WITNESS

Presented expert testimony before the Atomic Safety and Licensing Board, U.S. Nuclear Regulatory Commission, concerning evacuation times at several nuclear power plant sites including Three-Mile Island, Diablo Canyon and Indian Point.

1 MR. GOLDBERG: I tender the witness for cross-
2 examination.

3 JUDGE SMITH: Before he testifies, I note that
4 Dr. Urbanik has received his Ph.D degree since he last test-
5 fied at a Board I was on. I want to congratulate him for it.

6 THE WITNESS: Thank you, sir.

7 JUDGE SMITH: Proceed.

8 CROSS-EXAMINATION

9 BY MR. HOLMBECK:

10 Q Dr. Urbanik, I would like to ask you first of all
11 if you would feel capable and willing of offering an opinion
12 on certain phrases in Appendix 4 to NUREG 0654.

13 A I would.

14 JUDGE SMITH: Would not?

15 THE WITNESS: Would.

16 I presume you mean Revision 1?

17 BY MR. HOLMBECK:

18 Q Yes, sir.

19 Would you turn to page 4-6. Under -- section 4,
20 entitled "Analysis of Evacuation Time," Part A, reporting for-
21 mat, there are some considerations of alternative assumptions.
22 I would like to take up weather, first; some of the weather
23 issues addressed here. The sixth line line, the sentence
24 starting, "The adverse weather frequency used in this analysis
25 shall be identified and shall be severe enough to define the

1 sensitivity of the analysis to the selected events."

2 Could you give some insights into the word "identi-
3 fied," there, and what exactly about the adverse weather fre-
4 quency used should be identified in the study?

5 A That is intended to make sure that you are getting
6 a condition that is representative of the area. We are not
7 looking for a worst case -- you know, that one-time event,
8 but things that occur with regular -- with frequency.

9 Q Would that be at the exclusion of events which
10 occur at a lesser frequency?

11 A It is certainly at the exclusion of an event like
12 a blizzard or, you know, earthquake that would render the
13 roads impassable. So it is not -- it is not intended to gen-
14 erate the longest possible time that you could imagine under
15 any scenario. It is intended to represent average adverse
16 conditions, which you might expect to occur and under which
17 you might expect to undertake an evacuation.

18 I think the key words in here are "shall be severe
19 enough to define the sensitivity of the analysis to the
20 selected events." You want something in there that is going
21 to show how adverse weather affects the evacuation time esti-
22 mate. And in this particular study I think they demonstrated
23 quite well that, for instance, that capacity essentially
24 has no effect on the adverse weather estimate. The only
25 effect on evacuation times caused by adverse weather are

1 an increase in the estimated preparation time, and a slight
2 increase in travel time due to slower speed.

3 If you read on in the statement there, it says,
4 "These conditions will affect both travel times and capaci-
5 ties." And the reason for that is, in low density sites
6 like Byron, typically capacity is not a constraining factor,
7 but travel time is. But in other sites, it is more so cap-
8 acity than it is travel time.

9 So I think the evacuation time estimate report
10 is --

11 Q Are you finished, sir?

12 A -- is appropriate.

13 Q Doesn't the preparation time tend to be higher
14 in less densely populated areas?

15 A That is possible. In this case I think they have
16 used a very long preparation time, something in the order of
17 about 165 minutes. If you examine the evacuation time esti-
18 mate, the most significant factor that affects their evacua-
19 tion time estimate is in fact the preparation time, the time
20 to get home, get ready and leave. That is really by and large
21 the largest factor in the estimate that has been provided.

22 Q You continue at the bottom of page 4-6 and onto
23 page 4-7, you state: "More than one adverse condition may
24 need to be considered," and you continue, "that is, northern
25 site with a high summer tourist population should consider

1 rain, flooding or fog as the adverse condition, as well as
2 snow with winter population estimates."

3 Were you considering there more than one more ad-
4 verse weather condition estimate?

5 A That part of the guidance reflects the fact that
6 in some of the early evacuation time estimates that were
7 prepared, some of the applicants, or licensees tried to argue
8 that the adverse weather scenarios was a winter snow scenario.
9 And they neglected the fact that it could rain in the summer
10 and you could have an adverse summer transient condition.

