

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of: COMMONWEALTH EDISON COMPANY
BYRON NUCLEAR POWER STATION (UNITS 1 & 2)

Docket No. 50-454 OL
50-455 OL

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Location: Rockford, Illinois

Pages: 4831-4944

Date: April 18, 1983

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C O N T E N T S

| <u>WITNESSES:</u> | <u>DIRECT</u> | <u>CROSS</u> |
|-------------------|---------------|--------------|
| J. L. McCluskey) | 4835 | 4838 |
| T. J. Horst) | | |

E X H I B I T S

| <u>EXHIBIT NO:</u> | <u>IDENTIFIED</u> | <u>RECEIVED</u> |
|--|-------------------|-----------------|
| Applicant's No. 18 | 4838 | 4838 |
| (Attachment to McCluskey and Horst Testimony; "Evacuation Time Estimates Within the Plume Exposure Pathway") | | |
| Board Exhibit No. 3 (NUREG 0654; also called FEMA, Rev. 1, Nov. 1980) | 4844 | |

P R O C E E D I N G S

(2:10 p.m.)

1
2
3 JUDGE SMITH: We will have a session off the
4 record; however, I will tell you when we go off the record.

5 Before we proceed, is there any preliminary
6 business? Before we begin taking testimony, I would like
7 to have a session -- need not be on the record -- which
8 will clarify what is the latest version of what item of
9 testimony, what is to be attached to it, what the plans
10 are for making exhibits, as compared to binding it into
11 the transcript, and as important as anything, what we can
12 throw away.

13 We also have some, what we might call loose
14 parts monitoring system. I have some loose testimony
15 floating around here that is going to have to be accounted
16 for, too. So, Mr. Bielawski, could we begin with, picking
17 up your order of presentation, and begin with the witness
18 and then we'll take that witnesses' testimony, make sure
19 we have the most up-to-date version and ascertain what should
20 be attached to it. And this can be off the record.

21 (Discussion off the record.)

22 JUDGE SMITH: We will go back on the record.

23 MR. BIELAWSKI: At this point, I would like to
24 call Dr. Horst and Ms. McCluskey to the witness stand.

25 (Testimony of Dr. Horst and Ms McCluskey follows.)

Dated: 4/11/83

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

| | | |
|-------------------------------|---|-----------------------|
| In The Matter of |) | |
| |) | |
| COMMONWEALTH EDISON COMPANY |) | Docket Nos. 50-454 OL |
| |) | 50-455 OL |
| (Byron Nuclear Power Station, |) | |
| Units 1 & 2) |) | |

SUMMARY OF TESTIMONY OF
J. L. McCLUSKEY AND T. J. HORST

Ms. McCluskey and Dr. Horst are presented as a panel. They are both Stone & Webster Engineering Company employees; Stone & Webster prepared Applicant's Evacuation Time Study for the Byron Station. Ms. McCluskey is the Evacuation Time Study Project Manager and Dr. Horst is the lead scientist on the Study. These witnesses address paragraphs 2(c), 2(e), and 2(k) of Intervenor's amended emergency planning contention.

The witnesses first describe their understanding of the purpose for the Evacuation Time Study noting its limitations. They next identify the assumptions that underlie the Study and explain that the Study quantitatively describes the relative significance of these assumptions. The testimony then discusses the manner in which the study analyzes peak transient populations and identifies the basis for the assumptions utilized regarding behavioral aspects of persons involved in a possible evacuation. Finally, the witnesses

explain the reason the Study assumes a 30% roadway capacity reduction factor utilized for adverse weather evacuation scenarios.

Dated: 4/11/83

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 COMMONWEALTH EDISON COMPANY) Docket Nos. 50-454 OL
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 (Byron Nuclear Power Station,)
 Units 1 & 2)

TESTIMONY OF J. L. McCLUSKEY AND T. J. HORST
 REGARDING BYRON STATION EVACUATION TIME STUDY

Q1. Ms. McCluskey, please state your full name, title and affiliation.

A1. My name is Jean L. McCluskey. I am employed as an Assistant Project Manager in the Management Systems Division of Stone & Webster Engineering Corporation.

Q2. Ms. McCluskey, please describe your educational and professional background.

A2. I received a Bachelor of Science degree in Civil Engineering in 1969 from Northeastern University and a Master of Urban Affairs in 1974 from Boston University. Since then, the continuing education courses I have taken include ^{the} (1) Federal Emergency Management Agency, Staff College courses; (2) Federal Interagency Radiological Emergency Response Planning Course (1979); and (3) Industry/Business Emergency Planning (1980).

Since December 1981, I have been assigned to the Management Systems Division at Stone & Webster. In

that capacity my responsibilities have included serving as the Project Manager for the Byron Station Evacuation Time Estimation Study. As Project Manager my responsibilities included interfacing with Commonwealth Edison Company, overall direction of the project, monitoring the costs and progress of the project and assisting in responding to intervenors' contentions.

From July 1979 to December 1981, I was assigned to the Environmental Engineering Division of Stone & Webster. I was the Project Engineer on the revision of the State of Connecticut Radiological Emergency Response Plan. My responsibilities included the development of the plans for the State of Connecticut, and the Emergency Planning Zone ^{Communities.} ~~Committees.~~ I was also Environmental Engineer on projects related to the development of radiological emergency response plans for the states of Illinois and Maryland. My responsibilities included the development of plan formats, local community agencies' concepts of emergency operations and local resource assessment studies. Finally, while assigned to the Environmental Engineering Division, I was the Environmental Engineer on evacuation time studies for ~~six~~^{five} nuclear facilities in Illinois, Kentucky and Ohio.

I have also been employed as an Environmental Engineer by Metcalf & Eddy (1976-1979 and 1969-1975), and by Exxon Co., U.S.A. (1975-1976).

Q3. Dr. Horst, please state your full name, title and

affiliation.

- A3. My name is Thomas J. Horst. I am employed as a consultant in the Environmental Engineering Division of Stone & Webster Engineering Corporation.
- Q4. Dr. Horst, please describe your educational and professional background.
- A4. I received a Bachelor of Arts degree in General Science-Biology in 1969 from Alfred University, a Master of Science degree in Zoology from the State University of New York at Brockport, N. Y. in 1971, and a Doctorate of Philosophy in Biology from Kansas State University in 1974. A major emphasis of my studies was in applied statistics and mathematics.

I have been employed by Stone & Webster for nine years. During that period, I have worked on over 30 projects at Stone & Webster. My work on many of these projects involved the application of mathematical models to various environmental fields. Specifically, with respect to Evacuation Time Studies, I was involved in the development of Stone & Webster's approach to compliance with NUREG 0654, Appendix 4. I have also been involved in the development of a statistical analysis of public response times for the Calvert Cliffs Nuclear Power Station, the Zimmer Nuclear Power Station and, most recently, for the Byron Nuclear Power Station.

I belong to various professional societies and have written over 15 technical papers, mostly concerned

with the application of mathematical models to environmental problems. My most recent paper entitled "A Monte Carlo Methodology for Analyzing Environmental Uncertainties in Siting Energy Facilities," was written for the World Congress on System Simulation and Computation held in Montreal in 1982.

Q5. Dr. Horst, what are your responsibilities, with respect to the Byron Nuclear Power Station?

A5. I am the lead scientist on the Byron Evacuation Time Study. I have overall technical responsibility for the work done by Stone & Webster and I am the primary technical interface with the state and local agencies.

Q6. Ms. McCluskey and Dr. Horst, the remaining questions I will ask are addressed to both of you. If you do not adopt any of the following answers as part of your testimony, will you so state.

A6. Yes.

Q7. What is the scope of your testimony?

A7. This testimony responds to contentions 2c, 2e and 2k which challenge the adequacy of certain aspects of the "Evacuation Time Estimates Within the Plume Exposure Pathway Emergency Planning Zone for the Byron Nuclear Generating Station." The Study ^{has been admitted into} ~~is attached to this~~ ^{the record as Appendix 14 Exhibit 18.} ~~testimony as Attachment 1.~~

Q8. Please describe your understanding of the purpose for conducting the Study.

A8. As stated at page 1-3 of the Study, its primary purpose is to analyze the feasibility of evacuation for the

Byron Plume Exposure Emergency Planning Zone. It is important to remember that the study is not an evacuation plan which would be implemented in an emergency. It is an assessment of representative time frames for the evacuation of various areas around the Byron Station for a range of seasonal, diurnal and weather conditions. It identifies the approximate time frames associated with evacuation based on a detailed consideration of roadway network and population distribution. It also identifies the assumptions upon which the time estimates are based. We anticipate that the Study will be useful to state and local emergency officials to assist them in determining the relative feasibility of evacuation as a protective action.

- Q9. Does the Study identify the assumptions used in deriving the time estimates?
- A9. Yes, to the extent the estimates are dependent upon assumptions, these assumptions are identified. Identifying assumptions allows for meaningful interpretation of the Study and an understanding of its applicability to a given situation.
- Q10. Does the Study address the relative significance of alternative assumptions.
- A10. First, it should be noted that, in a sense, the Study taken as a whole is a study of the relative significance of assumptions underlying the time estimates. The phrase "relative significance of alternative assumptions" is found on page 4-7 of NUREG 0654, Appendix 4. That

section identifies the following alternative assumptions: (1) normal versus adverse weather conditions; (2) day versus night; (3) weekday versus weekend; (4) peak transient versus off-peak transient; and (5) evacuation of adjacent sections versus nonevacuation. The relative significance of these assumptions is quantitatively summarized in Tables 1-1 and 1-2 of the Study. The significance of the alternative assumptions relative to time dependent traffic loading is discussed in Section 4.1.2 of the Study and illustrated in Figure 4-1. Thus, the Study addresses the relative significance of alternative assumptions.

Q11. Does the Study consider peak populations?

All. Yes, in two separate ways. First, the study considers summer and winter populations. Summer populations include transient populations resulting from recreational facilities in the area. Second, during our investigation we were informed that certain special events in the plume exposure EPZ could attract significant numbers of additional transients. These special events are the Autumn on Parade festival and the Byron Dragway and Motosport Speedway events. As stated on page 6-2 of the Study, these events were analyzed in separate simulations. Based on these simulations it was determined that the presence of additional transient populations which would be associated with these events do not increase the time required to evacuate.