11 So that is really what that is getting at. You
12 have got to consider adverse to be a range of conditions, and
13 probably, like in Byron, you have to have two different
14 cases; in winter it is going to be snow and winter popula-
15 tions. And in the summer the adverse weather condition is
16 going to be rain and peak summer populations.

17 And they have, in fact, included a reduction. And
18 that accounts for both.

19 Q How they have they included a reduction and ac-
20 counted for both of those contingencies?

21 A Their adverse weather scenario reflects a 30 per-
22 cent reduction in capacity, which is an upper limit on what
23 can be expected for a condition where it is rainy or wet,
24 or where there has been some light snow creating a wet or
25 slick condition. So their reduction is an upper limit that

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1 is appropriate for any adverse weather scenario where the
2 roads are passable, but not in good shape.

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1 Q In the following paragraph which starts, "The
2 text accompanying the table shall clearly indicate the
3 critical assumptions which underlie the time estimates; e.g.,
4 day versus night, weekday versus weekend, peak transit versus
5 off-peak, and evacuation of adjacent sectors versus non-
6 evacuation." Is this a comprehensive list here of critical
7 assumptions?

8 A I would say it is fairly comprehensive, but it
9 does not -- we never write anything that excludes the
10 possibilities that might occur.

11 Q Can you think of any other critical assumptions
12 at this time that we might include in that list?

13 A Yes. It is included elsewhere. For example, I
14 think if you go through and look far enough you will find
15 that you are supposed to indicate automobile occupancy
16 factors. That is not one that is in the list that comes to
17 mind. If you got 5000 people at a park, how many people do
18 you expect to be in a car leaving -- four, three, whatever.
19 So that would be one example that is not in the list.

20 Q For peak transit versus off-peak transit assump-
21 tions, is it common practice to assume that peak transit
22 is one season and off-peak transit is another season? And
23 address those critical assumptions in that way.

24 A It is common that you would estimate transits
25 for two different periods. The peak is typically a summer;

1 it is typically people going to parks, Seabrook beach, those
2 are the ones that come to mind for the peak condition. The
3 peak is usually summer, but I would not say that would be
4 exclusively the case. You might have a race track that
5 operates in the winter. You might have a drag race, whatever.

6 So it is intended to make sure that you consider
7 transits, both peak and off-peak. It is not trying to tell
8 you which set of transits to assume.

9 Q This list of critical assumptions was supposed
10 to accompany a table of some form described earlier. Included
11 in that table, should -- was it your intention or is it your
12 understanding that peak transients and off-peak transients
13 should have been separate considerations from seasons of,
14 say, summer and winter?

15 A I believe that they have handled it in a way
16 that I think is appropriate, with -- they have used more than
17 even some folks have used. I believe they have a total of
18 8 different basic scenarios. And then if you multiply that
19 by 10 for the various sectors, you come up with 80 different
20 scenarios.

21 There comes a point where you -- you are focusing
22 in on a number as opposed to the process. The process is to
23 develop a range of times to indicate the sensitivity of the
24 network, as I said earlier, to these various conditions. It
25 is not in any way intended to be a list of the evacuation

1 time under every conceivable event. That is where the
2 planners are going to have to use their judgment, when it
3 comes down to the final decision. What scenario is it
4 closest to, how do I make some modifications. If they
5 know the sensitivity of the analysis, which they do know,
6 then they can better make those decisions at the time that
7 it is necessary.

8 Q For workday versus weekend, I am sure you are
9 familiar with how that was addressed in this study. Essen-
10 tially three big weekends of the year were simulated, and
11 the rest of the weekends were considered to be -- that was
12 considered to be a conservative approach to looking at the
13 weekend figures and making the -- addressing the alternative
14 assumptions here. Is that common practice?

15 A Yes. I think if you look at the results of
16 the analysis, you can make a whole bunch of extrapolations
17 or interpolations, whichever you want, from that data very
18 easily. The analysis is not sensitive to a lot of things
19 that they might be sensitive to in a more dense site.
20 The analysis is largely insensitive to capacity.

21 If you think you have a few more or a few less,
22 you can pick a number in between. If you want to pick a
23 number down to the nearest minute, which I don't think is
24 appropriate.