Q12. Does the Study address expected behavioral aspects of individuals involved in an evacuation?

A12. Yes. Certain of the assumptions used in developing the time estimates which are represented in section 4.1.3 of the Study are based on expectations regarding human behavior. For example, the Study assumes that persons within the plume exposure EPZ will leave when instructed to leave. In addition, we assumed that persons in the outer primary evacuation zones will not evacuate when an inner primary evacuation zone is the only zone to be evacuated, and that persons instructed to evacuate will obey traffic rules. These assumptions are based in part on the findings represented in an Environmental Protection Agency publication entitled "Evacuation Risks -- An Evaluation" published in June 1974. This publication analyzes information regarding human reactions to actual evacuations, and concludes "the idea that people will panic in the face of great threat or danger is very widespread. However, it is not borne out in reality. Insofar as wild flight is concerned the opposite behavioral pattern in most disasters is far more likely."

Q13. Page 4-10 of NUREG 0654 suggests that the impact of peak populations, including behavioral aspects, should be considered with respect to developing estimates for special facilities. Are you aware of any information which would lead you to conclude that the impact of peak populations, including behavioral aspects,

would significantly effect the evacuation time for special facilities in the Byron EPZ.

A13. No.

Q14. Does the Study utilize site weather characteristics such as those presented in the Byron FSAR?

A14. Yes. The FSAR and NUREG 0654 Appendix 4 were reviewed during the initial planning of the Study. NUREG 0654 Appendix 4, Page 4-6, notes that two conditions -- normal and adverse -- are to be considered in the analysis. The adverse weather which was used in the Study was assumed to be the most common adverse weather, i.e., rain which was assumed to reduce road capacity to 70% of normal and increase the time required to travel home from 30 to 45 minutes. Obviously, snow and icy pavements in the extremes identified as "snowfall in excess of six inches and often accompanied by damaging glaze" can effectively reduce the capacity to zero. However, because such conditions occur, on the average, about once per year, it was decided that the evacuation time estimates should address the most common adverse conditions, thereby providing officials a more useful aid in making decisions regarding protective actions.

Evacuation is only one of the possible protective actions available for recommendation to the public. The decision whether to evacuate is generally dependent upon projected dose rates, exposure duration and the feasibility of evacuation. Should conditions exist

at the time of potential evacuation that, in the judgment of the public officials, would significantly decrease roadway capacity, other actions such as roadway clearing, could be taken prior to recommending evacuation.

Q15. Does the Study analyze every conceivable evacuation scenerio which could exist in the Byron area?

A15. No. The Study does not purport to consider every conceivable permutation or combination of circumstances which could exist during an actual emergency. Thus, one should not read the Study as a presentation of our conclusion that under any circumstance evacuation can be accomplished in the time frames presented. The Study is intended to serve as one of the tools to decision makers, to help them assess the feasibility of evacuation. Obviously, to the extent actual conditions during an emergency differ from those considered in the Study, we would expect that decision makers would take this into account in selecting the course of action which is most appropriate under the circumstances.

Whereupon,

1 JEAN L. McCLUSKEY

2 and

3 THOMAS J. HORST

4 were called as witnesses by counsel for Applicant and, after
5 being first duly sworn, were examined and testified as
6 follows:

7 JUDGE SMITH: Let's go off the record.

8 (Discussion off the record.)

9 JUDGE SMITH: Back on the record.

10 MR. BIELAWSKI: I will address the preliminary
11 questions to the panel.

12 DIRECT EXAMINATION

13 BY MR. BIELAWSKI:

14 Q Would you state your name for the record?

15 A (Witness McCluskey) My name is Jean L. McCluskey,
16 M-c-C-l-u-s-k-e-y.

17 A (Witness Horst) My name is Thomas J. Horst,
18 H-o-r-s-t.

19 Q By whom are you employed?

20 A (Witness McCluskey) Stone & Webster Engineering
21 Corporation.

22 A (Witness Horst) I am also employed by Stone &
23 Webster Engineering Corporation.

24 Q Dr. Horst and Ms. McCluskey, have you caused to
25 be prepared a document entitled, "Testimony of J.L. McCluskey

1 and T.J. Horst Regarding Byron Station Evacuation Time
2 Study," which consists of 9 pages, and an attachment to
3 your testimony entitled, "Evacuation Time Estimates Within
4 the Plume Exposure Pathway: Emergency Planning Zone for
5 The Byron Nuclear Generating Station"?

6 A (Witness McCluskey) Yes, I did.

7 A (Witness Horst) Yes, I did.

8 Q Are there any changes you would like to make to
9 that testimony?

10 A (Witness McCluskey) Yes, I have a few changes
11 which I believe are noted on the latest copy. In the
12 paragraph for answer number 2, fifth line beginning the
13 reference to additional courses taken, it should read,
14 "include the Federal Emergency Management Agency staff
15 college courses: (1) federal interagency radiological
16 emergency response planning course, 1979, and (2) industry/
17 business emergency planning, 1980."

18 And on the second page, the seventh line of the
19 second paragraph on that page should refer to planning
20 zone communities.

21 And finally, the last line of that same paragraph
22 should refer to 5 nuclear facilities.

23 Q As opposed to 6?

24 A As opposed to 6.

25 Also, I would just like to note that Figure 5-1

1 is not attached as an exhibit to the evacuation time study.

2 Q What is that figure?

3 A (Witness McCluskey) That figure is the Evacuation
4 Roadway Network.

5 Q Dr. Horst, are there any changes you would like
6 to make to the testimony?

7 A (Witness Horst) No, there are not.

8 Q Once again, addressing this question to the panel,
9 is the testimony and true correct?

10 A (Witness McCluskey) Yes.

11 A (Witness Horst) Yes.

12 MR. BIELAWSKI: At this time, Your Honor, I
13 would move for the admission into evidence the prepared
14 testimony of Ms. McCluskey and Dr. Horst and the attachment
15 to that testimony, as Applicant's Exhibit 18.

16 JUDGE SMITH: You are offering into evidence,
17 then, Applicant's Exhibit 18.

18 MR. BIELAWSKI: Yes, I am.

19 JUDGE SMITH: Based upon identification by the
20 panel and the description of it in their written testimony?

21 MR. BIELAWSKI: That's correct.

22 JUDGE SMITH: Are there any objections to the
23 testimony?

24 (No response.)

25 JUDGE SMITH: And we have the testimony. We will

1 receive that into evidence.

2 (The document referred to was
3 marked for identification as
4 Applicant's Exhibit No. 18 and
5 was received in evidence.)

6 JUDGE SMITH: And the testimony identifies what
7 had previously been attached to the testimony and is now
8 Applicant's Exhibit 18. Is that correct, panel?

9 WITNESS HORST: Yes.

10 WITNESS McCLUSKEY: Yes.

11 JUDGE SMITH: Are there any objections to the
12 receipt of Applicant's Exhibit 18?

13 MR. HOLMBECK: No objection.

14 MR. GOLDBERG: No objection.

15 JUDGE SMITH: Exhibit 18 is received.

16 MR. BIELAWSKI: At this time, I tender the
17 witnesses for cross examination.

18 JUDGE SMITH: I understand Mr. Holmbeck is going
19 to cross examine.

20 CROSS EXAMINATION

21 BY MR. HOLMBECK:

22 Q Ms. McCluskey and Dr. Horst, I would like to
23 begin with question 7 of your testimony on page 4. The
24 question is: What is the scope of your testimony, and it
25 is stated that the testimony responds to Intervenors'

1 Contentions 2-C, 2-E and 2-K. Is that correct?

2 A (Witness McCluskey) Yes.

3 Q Do you have a copy --

4 JUDGE SMITH: What is the name in front of your
5 microphone?

6 MR. HOLMBECK: There isn't one, Your Honor.

7 JUDGE SMITH: Please speak into it as close as
8 possible.

9 BY MR. HOLMBECK (Resuming):

10 Q All right. Do you have a copy of Intervenors'
11 Emergency Planning contentions before you?

12 A (Witness Horst) Yes.

13 Q Would you look at pagragraph 8, please. Isn't it
14 true that an accurate evacuation time study is useful in
15 determining the protection afforded through evacuation?

16 A (Witness McCluskey) It can be used as one of the
17 tools which would be part of the procedure for determining
18 when an evacuation is feasible.

19 Q So your answer is yes.

20 A It is one of the tools.

21 JUDGE SMITH: Excuse me just a moment. The
22 panel indicated that the changes to the testimony have
23 already been marked on the copy received by the reporter.
24 Is that also true with answer 7, which has now changed,
25 Attachment 1 to Exhibit 18?

1 MR. BIELAWSKI: No, that isn't true.

2 JUDGE SMITH: Would you see to that, and make
3 this sentence read correctly, because it will not be
4 attached. You can say the study is Exhibit 18.

5 MR. BIELAWSKI: Certainly.
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1 BY MR. HOLMBECK:

2 Q If the evacuation time study is a tool to be used
3 by decisionmakers, is your testimony also relevant to
4 Intervenors' Paragraph 8 of the emergency planning contention?

5 MR. BIELAWSKI: I would request that Mr. Holmbeck
6 clarify what he means by "relevant" in his question.

7 MR. HOLMBECK: The answer to Question 7 in the
8 panel's testimony states that the testimony responds to
9 Contentions 2-C, 2-E and 2-K. I would like to know if they
10 believe it also responds to Contention 8.

11 MR. BIELAWSKI: I fail to understand the relevance
12 of this question. We're putting this panel up to respond
13 to Contentions 2-C, 2-E and 2-K. We will be putting other
14 witnesses on to respond to Contention 8. I don't understand
15 where Mr. Holmbeck is going with this line of questioning.

16 MR. HOLMBECK: Your Honor, I think to the extent
17 that they have addressed the issues raised in paragraph 8
18 that they are in effect responding to Contention 8.