25 Q I would like to refer to your testimony, your

1 answer to question 7 on page 3. You are discussing the
2 criteria you used in your review of this study, letter C.
3 You're talking about weather, and you have stated, "Considera-
4 tion of a range of evacuation scenarios generally represented
5 normal through adverse evacuation conditions." Aren't you
6 indicating there some kind of a spectrum of considerations?

7 A Could you explain what you mean by spectrum?

8 Q If the time estimates were to develop a series
9 of estimates based on different -- well, roadway capacities,
10 roadway capacity reductions, rather, for weather -- would
11 that have given a greater sensitivity to different weather
12 conditions?

13 A I'm not sure that I understand your question.
14 Let me just say I don't believe it appropriate to have
15 multiple reductions in capacity, and I especially believe
16 that in this site, where the analysis is insensitive to
17 capacity reductions that go to a maximum of what we believe
18 is a reduction for adverse conditions.

19 So, to do the analysis for a 10 or 20 percent
20 reduction would be meaningless.

21 Q What is the effect of that insensitivity to
22 roadway capacity on the reliability of the time estimates?

23 A Could you restate your question? I'm not sure
24 I understand it.

25 Q Had roadway capacity been a greater constraint,

1 would the time estimates have been more accurate?

2 A Well, I consider the time estimates accurate.
3 What would have produced different results would have been
4 more people trying to evacuate over that network, and if
5 there were more people, a large number of people -- I
6 don't mean, you know, another 100 or another 500. You know,
7 if there were four times as many people or twice as many
8 people, then the analysis would have shown something vastly
9 different.

10 As far as capacity reductions larger than
11 30 percent, I think it is sort of like falling off a cliff.
12 Once you get -- it is either passable or it gets into the
13 impassable range, and I don't think anyone wants to call
14 for an evacuation under those kinds of very uncertain condi-
15 tions where they are iced up or have four or five inches of
16 snow. I just don't consider a reduction in excess of 30
17 percent to be appropriate because I don't believe that is
18 the kind of a condition that an evacuation would be called
19 for, because you would have no assurance of the performance
20 of people -- performance of the vehicles, really, under
21 that condition.

22 Q So, adverse weather -- you are using a lot of
23 judgment. The local people with the time estimates in
24 their hands, or in their heads, they are using their judgment
25 of what the reduction in roadway capacity is?

1 A No, sir. The only judgment that they have to
2 make, which I think is a judgment that they are highly
3 qualified to make, is what time would be necessary to get the
4 roads into passable conditions. In other words, I don't
5 mean remove all the snow and dry the pavement. But get the
6 snow off the road. The pavement may be still wet, but it is
7 passable, or there's a little bit of snow on it. The only
8 judgment they have to make is how long will it take them to
9 get the roads in that condition, and that is something they
10 do on a day-to-day basis.

11 I know from my own experience that you know how
12 to clear roads and what kind of equipment and resources you
13 need. It is highly dependent on the weather -- is the
14 temperature falling or rising. It depends on how effective
15 your salt is going to be, your sand and everything else.
16 These things they are familiar with and it is not going to
17 be any stress on their part to make those kinds of decisions.
18 All they have to do is get the road back into passable
19 condition, and then they know how much time from that point
20 on it will take for people to get out. So I don't think
21 they have to make any judgment on capacity of roadways.

22 Q Is a passable road necessarily at 70 percent
23 capacity?

24 A I think a passable road is going to be at
25 70 percent or more of capacity.

1 Q If 70 percent capacity was assumed and 100 percent
2 capacity was available, what would be the effect on the
3 reliability of the time estimates?

4 A I think I have said earlier there is no effect
5 on the reliability of the estimate from those two factors.
6 I said earlier in this particular analysis it is insensitive
7 to capacity. So in the range of 70 to 100 percent, which
8 is the only range that I think is appropriate for the analysis,
9 it is just as accurate at either one of them.

10 Q What kind of a margin for error would you allow
11 in a study of this kind? Or at least --

12 A The margin of error that I would normally attri-
13 bute would be a margin of error of 10 or 15 percent on the
14 capacity calculations.

15 In the case of this particular study, since it
16 is insensitive to capacity, that really does not apply.
17 The only margin for discussion are the other assumptions that
18 go into it; essentially, preparation time, mobilization.
19 The first 165 minutes, which I would consider on the long
20 side, is the only thing that would be the most significant
21 factor and what the time estimate is. If everybody can
22 be ready to go in an hour, you knock 100 minutes off your
23 evacuation time.

24 Q Does that have an effect on its usability for
25 the -- for what we are suggesting here, for recommending
evacuation as opposed to, say, sheltering during an
emergency?

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1 A I can speculate on some of the earlier testimony
2 that the local officials have already stated that they start
3 from this and they are going to make some other assumptions.
4 For example, if it is a slow-developing emergency, they
5 can make an adjustment to their estimate, and I think the
6 folks are quite capable and knowledgeable of the fact that
7 it is not going to take the 165 minutes or whatever the
8 number is to get ready. So you have been building up for
9 a couple of hours, and people are ready to go. They are
10 probably going to adjust their estimate down and say look,
11 it is essentially the driving time out of the network, and
12 they can make that decision at the time.

13 Q If the local officials are knowledgeable enough
14 and competent enough to knock off as much as an hour off
15 of an evacuation time, what is the use of this study?

16 A There are two things. It is the first starting
17 reference, and if they did not do the study, then they would
18 have to do all of these calculations first before they could
19 then apply their judgment. The regulations -- excuse me --
20 the guidance is also written for every nuclear power plant
21 site in the United States, and they are general in nature.
22 In other sites there are going to be totally different
23 conclusions that come out of the analysis.

24 The most typical one would be a bunch of bottleneck
25 locations, traffic control, special planning or whatever.

1 And even out of this the analysis will show places that could
2 potentially cause some minor traffic problems where you want
3 to station officers. It is part of the planning process.

4 The evacuation time estimate is only one little
5 part of the whole big planning process. Its value is not
6 as an end product, but as an input into the planning process
7 to get prepared. The better prepared you are, the more
8 likely you are going to be able to achieve the results that
9 you want.

10 Q How good of a starting point is it if as much as
11 about 30 percent of the total time can be knocked off, as
12 you said earlier?

13 A It is very valuable. That is why -- you know, you
14 asked me a little earlier why do we have you list all of the
15 assumptions. Well, we have you list the assumptions so that
16 you can go back and make any adjustments you want. One of
17 the assumptions you got is the loading function that goes
18 on the network. If you have reason to believe later on
19 that that loading function is not going to change because,
20 as I gave you an earlier example, you have a slow-developing
21 incident and people have already been prepared and alerted,
22 you can knock that time off. I think it is quite valuable.
23 That is why everything is documented in the way it is, and
24 it makes it a useful too.

25 It is not intended to be the answer. It is

1 intended to be a piece in a bigger puzzle. Puzzle may be
2 a bad analogy, but anyhow --

3 Q I don't know.

4 (Laughter.)

5 You have stated in your testimony in answer to
6 Question 14 regarding the consideration of peak populations,
7 including behavioral aspects, first of all, how do you
8 interpret behavioral aspects as it is used in Appendix 4?

9 A I interpret it to mean that if you have some
10 basis to believe that people might act in any particular
11 way -- maybe they decide that they are going to use their
12 rowboat to get out -- then I guess you will have to factor
13 that into your analysis.

14 Q That was the kind of behavior that was to be
15 considered?

16 A No. Any kind of behavior that you think is --
17 not you think -- any kind of behavior that you can support
18 as happening that is appropriate -- I will give you a better
19 example and even a real example.

20 How about you have an Amish population that lives
21 in your EPZ, and they still are riding in their horse and
22 buggies. You have to take their behavioral aspects, which
23 happen to be that they are going to drive out in their
24 horse and buggy if they leave, into account in your plan. So
25 that is to me what that means.

1 Q Let me make -- suggest a condition here, and you
2 can tell me if you consider this a behavioral aspect. If
3 there are a large number of recreational areas where people
4 drink, maybe a lot, should we include an assumption about
5 intoxicated drivers?