19 MR. BIELAWSKI: Your Honor, we are not offering
20 these witnesses as witnesses responding to Contention 8.

21 JUDGE SMITH: What finding would we make? The
22 testimony that they give, if it is germane to Contention 8,
23 can be cited in proposed findings with respect to Contention
24 8, it seems to me. You're not isolating it. I do not think
25 I don't know what you're trying to accomplish by inquiring

1 into the intent of the Applicant.

2 MR. HOLMBECK: As long as the statement that it
3 responds to Contentions 2-C, 2-E and 2-K is not binding on
4 us in any way, as I think you have stated, then I will move
5 along.

6 JUDGE SMITH: I can just restate the general rule.
7 When we receive evidence, that evidence is applicable to the
8 entire litigation unless -- I have oversimplified it. You
9 were not present when we were talking about taking in large
10 documents that had never been addressed. But if the testimony
11 that they give is relevant to Contention 8, even though it
12 is given in response to other contentions, you can cite the
13 testimony in your argument on Contention 8.

14 Is there any disagreement with that?

15 MR. BIELAWSKI: None from Applicant.

16 MR. HOLMBECK: Very good, Your Honor.

17 BY MR. HOLMBECK:

18 Q I would like to move to Question 8, then. Question
19 8 asks you to describe your understanding of the purpose
20 for conducting the study. In your answer to Question 8,
21 which runs from the bottom of page 4 to the middle of page 5,
22 you have described your understanding of the purpose for
23 conducting this study. You state: "Its primary purpose
24 is to analyze the feasibility of evacuation for the Byron
25 Plume Exposure Planning Zone."

1 What do you mean by feasibility of the evacuation
2 in that sentence?

3 A (Witness McCluskey) Basically, what it means
4 is we analyze the roadway network and the demand of the
5 evacuating automobiles or vehicles on that network to
6 determine if it was feasible that an evacuation could occur.
7 And based upon that developed the time estimates in which,
8 given the set of circumstances, that evacuation would take
9 place.

10 Q So the development of the time estimates themselves
11 is a step beyond feasibility?

12 A I believe you will also see within that same
13 paragraph that we say that although -- we indicate that the
14 primary purpose is to analyze the feasibility of evacuation.
15 It is also an assessment of representative time frames for
16 the evacuation. So both purposes are there.

17 Q So evacuation time estimates then are not simply
18 used to determine whether evacuation is feasible, but also
19 whether it is advisable.

20 A No.

21 Q Then I would refer you to your answer to Question
22 14, the bottom of page 8.

23 JUDGE SMITH: This is the first time now
24 NUREG-0654 has come up, and I suspect it will come up a lot
25 during the week. Does any part have any plan to offer it

1 into evidence or to provide any other means by which we
2 can refer to it? I think it should be in evidence. If
3 somebody will provide copies of it, we will make it a Board
4 exhibit as far as that is concerned, because it is really
5 something that we can take official notice of.

6 MR. BIELAWSKI: The Applicant would be more than
7 happy to provide those copies. I would think that the most
8 appropriate party to offer it into evidence would be the Staff
9 since it is a Staff document, or if the Board wants to use
10 it, offer it as a Board exhibit, that's fine also. But we
11 will provide those copies.

12 JUDGE SMITH: You had no plans of offering it?

13 MR. GOLDBERG: No. We have no objection to making
14 it a Board exhibit.

15 JUDGE SMITH: I think it should be in. Otherwise,
16 we're going to go through the same problem again of not
17 having the contextual background for questions and answers.
18 So we will make that then the first Board exhibit, I believe,
19 in this hearing -- the second -- the third. Board Exhibit 3
20 will be NUREG-0654, which is also a FEMA document, isn't it?
21 NUREG-0654.

22 (The document referred to was
23 marked as Board Exhibit No. 3
24 for identification.)

25 JUDGE SMITH: Isn't that also a joint FEMA --

1 MR. GOLDBERG: NUREG-0654, FEMA -- Rev 1, Rev 1,
2 Revision 1, November 1980 document.

3 MR. BIELAWSKI: Is there a question pending?

4 MR. GOLDBERG: It has now been a Regulatory Guide
5 1.101, Rev 2, which does not appear on this.

6 JUDGE SMITH: That is Board Exhibit 3, then.

7 You may proceed.

8 MR. HOLMBECK: Thank you.

9 BY MR. HOLMBECK:

10 Q In the paragraph at the bottom of page 8 beginning,
11 "Evacuation is only one of the possible protective actions,"
12 the second sentence there reads, "The decision whether to
13 evacuate is generally dependent upon projected dose rates,
14 exposure duration, and the feasibility of evacuation."

15 Now, given those projected dose rates, the exposure --
16 and the exposure duration, isn't the time estimate study used
17 to determine whether evacuation is advisable?

18 A (Witness McCluskey) I feel the feasibility of
19 an evacuation is dependent upon -- the evacuation time estimates
20 do present time frames which determine the feasibility of an
21 evacuation.

22 The decision at the time of the incident as to
23 whether an evacuation is feasible given the specific conditions
24 is up to the local officials and -- local and state officials,
25 and that is -- the study itself is not something that should
not be adjusted for the conditions at the time of the accident.

1 Q Is the time estimate study used by those officials
2 in making those decisions?

3 A It is, in my experience, generally used by
4 local officials, or it can be part of their procedures. I
5 think whether it is used by these local officials is up to
6 them to answer. I don't have their procedures.

7 Q But it is produced for their use.

8 A It is produced for the use of local and state
9 officials.

10 Q So do you still maintain that it is not used by
11 them to determine whether evacuation is advisable?

12 A Again, I think that is a question into their
13 procedures, and I don't have their procedures in hand.

14 We have developed the study such that it will
15 provide some guidance to them. How they choose to use it is
16 really in their procedures.

17 Q We are not talking at this point of how they
18 choose to use it. I am still on question 8, which is going
19 to the purpose of the study. And I believe the purpose of
20 the study is to provide, as you call it, a tool for decision-
21 makers in deciding whether an evacuation is advisable. Is
22 that correct?

23 A It is one of the tools, yes. That is the purpose
24 of the study, is to provide them with one of those tools.

25 Q Would you like to re-think your earlier answer to

1 my question as to whether it is used not only for feasi-
2 bility, but also, for advisability?

3 MR. BIELAWSKI: I would object. The question
4 has been asked and answered. The witness has said that it
5 is a tool used by the state and local people responsible
6 for making decisions as to whether evacuation is a protective
7 action that can be ordered.

8 JUDGE SMITH: To summarize the testimony to date,
9 isn't your testimony that the study is a tool which is
10 available for use, but you do not know that it will be used?

11 WITNESS McCLUSKEY: That's right.

12 BY MR. HOLMBECK (Resuming):

13 Q But that is its purpose. --

14 A (Witness McCluskey) I --

15 JUDGE SMITH: Let me complete the summary. It is
16 a tool which was designed to be used and is available for
17 use, but you don't know if it will be used.

18 WITNESS McCLUSKEY: That's right, yes.

19 BY MR. HOLMBECK (Resuming):

20 Q So to the extent that the evacuation time estimates
21 fail to provide an accurate assessment for the time required
22 to evacuate, be it the general populace or special facilities,
23 the study also fails to determine the relative risks and
24 benefits of evacuation as a protective action, given
25 certain projected doses and dose release durations.

1 MR. BIELAWSKI: May I ask for that to be read back?

2 (The reporter read the record as requested.)

3 MR. BIELAWSKI: I have two problems. I do not
4 know that it is a question; it sounds like a statement. And
5 the other is that I think it assumes a number of -- I don't
6 know that these witnesses agree with the premise underlying
7 the statement.

8 JUDGE SMITH: I think it is a question, I think
9 it is clear there. Did you restate protected doses or
10 projected doses? I thought you clearly said -- you intended
11 to say projected doses.

12 MR. HOLMBECK: That's correct.

13 JUDGE SMITH: Do the witnesses understand the
14 question? Is the question logical? Can it be answered?

15 WITNESS HORST: No.

16 JUDGE COLE: No, you don't understand it, or
17 no, it's not logical?

18 WITNESS HORST: No, I don't understand it.

19 JUDGE SMITH: You will have to work on it.

20 BY MR. HOLMBECK (Resuming):

21 Q If evacuation time estimates are inaccurate,
22 could this lead to an undue exposure of the public to the
23 plume?

24 A (Witness McCluskey) I disagree with the fact that
25 they are inaccurate, and --

1 JUDGE SMITH: You can accept that. You do not
2 have to agree with that assumption. He will -- I have not
3 looked at your cross examination plan, so I am not giving
4 anything away, but he will attempt to demonstrate inaccuracy,
5 so he is allowed to ask a question assuming that he will
6 succeed in his efforts. And if he doesn't, then the question
7 is meaningless.

8 WITNESS McCLUSKEY: Could you repeat the remainder
9 of it?

10 BY MR. HOLMBECK (Resuming):

11 Q Sure. Is it true that inaccurate assessments of
12 the time required to evacuate could lead to an undue expo-
13 sure of the public to the plume?

14 MR. BIELAWSKI: One last request for clarification.
15 I really do not know what Mr. Holmbeck means by "undue."

16 MR. HOLMBECK: Exposure in excess of what would
17 have been the case had the time estimate been accurate.

18 WITNESS McCLUSKEY: Again, the study itself is
19 not responsible for projecting doses. It is responsible --
20 its purpose was to determine the feasibility of evacuation
21 and to provide the timeframe in which that evacuation could
22 take place.

23 JUDGE SMITH: Is it desirable to have accurate
24 time studies?

25 WITNESS McCLUSKEY: Why?

1 WITNESS McCLUSKEY: If they are used as one of
2 the tools in determining the protective action, then all of
3 the tools used should be as accurate as possible.

4 JUDGE SMITH: Why?

5 WITNESS McCLUSKEY: To determine the maximum
6 dose saving to the population.

7 JUDGE SMITH: What are the consequences of having
8 inaccurate tools? Possible consequences?

9 WITNESS McCLUSKEY: The possible consequence
10 could be that the maximum dose saving would not be realized.

11 JUDGE SMITH: As I said before, you are required
12 to accept the premise or the assumption of the question. It
13 is up to the lawyers, I said, to object. However, you are
14 also free -- you should state when you disagree with the
15 premise of a question, too.