6 A I think the statistics will bear out that we have
7 intoxicated drivers already. You know, I just don't know how
8 you would take that, you know, into account. I think you are
9 proposing a situation that is extremely unlikely, but if you
10 have some way of quantifying it, you know, if you can demon-
11 strate and quantify that behavior, then we can certainly put
12 it into the analysis.

13 Q What kind of behavioral aspects -- let me refer you
14 in the study to pages 4-4 through 4-6 where some assumptions
15 are listed here. There are a number of assumptions here
16 about behavioral aspects, and I wonder if some of these
17 could not be quantified in some way and given an alternative
18 assumption to one of these, the impact on the time estimate
19 study analyzed.

20 A Do you have one in mind?

21 Q Sure.

22 A I don't have any disagreement with the assumptions
23 they make. It is kind of hard for me to --

24 Q For example, the first one, all persons within
25 the plume exposure pathway EPZ when instructed to evacuate

1 will leave.

2 Let me ask you this first: What is the purpose
3 of evacuation confirmation times?

4 A I am not really sure. It is a subject that has
5 been open to a lot of discussion about methods and the like.
6 My expertise is in the transportation field, and you would have
7 to ask someone else from the NRC why they are interested in
8 confirming an evacuation. I checked to make sure that they
9 are using it in my review, but I don't have any insight or
10 knowledge as to why NRC or FEMA put this in.

11 Q You have no idea why they have evacuation confirma-
12 tion times? Do you know what confirmation means?

13 A Sure. It is a difficult and a widely debated
14 issue about, you know, do you tie flags on the mailbox and
15 alert people that you have left? What is the best approach
16 and does it even necessarily make sense to do it?

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17 Q I'm not asking how to do it. I'm asking why it
18 is done. Isn't it based on an assumption that some people
19 won't leave or won't know to leave?

20 A I guess I can speculate it is based on the
21 assumption that perhaps some people were not notified, and
22 that you want to make sure that everybody is aware of the
23 fact that an evacuation has been called. So if I were to
24 speculate on it, I would speculate that the reason that
25 it was in there is to provide a degree of assurance that

1 everybody has been notified. The problem with that is you
2 then create a whole bunch of other problems in trying to
3 effectuate that situation. You alert people to which houses
4 are and are not empty. You have to send your people back
5 into the area perhaps in order to do it. If you do it on a
6 house-by-house basis, it could require tremendous resources
7 that might be better deployed doing other things. Like I
8 say, it is a complex and not clear issue.

9 Q But it is based on the idea that there will be
10 people still in the EPZ after instructions to evacuate have
11 gone out.

12 A That makes one further assumption, I think. It
13 assumes that some people have not left. I think -- I specu-
14 late that it has been asked for to make sure that everybody
15 has left. Whether or not everybody has left, you know, we
16 will only know if we go in and take a census after an
17 evacuation.

18 The reason that you assume that 100 percent of
19 the people have left is not because you don't want to assume
20 something else. It's because the evacuation time estimate
21 is going to be most sensitive to the largest number of people
22 evacuating, and you want to know, assuming everybody evacu-
23 ates, what is the largest time it is going to take. So that
24 assumption is not really related to their willingness or
25 not willingness to leave. It is really related to the fact

1 that you want to get an estimate that is reasonable for the
2 total population that lives there. You don't want to allow
3 for somebody -- somebody says only half are going to leave
4 there for the evacuation time estimate is only an hour.

5 Q Sir, you have stated in the case of Byron the
6 roadway capacity is not the limiting factor, so loading all
7 of them onto the roadway at the same time does not necessarily
8 lead to the greatest amount of time required for time
9 estimates. Isn't the limiting factor the preparation time
10 as you have said before?

11 A Right. I was talking, to use an NRC buzzword,
12 in a generic sense when I was talking about -- a minute ago --
13 we are talking about the NUREG and the NUREG is a generic
14 document, so when we talk about why something is or isn't
15 in this document, then the reason it is or is not in there
16 is because it applies to all plants.

17 In the case of Byron, you're right. I stated
18 earlier -- and if there is any misconception, I don't want
19 it to become a case -- that the number of people loading
20 is not the controlling factor in the Byron evacuation.