16 BY MR. HOLMBECK (Resuming):

17 Q So is your answer to my question yes? I believe
18 it is.

19 A (Witness McCluskey) We rambled between several
20 questions here. Could you restate your question?

21 Q Can inaccurate assessments of the time required
22 to evacuate the general public result in exposure to the
23 public from the plume greater than that which would have
24 been gained -- would have resulted from accurate time estimates?

25 A (Witness McCluskey) It is possible, although

1 unlikely, because it is only one of the tools used in
2 determining a protective action. They are relative esti-
3 mates of time. They are timeframes.

4 Q In your answer to question 8, you described the
5 time estimates as representative and approximate, and you
6 stressed that timeframes are somewhat flexible. What is
7 the margin for error in this study?

8 A (Witness Horst) It is our testimony that the
9 timeframes that we have come up with are reasonable and,
10 for example, our conclusions of the analysis that it will
11 take 191 minutes to evacuate the full 10-mile EPZ translates
12 into the order of several hours. And that is the kind of
13 reading that we give to the answers.

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1 Q Perhaps you could define time frames for me and
2 explain how 191 minutes provides this flexibility.

3 A (Witness Horst) I'm not sure what you mean by
4 flexibility.

5 Q Could you define "time frames" for me?

6 A Right. We are not looking to tie this down to
7 the nearest minute. We are trying to give a frame of reference
8 in the order of or something less than that, perhaps down to
9 30 minutes. But I certainly would not feel comfortable going
10 much below that. That's what I mean by time frame.

11 Q Would it be fair to say that the further from your
12 time frame we find reality that the greater chance there is
13 that the public will be exposed to undue time under the plume?

14 A I don't understand what you mean by the further
15 away from reality.

16 Q If evacuation is advised based on your time frame,
17 and it is believed based on that time frame and other factors
18 that the public will be clear of the ten-mile zone within
19 191 minutes, and that that is good reason to evacuate. Say
20 it takes an hour more, the duration of the plume is such that
21 there is an hour of additional exposure.

22 Have the inaccuracies in the time estimate been
23 responsible for that exposure?

24 MR. BIELAWSKI: I can't follow that question, if
25 the witnesses can. It is quite confusing to me.

1 JUDGE SMITH: Do the witnesses understand it?

2 WITNESS HORST: I'm sorry, Your Honor. No.

3 JUDGE SMITH: I thought that the question was clear.
4 I think that the thing that you might have added to it to
5 make it clearer is to round it out and say based upon the time
6 estimate of 190 minutes, the cognizant local authorities order
7 an evacuation when in fact that took an additional hour, and
8 had they known that the additional hour would have been in-
9 volved they might have, for example, ordered sheltering. And
10 in that scenario repeat your question; what is it?

11 In that event, would they have been exposed to the
12 plume longer than had been necessary if the time estimate was
13 accurate? Is that a fair statement of your question?

14 MR. HOLMBECK: That's fair, yes.

15 WITNESS HORST: The confusion I continually have,
16 I feel as if you're trying to set up some sort of hypothetical,
17 but I really do not quite understand the hypothetical. Cer-
18 tainly we have taken into account all of the various events
19 which will affect our time estimate to evacuate. And the degree
20 to which the situation differs from what we have set up, it
21 necessarily affects the conclusion. And that is the only
22 response I can think of to the type of hypothetical question
23 I believe you are setting up.

24 JUDGE SMITH: Now he is asking, given the hypo-
25 thetical scenario that he gave you, which way would your

1 conclusion be affected. I sense a reluctance for you to state
2 what your written testimony somewhat makes clear, that you
3 don't seem to be denying in your written testimony; that is,
4 errors in the time study will have consequences.

5 You are going to have an opportunity to explain
6 your testimony.

7 WITNESS MC CLUSKEY: Right. I would just like to
8 say we did not testify that errors in our estimates would
9 have consequences. We testified that perhaps different
10 assumptions or conditions at the time of the incident would
11 have an effect on the time estimates. And given that if there
12 are circumstances at the time of the incident which result
13 in an hour later or an hour longer time period to evacuate,
14 it is not that this study per se was inaccurate, but that the
15 circumstances possibly at the time of the incident were differ-
16 ent.

17 JUDGE SMITH: He is not asking you to concede that
18 the study is inaccurate. He is asking you to accept as a
19 hypothesis of the question the possibility of an inaccurate
20 time study, and then to explore what the consequences are.

21 WITNESS MC CLUSKEY: Accepting the premise that
22 it could take longer to evacuate the area because of circum-
23 stances at the time of the incident, it would result in
24 possibly people being exposed for a longer degree of time.

25 MR. HOLMBECK: Let's move to Question 9.

1 BY MR. HOLMBECK:

2 Q Question 9 concerns itself with the identification
3 of assumptions used in deriving the estimates. The second
4 sentence reads as follows: "Identifying assumptions allows
5 for a meaningful interpretation of the study and an under-
6 standing of its applicability to a given situation."

7 I believe that is what you have just been trying
8 to explain, is that correct?

9 A (Witness Horst) Yes.

10 A (Witness McCluskey) That's correct.

11 Q Is it then also the case that not identifying
12 assumptions or making false assumptions will not allow for
13 a meaningful interpretation of the study or an understanding
14 of its applicability to a given situation?

15 A (Witness Horst) Assuming those assumptions are,
16 you know, form a critical part of the analysis; certain
17 assumptions are very important in the analysis, others to
18 a lesser extent, and so on and so forth.

19 Q But any false assumption will affect the relative
20 accuracy of the study.

21 A Not necessarily. Some do; some do not. In all
22 types of analyses, some hinge very tightly on certain assump-
23 tions; others they do not. For example, if we put a facility
24 on the wrong side of the road, it does not affect the time
25 estimate study because the way the analysis is set up, those

1 facilities load on a particular part of the roadway. That
2 portion of reality is not captured in the model; so to the
3 extent that assumption would be false, it does not affect the
4 analysis.

5 Q Shall we say that not identifying assumptions or
6 making false assumptions might not allow for a meaningful
7 interpretation?

8 A It may or it may not. It depends on the particular
9 situation.

10 Q So it might not allow meaningful interpretation.

11 A As I said before, it may or it may not. It depends
12 on the particulars of the situation.

13 Q That is a fair answer.

14 Shouldn't we also say that identifying the assump-
15 tions may allow for the meaningful interpretation of the
16 study and an understanding of its applicability?

17 A I don't understand. Are you suggesting inserting
18 the word "may" there? It just allows for it.

19 Q That is if the users of the study understand every
20 assumption that has been made, is that correct?

21 A If they make the proper judgment with respect to
22 it, yes.

23 Q Is providing information on the relative signifi-
24 cance of alternative assumptions also done so that a meaning-
25 ful interpretation of the study and an understanding of its

1 applicability to a given situation can be?

2 A Yes.

3 Q When you refer to assumptions in your answer to
4 Question 9, are you referring to those assumptions listed on --
5 in Section 4.1.3 of the study?

6 A We are referring to all the assumptions that are
7 stated throughout the text, but the portion that you refer to
8 details the assumptions of the study.

9 Q And all of these assumptions have some significance
10 to the study, do they not?

11 A Yes.

12 Q Of these 15 assumptions listed on pages 4-4 through
13 the middle of page 4-6, would any of them influence the
14 study's results so as to overestimate the time required for
15 evacuation?

16 A Well, it is most likely that they do. If we knew
17 for certain that making a particular assumption would over-
18 estimate by a certain amount, we would not go that extra bit
19 to overestimate it. In situations where there has been some
20 uncertainty, we have taken an assumption that well, in all
21 probability it will reflect the situation or it will over-
22 estimate the situation.

23 Q Could you explain to me which of these assumptions
24 would -- or tell me which of these assumptions would tend
25 to overestimate, would tend to push the time estimates upward?

1 A As I said in my previous answer, there are certain
2 assumptions which will either reflect the situation or --
3 excuse me -- will tend to overestimate the time required for
4 evacuation.

5 Q I'm asking you which of these assumptions tend to
6 overestimate the time required for evacuation.

7 A Well, it is not necessarily the case that they
8 will directly translate into an overestimate. Let me give
9 you an example. I think that will make it clearer.

10 We have assumed that -- it's on the top of page
11 4-6 -- that there will be one car per employee at major
12 employers. Now, if in fact there is some car pooling, that
13 would result in fewer cars on the roadway. And if we had a
14 situation here where the capacity of the highway was limited,
15 and therefore, you had a few less cars on the highway, more
16 folks could get out in a shorter period of time, then that
17 would have an effect.

18 The situation at Byron is not bad. You have an
19 excess of capacity; so whether you have the extra cars one
20 way or the other will not manifest itself in a different
21 type of evacuation plan.

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1 Q Don't almost all of these assumptions tend to
2 eliminate impediments to a smooth and speedy evacuation?

3 A (Witness McCluskey) The assumptions, to some
4 degree, identify areas that should be addressed or looked
5 at to affect the evacuation in a timely manner. So, what
6 the assumptions do is to identify what would be necessary to
7 accomplish this evacuation.

8 Q Are you prescribing that certain aspects of
9 human behavior be altered in some way so that your time
10 study is sound?

11 A No, I'm not saying that human behavior is to be
12 altered. I am saying that is human behavior.

13 Q So you are aware that these assumptions have
14 some significance as far as their impact on the time
15 estimates; is that correct?

16 A (Witness Horst) Of course. That's why we set
17 them out in the report.

18 Q But you have not documented in any way what
19 that significance might be.

20 A I'm not sure what you mean by that. We have
21 detailed them as important assumptions. So with that as
22 one views this study, they can see the components that went
23 into making the time estimates. That is important when you
24 use the study.

25 Q Have you considered the consequences of choosing

1 alternative assumptions to these?

2 A Yes. For example, in the assumption that I was
3 referring to, the one car per employee.

4 Q But you felt no obligation to state the signifi-
5 cance of what alternative assumptions -- the effect that
6 they might have on the time study.

7 A We had a lengthy discussion in terms of the tables
8 which present the time required to evacuate, the major
9 alternative assumptions that are going to affect the time
10 estimates. Those are the seasons, the times of day, et
11 cetera.

12 There are also additionally other components to
13 the analysis, and you focused on those here in this
14 section, and we have called them out.

15 Q Are there assumptions here, if they were wrong,
16 that would be impossible to quantify or determine their
17 effect on the time estimates?

18 A No. If these assumptions were to be different,
19 then the assumptions that we have made, you could factor
20 that into the analysis and then you would arrive at a differ-
21 ent time estimate, or perhaps you would arrive at the same
22 time estimate.

23 Again, I will go back to the same example because
24 we have already talked about it, with the number of cars per
25 employee.

1 Q How would you factor people disobeying traffic rules
2 and controis into the study?

3 A Well, you would set up a scenario of exactly
4 that. You know, you particularize the hypothetical that you
5 just referred to.

6 Q Would you make some calculations as to the number
7 of accidents caused?

8 A I don't understand.

9 MR. HOLMBECK: Your Honor, it was not my intent
10 to -- as you will see from my cross examination plan, to
11 become quite this involved in the accuracy of these assump-
12 tions at this time. Might I diverge from that somewhat, or
13 I could take this up later.

14 JUDGE SMITH: I'm sorry, I didn't understand that
15 you were making a request. Well, you want to depart from
16 the plan?

17 MR. HOLMBECK: Yes.

18 JUDGE SMITH: Why don't you go ahead. Why?

19 MR. HOLMBECK: Why? I guess to respond or follow
20 up on some of the responses I have gotten here.

21 JUDGE SMITH: All right. That is a traditional
22 reason for department.

23 BY MR. HOLMBECK (Resuming):

24 Q Would you go to question 12, please?

25 Essentially, your answer there states that

1 behavioral aspects of individuals involved in the evacuation
2 have been considered in this study.

3 A (Witness McCluskey) Yes.

4 Q They have been essentially been considered by
5 eliminating their consideration, haven't they?

6 A Are you asking me if that is how the considera-
7 tion was made?

8 Q Yes.

9 A No.

10 Q How have behavioral aspects affected the time
11 estimate study?

12 A Based upon the available research in this area
13 by individuals qualified to determine behavioral aspects
14 during an emergency, we found that contrary to popular myth,
15 panic does not result in an emergency, please are not dazed
16 or disoriented; over time, there is an overall increase in
17 community morale as people assist each other, and in general,
18 there is no panic or hysteria that -- no large-scale panic
19 or hysterical that would have to be taken into account.

20 Q So you have not taken it into account.

21 A We took it into account by researching whether
22 it occurs, because it does not occur -- it did not affect
23 the study.

24 Q And then you decided not to take it into account.

25 MR. BIELAWSKI: The question has been asked and

1 answered about three times, Your Honor.

2 JUDGE SMITH: When you decided not to take it
3 into account, you tried to force upon them the premise that
4 panic will occur but they don't choose to take it into
5 account, and they deny the premise.

6 MR. HOLMBECK: I see.

7 JUDGE SMITH: Is that correct?

8 MR. HOLMBECK: I think so, yes.

9 BY MR. HOLMBECK (Resuming):

10 Q So was your final decision that based on your
11 research, that panic would not result and would not affect
12 the time estimate study? Is that fair?

13 A (Witness McCluskey) That's right.

14 Q You stated in your answer to question 12 that --
15 you have quoted a certain document there called Evacuation
16 Risks, An Evaluation. The testimony states, "This publica-
17 tion analyzes information regarding human reactions to
18 actual evacuations, and concludes 'the idea that people will
19 panic in the fact of great threat or danger is very wide-
20 spread; however, it is not borne out in reality. Insofar as
21 wild flight is concerned, the opposite behavioral pattern in
22 en masse disasters is far more likely.'"

23 What is the opposite behavioral pattern?

24 A (Witness McCluskey) The opposite behavioral
25 pattern is to follow the instructions to evacuate in an

1 orderly manner, to drive safely, to take what is necessary
2 with you to meet your needs during the evacuation. It is
3 basically to behave in a manner directly opposite to panic.
4 It is to respond to the needs of the situation.

5 Q Okay. So we seem to have a -- we have wild
6 flight considered as opposed to reasonably calm reaction
7 in a response to an evacuation, similar to the some of the
8 assumptions you have made -- is that correct -- such as
9 obeying traffic rules?

10 JUDGE SMITH: I would like to hear that. Are
11 you done with the question?

12 MR. HOLMBECK: Yes.

13 JUDGE SMITH: I think you tried to contrast
14 two similarities. Would you read it back?

15 (The reporter read the record as requested.)

16 BY MR. HOLMBECK (Resuming):

17 Q Is that correct?

18 A (Witness McCluskey) We have reflected the
19 behavior that research has indicated will occur. We have
20 reflected that in those assumptions.

21 Q This last sentence here says, "Insofar as wild
22 flight is concerned, the opposite behavioral pattern in
23 most disasters is far more likely." That is saying that
24 the kind of response that you anticipate is more likely than
25 wild flight. Is that correct?

1 A Yes.

2 Q Isn't there something between this sense of calm
3 and this wild flight?

4 MR. BIELAWSKI: I would point out, Your Honor,
5 that Mr. Holmbeck is reading a sentence out of a general
6 quote and taken in the context of the quote I think the
7 definition, which is provided to the concept of wild flight
8 and the opposite behavioral pattern.

9 JUDGE SMITH: There's no objection.

10 MR. BIELAWSKI: There's no real objection.
11 Mr. Holmbeck is asking for some type of definition with
12 respect to what is the opposite of wild flight, and I think
13 the language in the quote provides that definition to some
14 extent.

15 JUDGE SMITH: He is going into a somewhat differ-
16 ent area. He wants to go for some middle ground between
17 wild flight and the opposite behavior pattern. Something
18 between those two. That what -- that should be considered or
19 has been considered? Or just simply, does it exist?

20 MR. HOLMBECK: Does it exist.

21 WITNESS McCLUSKEY: I think if you refer to the
22 entire study that we do quote, the opposite behavioral
23 pattern is the one that is detailed in the study, which
24 indicates, as I said, that certainly, things are not
25 completely calm; that they -- but people do respond in a

1 controlled manner and, as it indicates, do not resort to
2 wild flight.

3 BY MR. HOLMBECK (Resuming):

4 Q Is there some middle ground?

5 A (Witness McCluskey) The study is the middle
6 ground. The EPA publication --

7 JUDGE COLE: Excuse me, I don't know what you
8 mean by "the study is the middle ground."

9 WITNESS McCLUSKEY: The EPA publication, in effect,
10 presents the middle ground in that it identifies the
11 behavioral pattern that will result during an evacuation
12 such as I indicated -- controlled speeds, accident rates not
13 in excess of those that would normally be expected based on
14 the national studies. It identifies that behavior pattern
15 that will occur in an evacuation, and that is the one that
16 we based our study on.

17 JUDGE COLE: On page 7 of your testimony, the
18 section that Mr. Holmbeck has been referring to, the
19 latter part of -- in your answer to question 12 -- isn't
20 that the opposite behavioral pattern that is identified there
21 and not the middle ground, as he was referring to?

22 WITNESS McCLUSKEY: The opposite behavioral
23 pattern.

24 JUDGE COLE: I didn't know what you meant when
25 you said that is the middle ground. It sounds like you

1 are describing the opposite behavioral pattern.

2 WITNESS McCLUSKEY: I'm saying that the opposite
3 behavior pattern is that people will not panic and not flee,
4 in effect. That is the behavior pattern.

5 JUDGE COLE: Okay.

6 JUDGE SMITH: Mr. Holmbeck I think took that
7 answer into account in his last question and now he wants
8 to know as between reasonable, rational behavior and wild
9 flight, is there a middle ground. In other words, is there
10 a bell-shaped curve that some people react by wild flight,
11 some people react by stunned inaction, and on the average,
12 they react in a certain way? I don't mean on average, but --

13 WITNESS McCLUSKEY: The studies available conclude
14 that people react in this what is termed the opposite
15 behavioral pattern; relatively controlled behavioral pattern.

16 JUDGE SMITH: So as a group, your testimony is
17 that they act rationally.

18 WITNESS McCLUSKEY: That's right. As a group
19 they act rationally.

20 BY MR. HOLMBECK (Resuming):

21 Q I would like to try this from another direction.
22 Evacuation times estimates presented in this study have been
23 developed using NETVAC-2, and the traffic simulated commuter
24 model that is described in Appendix A. Is that correct?

25 A (Witness McCluskey) That is correct.

1 Q One of NETVAC's three major features is what is
2 called dynamic route selection.

3 A (Witness McCluskey) Yes.

4 A (Witness Horst) Yes.

5 Q And this feature is described on page 4-5 --
6 rather, Section 4, page A-4. It is stated that NETVAC2 does
7 not use a pre-specified set of turning movements at each
8 intersection. The turning movements, instead, are determined
9 at each simulation interval as a function of changing traffic
10 conditions in the direction of the cutbound lane. They make
11 a choice, these drivers, based on how quickly that route will
12 get them to safety; is that correct?

13 A (Witness Horst) It is based on two things. First
14 of all, it is based on a preference basically to get to the
15 perimeter of the EPZ, and it is also based on the traffic
16 at the particular intersection they happen to be at that time.
17 That is what makes it dynamic; the fact that the traffic
18 picture changes from time to time.

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1 Q Aren't there other factors which affect route
2 preference?

3 A No. I believe those would be the two that would
4 have the greatest influence.

5 Q Would a person's familiarity with a route affect
6 their route preference?

7 A Yes, but that is taken into account in terms of
8 the preference.

9 Q Have you gone out and watched people make turns?

10 A We are not dealing with individuals here. We are
11 dealing with, you know, folks that live in the area. So if
12 you are faced, let's say, with an intersection where one road
13 goes toward the center of the EPZ and the other goes away,
14 it is a reasonable assumption that people are going to choose
15 to go away from.