21 Q So are you aware of the fact that there are a
22 lot of farms in the area around the Byron plant?

23 A Yes, sir.

24 Q Do farms tend to take longer to shut down and
25 leave?

1 A That's --

2 JUDGE SMITH: Than what?

3 MR. HOLMBECK: Than ordinary households.

4 THE WITNESS: That is a pretty widely assumed
5 condition.

6 BY MR. HOLMBECK:

7 Q Is the fact that this is a rural area and does
8 have a lot of farmland, a lot of livestock, is that considered
9 in here anywhere?

10 JUDGE SMITH: Where do they build reactors in
11 cities?

12 MR. HOLMBECK: Your Honor, Zion has 300,000 people
13 within ten miles of it. I don't believe there is an awful
14 lot of farmland there. And Byron has just the opposite
15 situation. And what I am getting at here is that preparation
16 time is what is important.

17 THE WITNESS: I believe typical numbers for
18 preparation that have been provided by others are in the
19 neighborhood of a couple of hours. And as I indicated earlier,
20 the value used here ranges more like 165 minutes, which is
21 closer to three hours. So I think it certainly includes
22 a significant amount of time for a farmer to take some
23 particular actions.

24 BY MR. HOLMBECK:

25 Q It is very difficult to quantify, though, isn't it?

1 A I don't necessarily think so. I think you could
2 very easily quantify it. Again, it will depend on the
3 particular circumstances, and you know, if you told a farmer
4 you were going to drop a big bomb on his farm, he would
5 probably take less action than if you told him well, we think
6 there is -- there is something that is going to happen pretty
7 soon; we would like you to leave. Then he might take longer.
8 But you can certainly pose some scenarios and determine what
9 it is that he would like to do before he left and how long
10 it would take. I don't think that is out of the realm of
11 possibility.

12 Q That's good. There are an awful lot of farmers
13 in this area, and as far as I can tell, there has been no
14 attention given to the amount of time required for them to
15 make their holdings, farms and so on fit to leave. If it
16 is quantifiable, wouldn't that have been --

17 A I have already told you that two hours is the
18 number that has been widely used by a lot of folks in that
19 regard. If you have got some, you know, better data than
20 that, I would be happy to look at it.

21 Q Do you think that data might have been available
22 around the Byron Station had they gone looking for it?

23 A You have not necessarily convinced me that they
24 have not considered it.

25 Q Can you direct me to where we might find some

1 information that would lead us to believe they have?

2 A The fact that they got an inordinately long
3 preparation time compared to most sites in the United States.
4 Most people only put 165 minutes up front.

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1 Q If it is inordinately long, does that mean that
2 it may be inaccurate?

3 A Inordinate is a bad choice of words. Let's
4 say larger than average. I am assuming if there are a lot
5 of farm people out there, it takes a long time to get ready.
6 In this case, I would say that there is some basis for this
7 being that long. And that is what kind of site we have.

8 We have a site where you probably need to be
9 careful on your preparation time because it is what controls
10 the evacuation time. If you look at your zone site, it
11 does not really matter whether you assume 15 minutes or
12 three hours; the answer is the same. It does matter at
13 Byron whether you assume 15 minutes or three hours, and so
14 they picked a longer time, I believe, to reflect that.

15 Q Have you seen the final safety analysis report
16 for the Byron plant?

17 A No, sir.

18 Q But you believe that a 30 percent reduction in
19 capacity during adverse conditions is suitable?

20 A Yes, sir.

21 Q Wouldn't the FSAR have been useful in
22 determining that?

23 A I'm not saying it is not useful. But unless you
24 can show me something that is quite different than what
25 I have seen around the United States, I don't think there is

1 anything in there that is going to change my conclusion. If
2 they, you know, if they had come in and said 15 percent, yes,
3 I would be concerned. I would say that it was not -- you
4 know, show me some reason to support that. They picked a
5 number which I think is an upper range that reflects a whole
6 wide variety of conditions.

7 So I don't need to know that it snows six inches
8 10 times a year.

9 Q Would the FSAR have been useful to you in
10 determining whether the demand estimates, as far as the
11 number of people to be evacuated, was reasonable for the
12 study?