16 If, on the other hand, it is one where let's say
17 there is a fork in the road, and they both are equally likely
18 to go out of the -- toward the perimeter, then the route
19 selection would be, you know, fifty/fifty, so to speak.

20 Q According to the Illinois Plan for Radiological
21 Accidents, Byron, Volume 6 -- rather, I guess, it is stated
22 in Volume 1 -- are people given directions about where to go?

23 MR. BIELAWSKI: Your Honor, I would request that
24 if Mr. Holmbeck is referring to a specific page, language
25 in Volume 1 that he direct everybody's attention to that and

1 make sure that the witnesses know what he is citing to.

2 MR. HOLMBECK: I think I can ask the question
3 another way and not have to refer to Volume 1, which I don't
4 have with me at this time.

5 BY MR. HOLMBECK:

6 Q Have you seen the public information brochures?

7 A (Witness Horst) No.

8 Q Isn't this the brochure where people are given
9 instructions as to what to do in the event of an emergency?

10 A (Witness McCluskey) I haven't seen it.

11 Q How is it that you can anticipate behavior of
12 persons when you don't know the content of the only document
13 which they have in their hands?

14 MR. BIELAWSKI: Once again, Your Honor, Mr. Holmbeck
15 is making a statement which has a premise which I do not know
16 that these witnesses would necessarily agree with.

17 JUDGE SMITH: You haven't made an objection, though.

18 MR. BIELAWSKI: I would object to the question in-
19 sofar as it states a premise that these witnesses may not
20 agree with.

21 MR. HOLMBECK: The premise was founded on an
22 earlier question, Your Honor, and I believe my question at
23 this point is isn't it important in determining the behavior
24 of individuals in emergency situations, isn't it important to
25 understand what instructions they have been given.

1 JUDGE SMITH: Then perhaps what you should say
2 to them, assuming that there is a document which is issued
3 as to which they are familiar, and wouldn't knowledge of that
4 document be necessary in their dynamic route selection process.
5 Is that the nature of your question?

6 MR. HOLMBECK: In consideration of dynamic route
7 selection and in the consideration of the earlier assumptions
8 regarding expected human behavior.

9 JUDGE SMITH: You are getting a very complicated
10 question here.

11 MR. HOLMBECK: Let's take dynamic route selection
12 first, then.

13 BY MR. HOLMBECK:

14 Q Isn't it important to know the instructions that
15 people have been given in order to determine their behavior
16 at an intersection where they have to make a decision?

17 A (Witness Horst) Well, it is certainly helpful to
18 know that. I don't want to mislead you as if the time estimate
19 study is sitting up here, you know, off by itself. As a part
20 of doing the time estimate study, you go out, you look at the
21 roadway network, you see where people are going.

22 We had the network reviewed by county officials,
23 by state officials, and there is a high degree of coordination
24 there. These components to the input to the analysis have
25 been reviewed by these people.

1 Q Has it been reviewed by any individuals who have
2 to evacuate immediately and are not emergency workers?

3 A I don't know.

4 Q How is it that you can anticipate what someone is
5 going to do when you don't know what they have been told to
6 do?

7 A (Witness McCluskey) We know what evacuation routes,
8 as Dr. Horst indicated, we know what evacuation routes have
9 been designated in the planning effort. They coincide with
10 the evacuation roadway network used in the evacuation time
11 study. And, again, you are looking at the overall picture,
12 the overall general population and how those vehicles are
13 exiting, depending upon the effects of their demands on
14 capacity during the situation as we have described it here.

15 JUDGE SMITH: When you state that driver behavior
16 during an evacuation is assumed to be myopic in that only
17 information regarding the immediate outbound links at each
18 intersection is assumed to affect route choice decisions, you
19 are not saying that the driver disregards his ultimate objec-
20 tive, his ultimate destination, are you? That is the primary
21 decision.

22 WITNESS MC CLUSKEY: No, sir.

23 JUDGE SMITH: That is the primary decision factor,
24 isn't it?

25 WITNESS MC CLUSKEY: Yes.

1 WITNESS HORST: That is correct.

2 JUDGE SMITH: Would you explain that sentence a
3 little more clearly, put it in terms of the driver's thought
4 process at an intersection.

5 WITNESS HORST: For example, if he's at an inter-
6 section, and down the road, so to speak, to get out of the
7 EPZ there is another situation, traffic is built up there,
8 his choice is to -- is only affected by the traffic he sees
9 at that particular situation. It is not down the road. It
10 is not in the whole area. That is the second component to the
11 dynamic route selection: current condition on the roadway.

12 JUDGE SMITH: So he has to make a judgment based
13 upon that current, immediate condition, plus his ultimate
14 destination.

15 WITNESS HORST: That's correct.

16 BY MR. HOLMBECK:

17 Q If all of the people in the EPZ had been given
18 instructions as to the route that they are to take out of
19 the EPZ, wouldn't that affect their myopic decision?

20 MR. BIELAWSKI: Your Honor, I would like to object
21 to this question. It seems to me Mr. Holmbeck is trying to
22 question these people based on the contents of a document that
23 these people have not seen, and I think assumes that there
24 will be specific instructions to the individuals in the EPZ
25 as to how to evacuate. There is no evidence of that. He has

1 not established any foundation.

2 JUDGE SMITH: Is there going to be?

3 MR. BIELAWSKI: With respect to what?

4 JUDGE SMITH: Is there going to be evidence in
5 this hearing that people will have in mind instructions which
6 will apparently run counter to their myopic judgment at the
7 intersection and their destination?

8 MR. BIELAWSKI: I'm not certain that there will be.
9 The public information brochure is a subject of the commitment,
10 and we were not going to be litigating it here. I just think
11 in fairness, in fairness to these witnesses, if Mr. Holmbeck
12 believes this document is -- runs counter to the assumptions
13 in the report, he ought to show the witnesses the document and
14 establish the foundation which is necessary for the question.

15 MR. HOLMBECK: Your Honor, I premised my last
16 question by saying assuming that these persons were given
17 instructions, and therefore, I don't think I have assumed their
18 familiarity with that document.

19 MR. BIELAWSKI: There still is no foundation for
20 that assumption.

21 JUDGE COLE: Dr. Horst, I would like to ask a
22 question here. With respect to this myopic choice at an
23 intersection, you refer to this also on page 4-2 and 4-3 in
24 your testimony. This is in the NETVAC-2 model dynamic
25 route choice, indicating that turning movements at individual

1 intersections are changed with traffic conditions to reduce
2 the number of vehicles that have turned on to a congested
3 roadway.

4 Well, sir, doesn't this have the effect of optimiz-
5 ing road usage?

6 WITNESS HORST: To a certain degree, yes, but I
7 think -- to a certain degree it does, but I believe it is
8 reflected in the way people drive in an area that they are
9 familiar with.

10 JUDGE COLE: All right, sir. But if this is, in
11 effect, an optimization, wouldn't this then be something
12 that you would like to achieve and might not be achieved in
13 the real world, and then subsequently lead to an underestimate
14 of the evacuation time, at least on that basis?

15 WITNESS HORST: Well, the premise that it is an
16 optimization -- it is to a certain extent, but I would not
17 characterize it as an optimal, you know, the quickest time
18 estimate you could get. It is only -- it is affecting it to
19 a certain degree, but it is not making necessarily the
20 optimum choice. For example, if you had a preference, a very
21 high preference to go one way versus another way, but yet
22 there still was a very congested situation, still a large
23 number, a large percentage of the folks would go that way,
24 even though, you know, there is congestion on the roadway.

25 It is the two factors interplaying with one another.

1 It is allowing for some adjustment based on the situation at
2 hand. And to that extent I do agree with you; it is an
3 optimization. You know, kind of what can be the mathematical
4 optimum situation.

5 JUDGE COLE: All right, sir. Thank you.

6 JUDGE SMITH: It could also read the statement
7 on page A-5 to be a conservatism, the statement that driver
8 behavior is assumed to be myopic. It was not intended to be
9 a conservatism.

10 WITNESS HORST: No. It is intended to reflect
11 the fact that people do alter a preconceived preference to
12 go this way or the other based on what they see when they
13 get to the intersection. To that extent that is all it is
14 reflective of.

15 JUDGE SMITH: So if they have a certain route in
16 mind when they start out, they get to a point where that
17 route is no longer practical, you do not assume that they
18 take the impractical route; you assume that they adjust to
19 take the practical route.

20 WITNESS HORST: That is exactly right.

21 BY MR. HOLMBECK:

22 Q Didn't you make an earlier statement, Ms. McCluskey,
23 that people tend to follow instructions?

24 A (Witness McCluskey) They tend to follow instructions.
25 That does not mean that they are not -- that they are not

1 going to respond intelligently when they see that the circum-
2 stances are different at the time of the incident.

3 Q Mightn't they also respond spontaneously to, say,
4 a traffic accident?

5 A I'm not sure what you're asking.

6 MR. BIELAWSKI: Respond in what way? I don't
7 understand what Mr. Holmbeck is requesting.

8 BY MR. HOLMBECK:

9 Q Are you saying then that people will not necessarily
10 follow instructions all the time?

11 A I am saying basically that people are intelligent,
12 and should the circumstances change from those under which
13 those instructions were developed, they will respond intelli-
14 gently in most cases to the situation.

15 Q Isn't it possible that drivers might also resolve
16 uncertainty at some intersection by following the crowd?

17 A (Witness Horst) Mr. Holmbeck, I think it is
18 important for you to note evacuation road network is not
19 every road in the area. What we have done is we have taken
20 the major roads, the major ways out, and therefore, what we
21 are dealing with is the situation after folks are on these
22 major roadways, and they represent the situations out.

23 And to the extent that we have intersections in
24 that, they represent how people basically from a smaller area
25 get to a larger area, which is to branch out into other roadways.

1 And that is simply the situation.

2 Q You are assuming, then, their familiarity with
3 the area, is that correct?

4 A Yes.

5 Q Isn't it true that there is a sizable number of
6 transient populations which may or may not understand the
7 roadway network around the Byron Station?

8 A Well, yes. But I go back again -- we are talking
9 about, you know, the major roads in the area. I mean if it
10 is summer recreational people, it is the roads that they took
11 to get into the facility. If it is people that work there, it
12 is the road that they take to go to work.

13 Q Are you saying that people who have come for recrea-
14 tion necessarily have taken their potential evacuation route
15 into the place where they have gone?

16 A No, I didn't say that.

17 Q So then you can't assume that they are familiar
18 with the route that they are to take in the event of an
19 emergency?

20 A I think it is reasonable to assume that they will
21 be familiar with the major highways and the major roadways in
22 the area. They may not be familiar with each and every road.

23 Q Would they all know where the Byron Nuclear Power
24 Plant is?

25 A I have no way of knowing.

1 Q Then how will they know if they are driving away
2 from it?

3 A (Witness McCluskey) If they are not going in the
4 same direction as everybody else.

5 Q Then they will follow the crowd.

6 A Well, they are going to follow -- they are certainly
7 not going to go opposing to the crowd in some instances. They
8 are not necessarily going to, say, sit in -- join a line of
9 traffic when they can see an alternate route close by that
10 other people are utilizing.

11 A (Witness Horst) They are not evacuating in a
12 vacuum.

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1 Q But if they are not familiar with the routes and
2 the area, isn't it more likely that they will follow the
3 crowd, and doesn't -- that's the question.

4 A (Witness Horst) When you say follow the crowd,
5 you mean, for example, if they are in a campsite they are
6 going to follow the people in the campsite out of the
7 campsite?

8 Q And on to their next link, and their next link.

9 A In general, yes.

10 Q Doesn't this lead to greater congestion than
11 dynamic route selection?

12 A No.

13 Q Why?

14 A Well, I believe you have the impression that
15 dynamic route selection is making a major shift in the way
16 people move about in the network. That is not the case. It
17 is not going to cause people to turn around and go the other
18 way.

19 Q But you have assumed that if an area is congested,
20 people will tend to turn away from that route. Is that
21 correct?

22 A In concert with a preference to evacuate the
23 area.

24 Q . that in conflict with Ms. McCluskey's earlier
25 statement that people will tend to follow the line of people

1 potentially leaving the area?

2 A No, I don't agree.

3 A (Witness McCluskey) They follow the line as long
4 as the line is moving.

5 Q Don't we have two situations here; one where
6 people are trying to avoid congestion, and another where
7 they are seeking out the more congested areas to determine
8 the way to go?

9 A (Witness Horst) I just do not see it as an
10 either/or situation the way you paint it.

11 Q Is following the crowd in contrast to dynamic
12 route selection -- I will say in conflict with?

13 A I cannot accept your concept of following the
14 crowd.

15 Q Looking for large numbers of people moving in a
16 particular direction. Is that practice of looking for those,
17 and probably a number of those, who would know the way out of
18 an area, isn't that in conflict with the earlier stated
19 preference that people will take a less congested route?

20 A No, it is not. We are dealing with all of the
21 people on the network. You are trying to pick out a few
22 individuals and say because they don't know the area, they
23 are going to do something that is different. There may be a
24 few individuals that may do something different. That is
25 why the preference factor is stated in terms of some will

1 prefer to go this way, some will prefer to go that way. But
2 on the whole, the assumptions that are made are the most
3 reasonable assumptions to make.

4 Remember, we are dealing with a unit in terms of
5 the population.

6 Q Might there be people numbering in the hundreds
7 or thousands which would -- who would be unfamiliar with the
8 area and who would have to be looking for a route out of the
9 area?

10 MR. BIELAWSKI: Your Honor, at this point I would
11 just like -- if Mr. Holmbeck is going to ask hypotheticals
12 I would at least like him to state all of the facts in his
13 hypothetical, insofar as traffic direction, traffic control
14 officers being present and these sort. I do not know that
15 it is fair to these witnesses to have this type of questioning
16 without stating all of the assumptions which Mr. Holmbeck
17 is looking into.

18 JUDGE SMITH: Where are you going with these
19 particular questions? Let's say that he does say yes,
20 that's right, there are going to be thousands. Then what
21 are you going to do?

22 MR. HOLMBECK: I believe that is conflicting with
23 his previous statement, that I am talking about a few people.
24 I'm trying to determine --

25 JUDGE SMITH: You're not going to force him, as

1 he stated, into an either/or answer. I think he has pretty
2 well established that; that he is not going to -- his
3 testimony is not that it is an either/or situation. Now
4 you are going to add the numbers on until it becomes an
5 either/or situation?

6 MR. HOLMBECK: No, Your Honor. What I am after
7 here is a recognition of conflicting of assumptions about
8 human behavior.

9 JUDGE SMITH: Are you still on the dynamic route
10 selection issue?

11 MR. HOLMBECK: Yes.

12 JUDGE SMITH: Let's get the answer to the
13 question and see what happens.

14 MR. HOLMBECK: I have been trying, Your Honor.

15 JUDGE SMITH: He has not had the chance to answer,
16 yet. Now he may answer. You don't know the question?

17 WITNESS HORST: Right.

18 JUDGE SMITH: Why don't you restate the question.

19 BY MR. HOLMBECK (Resuming):

20 Q Ms. McCluskey has stated that transient populations
21 unfamiliar with the area would tend to follow those who
22 do know their way out of the area. In other words, a line
23 of people who are on their way out. Isn't that in conflict
24 with the assumption of dynamic route selection?

25 A (Witness Horst) Absolutely not.

1 Q Why?

2 A Because you are dealing with -- you are trying
3 to take one component of the problem, pull it out, and say
4 if they do that, that represents something in contrast. I
5 will go back. It is not an either/or, some do this/some do
6 that. That is why the preference factors and the dynamic
7 route selection are in terms of choice, some doing one thing,
8 some doing another. There is nothing to say that if there
9 is somebody who, in fact, is unfamiliar with the area and
10 feels that they should follow along with the crowd even
11 though it is a congested area, that a proportion -- and
12 that person may be one of that proportion -- will do that.

13 It is not an either/or situation.

14 Q How have you determined what proportion will
15 choose an alternate route?

16 A That goes into the choice of preference factors,
17 as I stated before, and those were the components of the
18 analysis that were based on initial field data, were reviewed
19 by county and state officials.

20 Q Does this idea of following the crowd affect
21 the preference factor?

22 A It may play some small role, but the overall
23 conclusion -- the overall situation is just given the
24 intersection, which way are people likely to go? And that
25 is a function of many things.

1 Q Have you considered it in the preference factor?

2 A Well, I went through the discussion of how the
3 preference factors were developed.

4 Q Did it have any effect on the preference factor?

5 A I don't feel that is a fair characterization.

6 Q It was not a characterization; it was a question.
7 Did this behavior described by Ms. McCluskey have any impact
8 on the preference factor?

9 A I am sure that as people reviewing the plan looked
10 at preference factors and things of that nature, they took
11 into account their familiarity with the area and how they
12 anticipate that people will behave.

13 Q But you have not stated it as an assumption in the
14 plan so that they would not necessarily be made aware, then.

15 A I'm sorry, who would be aware?

16 Q These local officials who reviewed the plan.

17 A I cannot speak for all of the things that they
18 took into account in their review.

19 JUDGE SMITH: Are you still on dynamic route
20 selection?

21 MR. HOLMBECK: Yes, Your Honor, I am.

22 JUDGE SMITH: You have spent a lot of time on
23 this. You are on a subject matter that I think almost every-
24 one in the room has had his or her own experiences in trying
25 to leave, you know, football games and whatever it may be, in

1 which decisions are made at the time, and people tend to use
2 the egress routes efficiently by modifying their decisions
3 as events unfold.

4 Is this the type of conduct that you are
5 describing here?

6 MR. HOLMBECK: But they are basing it on a
7 familiarity with the area, and I don't see that in the
8 assumptions.

9 JUDGE SMITH: When you say they follow the
10 crowd, they also follow the crowd somewhat in the dynamic
11 decisionmaking. Let's say you come to an intersection
12 totally clogged, blocked up as far as you can see, and here
13 you are a stranger, and ahead of you a couple of people begin
14 to pull out of line and go down another street.

15 WITNESS McCLUSKEY: That's right.

16 JUDGE SMITH: Is that part of following the crowd,
17 and is that a part of dynamic route selection?

18 WITNESS HORST: That may or may not be, depending
19 on how you choose to characterize it, but I believe it
20 could be.

21 JUDGE SMITH: Are you describing anything different
22 in this section than we are all accustomed to in our own
23 experiences when we run into congestions in, say, strange
24 places?

25 WITNESS HORST: No.

1 JUDGE SMITH: There is no phenomenon in evacua-
2 tion as you are describing it that does not exist in ordinary
3 experience in fighting traffic?

4 WITNESS HORST: No.

5 JUDGE SMITH: Or going around taking detours.

6 WITNESS HORST: No.

7 JUDGE SMITH: Ad hoc.

8 BY MR. HOLMBECK (Resuming):

9 Q You have stated that dynamic route selection is --
10 accounts for choice of routes based on how quickly that
11 outbound lane "gets someone to safety." So dynamic route
12 selection is a feature designed to recognize and account for
13 human decision making based on perceived self-interest, is
14 that correct?

15 A (Witness Horst) In essence, yes.

16 Q Would persons make other decisions based on
17 self-interest?

18 A I'm not sure what you are referring to.

19 Q If persons choose routes based on how fast these
20 routes will take them to safety, would they also choose a
21 speed at which to travel based on how quickly that speed
22 will take them to safety?

23 A (Witness McCluskey) They would choose a speed
24 that reflects the speeds being driven by other people on
25 the roads also. And you are looking at two items of safety

1 here. One, to evacuate the emergency planning zone, and one
2 to safely evacuate the emergency planning zone. People
3 familiar with the area are also familiar with the design
4 limitations and, therefore, the speed limitations of their
5 roadways. Their exiting the area would reflect that.

6 Q Would people be somewhat anxious during an
7 evacuation?

8 A As I indicated earlier, although there would not
9 be panic or hysteria, there would be a stress factor involved,
10 yes, as in any evacuation.