13 A There are other folks that go into the demographics,
14 and I don't purport to be an expert on demographics. Again,
15 if you have some basis for showing that the numbers are
16 wrong, I wish you would just bring them up and we will find
17 out if they are wrong. All of these numbers are widely
18 circulated and checked by others.

19 I have -- the process we are doing is to make
20 sure there is -- there is some peculiarity about evacuation
21 time estimates, and the reason we get into the demographic
22 is to make sure that they are looking at these various
23 different scenarios, that they don't overlook transients
24 and don't overlook the various aspects. But I don't do the
25 auditing function on the demographics. That is done by others.

1 Q What was the purpose of question and answer 10 in
2 your testimony?

3 A It was to make sure that the analysis included
4 all of those different kinds of folks, like I just stated.

5 Q Reading that question, are the demand estimates
6 of the number of people to be evacuated for the study
7 reasonable -- doesn't that imply that some degree of
8 accuracy is being certified by yourself?

9 A Right. The accuracy is in how those first
10 numbers are translated into specific vehicle numbers. You
11 have to make a translation at some point between the raw
12 demographics, which are what go into the FSAR, and what is
13 used in evacuation time estimates which are the numbers that
14 are then computed from that which require some automobile
15 occupancy factors and other things like that.

16 So that is the part of the demand estimate that
17 I get into to make sure that they are not saying that they
18 are leaving 8 to a car. So, in essence, I am making sure
19 they are using all of the different components. And I
20 presume that if those numbers are not right, that somebody
21 is going to know that. The raw numbers on people.

22 Q Who are you depending upon to do the audit of
23 that?

24 A The NRC. I mean, the whole FSAR is subject to
25 a whole very intensive process. My role in this is how

1 all of that other data is put together and used to provide
2 a technically competent --

3 JUDGE SMITH: Either make your point or move on.

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1 BY MR. HOLMBECK (Resuming):

2 Q I would like to return to NUREG-0654, back to
3 the same section where we were. The second sentence of the
4 first full paragraph reads, "The relative significance of
5 alternative assumptions shall be addressed, especially with
6 regard to time-dependent traffic loading segments for the
7 evacuation of the roadway network."

8 By using the word "especially" did you mean to
9 imply that there are some other considerations which might
10 have been significant?

11 A No. You have to realize the nature of the
12 beast here. 0654 is, unfortunately, a committee document
13 that was put together a number of years ago, and it reflects
14 a lot of different ideas from different people that was
15 sort of cut and pasted together. If you go through and
16 look at it today, it is not the most well-written document
17 in the world.

18 If you try to hang your hat on any sentence in
19 there you will get led astray very quickly. It is meant
20 as guidance on how to do it. You have to realize when
21 this whole process started -- I should not say the whole
22 process, but the most recent evolution of the process, subject
23 to Brian Grimes' letter of November 1979, we started plowing
24 for the nuclear licensees and applicants some very new ground
25 and we were trying to give them as much help as we could in

1 how to prepare all of this. Since then, we've really learned
2 a lot more.

3 The thing about time-dependent loading is
4 covered in my testimony and it really reflects the fact
5 that if you have a large population, to some extent it
6 does not make sense to just try and get everybody out of
7 the roadway network at one time. You can only move so
8 many cars in an hour. You would be much better off to have
9 them stay at home and try to get them out in, you know,
10 pieces at a time. Why sit on a corner burning gas and
11 getting frustrated?

12 BY MR. SAVAGE:

13 Q Two or possibly three questions, Mr. Urbanik.
14 With respect to the adverse weather estimate in the time
15 estimates, does the emergency planner use that adverse
16 weather estimate by -- when conditions are worse than the
17 adverse weather estimate contemplated? Does the emergency
18 planner use the adverse weather estimate by adding the
19 time specified in it to the amount of time necessary to
20 clear the roads? For example, in heavy snow.

21 A Yes.

22 Q Now, I will ask you my favorite time evacuation
23 question. You have heard it before, I'm sure. In your
24 opinion, would it have been helpful to have an annex in
25 the time evacuation study which gave the planners estimates

1 BOARD EXAMINATION

2 BY JUDGE COLE:

3 Q Dr. Urbanik, you indicated in this situation
4 you had no need to know whether it showed six inches 10 times
5 per year, and I think I understand your basis for that. The
6 adverse weather conditions that is selected is supposed to be
7 typical of adverse weather situations. Are there any
8 guidelines that the professionals might use in selecting a
9 particular adverse condition and -- for example, the adverse
10 conditions should not be -- or should be exceeded only a
11 certain percentage of the time. Are there any guidelines
12 for that? For example, if this was an area where you got
13 a considerable amount of snow, and during the wintertime
14 you might expect considerably more adverse conditions, a
15 considerably larger percentage of the time, where do you draw
16 the line? Are there any guidelines for that?

17 A I don't think there are any guidelines, and I
18 think you have to essentially use the process that you
19 have here. You know if the roads are, you know, not in
20 great condition but have some impediment, that something
21 less than 30 percent reduction is appropriate. I think
22 after that you have got to decide to add in what amount of
23 time it takes you to get to that condition.

24 Unfortunately, we don't know too much about
25 adverse weather, as much as we would like. We generally

1 just put up with it as opposed to trying to analyze it in
2 great detail. I think we know enough about it in terms of
3 snow. In fact, some of the studies done were done here in
4 Illinois at Northwestern University, so -- just for the
5 record, some of the empirical research is pretty close to
6 home. So you can feel a little more confident about it, that
7 although it is not extensive, it is somewhat local.

8 But other than that, I cannot offer any better
9 guidance than to use a number in the 20 to 30 percent range
10 and then try to adjust from there if you think the conditions
11 are worse than just slick.

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B-32-B1

1 Q At page 4 of your testimony in response to ques-
2 tion 12 the second sentence in your answer, number 12 reads
3 as follows: "This is an appropriate reduction" -- you are
4 referring to the 30 percent reduction -- "This is an appro-
5 priate reduction to account for site specific conditions
6 to the extent that they are meaningful in the analysis."

7 What do you mean, sir, when you added that, "to
8 the extent that they are meaningful in the analysis"?

9 A That is does not include those conditions where we
10 have to take some other remedial action, for one thing. The
11 other part of it is that we can't refine -- we cannot refine
12 a number any better than that. In other words, although we
13 know it is in a range of, say, 8 to 24 percent, as I testi-
14 fied, we cannot really make any one-to-one correspondence with
15 any particular weather condition. Therefore, we have to
16 try to bound our analysis on the upper side and go from there.

17 The meaningful refers more to the meaningfulness
18 of the site specific data. In other words, that gets to the
19 point that I made earlier that I did not really -- that it
20 would it not be helpful to me to know that it snowed 10
21 inches 10 times a year. I cannot really use that information
22 in my analysis.

23 Q So that is something that would be used locally at
24 the time they needed it?

25 A Right. They would have to factor that in through
 the process of how long they thought it would get the roads

-b-2

1 to a passable condition.

2 Q All right, sir. Thank you.

3 JUDGE SMITH: Redirect?

4 (No response.)

5 JUDGE SMITH: Is there any cross on Board ques-
6 tions?

7 (No response.)

8 JUDGE SMITH: You are excused, Dr. Urbanik. Thank
9 you very much for coming.

10 (Witness excused.)

11 MR. SAVAGE: We came pretty close, don't you
12 think? We came pretty close to doing all that we thought we
13 would do today.

14 JUDGE SMITH: Let's adjourn until tomorrow at
15 9:00 a.m.

16 (Whereupon, the hearing in the above-entitled
17 matter was adjourned at 5:32 p.m. to reconvene at 9:00 a.m.
18 on Thursday, April 21, 1983.)

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CERTIFICATE OF PROCEEDINGS

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2
3 This is to certify that the attached proceedings before the
4 NRC COMMISSION

5 In the matter of: Byron Nuclear Station, Units 1 & 2

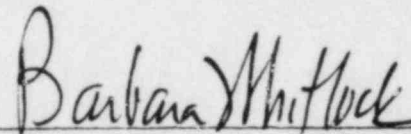
6 Date of Proceeding: Wednesday, April 20, 1983

7 Place of Proceeding: Rockford, Illinois

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

10
11 BARBARA WHITLOCK

Official Reporter - Typed

12
13 

14 Official Reporter - Signature