11 Q Do people tend to speed when they are anxious or
12 in a hurry?

13 A Again, the speed at which the vehicles would be
14 leaving would reflect the speeds that the other vehicles are
15 also traveling. The average speed that studies have found in
16 evacuations is generally about 35 miles per hour.

17 Q Do people tend to pass cars more often when they
18 are anxious and in a hurry?

19 A It would reflect traffic conditions, the posting
20 of traffic controls, traffic control officers.

21 Q But people do tend to pass other cars?

22 MR. BIELAWSKI: I don't think the witness has
23 stated that, Your Honor.

24 WITNESS McCLUSKEY: That's right. If you would
25 like professional judgment, I would say that in many

1 instances when people ar anxious, they tend to be more
2 cautious.

3 BY MR. HOLMBECK (Resuming):

4 Q Don't people in a hurry tend to disregard traffic
5 rules more often than people who aren't in a hurry?

6 A (Witness McCluskey) People in an emergency
7 situation tend to obey traffic rules and tend -- their
8 behavior pattern, as I indicated before, tends to follow
9 instructions, one of which may be traffic rules.

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1 Q Have you ever witnessed such behavior?

2 A (Witness McCluskey) Pardon me? I'm sorry.

3 Q Have you ever witnessed such behavior?

4 A Such behavior as what?

5 MR. BIELAWSKI: I don't understand what Mr.

6 Holmbeck means by "such behavior."

7 BY MR. HOLMBECK:

8 Q Have you ever witnessed a major evacuation?

9 A Yes.

10 Q Where?

11 A In the town in which I live?

12 Q When?

13 A Not to be smart or anything, we basically responded
14 as neighborhood, as neighbors. We made sure that our neighbors
15 were taken care of. We made sure that if people had to be
16 evacuated, they assisted other people. There was no panic.
17 There was no hysteria. We shared --

18 Q What were the circumstances of this disaster?

19 A The circumstances were what in the east is called
20 a nor'easter -- northeaster -- wind and snow and rain with
21 approximately 35-foot waves crashing over the houses, washing
22 some away.

23 Q I was referring specifically to behavior on a
24 roadway.

25 A Behavior on a roadway consisted basically of

1 having -- had the storm hit the -- basically Massachusetts --
2 that we were affected by with five feet of snow, and having
3 to drive, in effect evacuate the city of Boston to get to my
4 own home. People were extremely cautious. If cars broke
5 down, they pushed them out of the way and helped the people
6 affected. If the cars could not proceed any farther, they
7 obtained shelter. The driving was very -- as safe as could
8 be in those circumstances. People were not recklessly sliding
9 about or trying to cut other people off to get a little bit
10 ahead. We were responding to the conditions at the time.

11 Q Was this a situation where people had to be out
12 of the area they were in?

13 A The situation was as I indicated in my particular
14 town. We had houses washed away. The town was evacuated for
15 a week.

16 Q Did the evacuation occur after the damage was
17 done?

18 A No. During.

19 Q So is your opinion that radiological emergency is
20 perceived in a similar way by persons?

21 MR. BIELAWSKI: Your Honor, that is not what the
22 witness has stated. Mr. Holmbeck asked Ms. McCluskey about
23 her personal experience. She has related that to him. She
24 has not said that this evacuation would be similar to an
25 evacuation in the event of a radiological accident.

1 JUDGE SMITH: But he is not prohibited from asking
2 her that, is he?

3 MR. BIELAWSKI: I thought he was making a statement
4 that she is saying that the situation that she described is
5 the same as the situation which might exist during a radio-
6 logical emergency.

7 JUDGE SMITH: It clearly should be questioned.

8 JUDGE COLE: Could you put that in a question
9 form?

10 MR. HOLMBECK: I thought I did. I'm sorry.

11 BY MR. HOLMBECK:

12 Q Is it your opinion that a radiological disaster
13 is perceived in a similar way to -- heavy storms and flooding?

14 A (Witness McCluskey) I think both are seen as
15 emergency situations which require a response, and I think
16 that is supported by research at the Ohio State University
17 which served as part of the basis for EPA's evacuation risks
18 and evaluation.

19 Q The accident that you referred to from your
20 personal experience, did that impact on the amount of time
21 required to evacuate the area?

22 A I wouldn't say significantly in that I stated
23 had accidents occurred and had any effect on the capacity of
24 the roadway, they were quickly removed, either by cars
25 assisting to push them out of the way or people assisting

1 to move them out of the way. They were quickly removed from
2 the roadway.

3 Q But that takes a little bit of time, doesn't it?

4 A Yes.

5 Q Is there any consideration of evacuation time
6 estimates of the effect of accidents on the time required to
7 travel out of the EPZ?

8 A (Witness Horst) No.

9 A (Witness McCluskey) The evacuation time estimate
10 assumes that the evacuation roadway network will be maintained
11 open as a result of the assigned responsibilities of local
12 and state officials to do that.

13 Q Would you agree that there is a greater chance of
14 panic or unadaptive behavior when conditions are not clearly
15 defined for people?

16 MR. BIELAWSKI: The question, Your Honor, is
17 vague --

18 MR. HOLMBECK: Let me restate it.

19 BY MR. HOLMBECK:

20 Q When there is knowledge -- is there a greater chance
21 of panic or unadaptive behavior when there is knowledge of
22 an emergency, but not the -- not the exact nature of the
23 emergency?

24 A (Witness McCluskey) Good communications always
25 help in any emergency. However, again, there is little to

1 support the contention that panic would be widespread or that
2 people would react hysterically.

3 Q Is it more likely that transient populations,
4 people less familiar with the area, would be less familiar
5 with the Byron plant?

6 A I'm sorry. Did you say is it more likely?

7 Q Yes.

8 A Again, I do not know what the public information
9 program for the area is to inform either residents or transi-
10 ents or if the regulations require that public information on
11 the plan be provided to transients.

12 Q Does the study rule out panic?

13 A Again, the study rules out general panic and
14 hysteria.

15 Q So the study does not rule out pockets of hysteria

16 MR. BIELAWSKI: Whatever that means, Your Honor.

17 BY MR. HOLMBECK:

18 Q It does not rule out incidents of hysteria or
19 panicked behavior.

20 A No, nor does it rule out absolutely perfect
21 behavior. So --

22 Q But you have not attempted to assess the impact
23 which some irrational behavior might have on the study?

24 A Did you ask whether we had time to estimate it?
25 I'm sorry.

1 Q Did you give any consideration to it in the study?

2 A The consideration again was to the fact that
3 panic or hysteria is not the expected behavior during an
4 emergency.

5 MR. HOLMBECK: Your Honor, I would like to take
6 a break. I have to get back on track here. If I could have
7 just a few minutes.

8 JUDGE SMITH: We'll have a ten-minute break.

9 (Recess.)

10 JUDGE SMITH: Proceed, Mr. Holmbeck.

11 MR. HOLMBECK: Just one moment.

12 (Pause.)

13 BY MR. HOLMBECK:

14 Q I would like to go to Question 10. In response to
15 a question asking whether the study addresses the relative
16 significance of alternative assumptions, you have referred to
17 NUREG-C654, Appendix 4, and listed the alternative assumptions:
18 normal versus adverse weather conditions; day versus night;
19 weekday versus weekend; peak transient versus off-peak
20 transient; and evacuation of adjacent sections versus non-
21 evacuation; is this correct?

22 A (Witness Horst) Yes.

23 Q Do you know if this is a comprehensive list of
24 alternative assumptions?

25 A Well, we continue on in the answer.

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1 Q Have you listed some other assumptions that I have
2 not listed?

3 A You read only the portion of the answer that is
4 reflective of the assumptions detailed in Tables 1-1 and
5 1-2. The answer then goes on to discuss the effect of alterna-
6 tive assumptions on time-dependent traffic loading, which is
7 also required in the same page on the NUREG-0654, Appendix 4.

8 Q Do you know if NUREG-0654 intended that list to be
9 comprehensive, a comprehensive list of those assumptions for
10 which the significance of alternative assumptions should be
11 determined?

12 A Well, my reading of the regulations suggests that
13 we should detail those alternative assumptions which are going
14 to affect the evacuation time estimates, and in fact, they
15 are the ones which you see these particular tables referenced
16 in our testimony, 1-1 and 1-2. They give you the time
17 estimates as a function on those particular components.
18 Those are the, you know, the things that are going to
19 significantly affect the time estimates.

20 Q But there are other assumptions for which alterna-
21 tive assumptions would affect the time estimates.

22 A Well, as I said before, if you make an assumption
23 alternative to the ones we have made for anything that affects
24 the time estimate, it may or may not be reflected. I mean
25 there is a whole sphere of possibilities. We have laid out

1 the ones as you see in our answer here.

2 Q If it was to be shown that alternative assumptions
3 to any other assumptions you have made would impact upon the
4 study, would that merit a consideration of that in the study?

5 MR. BIELAWSKI: Your Honor, I object to the
6 question. I don't really understand the relevance or the
7 usefulness of that question. If Mr. Holmbeck wants to
8 identify certain assumptions that he believes would impact
9 the time study, he can ask these witnesses whether they con-
10 sidered the assumptions and how, if at all, it could impact
11 the study.

12 MR. HOLMBECK: That is exactly the route which I
13 will take.

14 MR. BIELAWSKI: Okay.

15 MR. HOLMBECK: But first, I would like to look at
16 some of these assumptions which you have listed.

17 BY MR. HOLMBECK:

18 Q The next sentence reads, "The relative significance
19 of these assumptions is quantitatively summarized in Tables
20 1-1 and 1-2 of the study." Would you please turn to those
21 tables?

22 JUDGE SMITH: Would you please tell me what?

23 MR. BIELAWSKI: I believe he said please turn
24 to those tables.

25 JUDGE SMITH: Turn to those tables.

1 MR. HOLMBECK: Yes.

2 BY MR. HOLMBECK:

3 Q Could you please direct me to any reference on
4 those tables as to the relative significance of assuming
5 weekend rather than weekday populations?

6 A (Witness Horst) I'm sorry. Did you say weekday?

7 Q Yes. Weekday versus weekend.

8 A Weekday versus weekend. The weekday versus weekend --
9 the most direct way you can get at that, although you can
10 get at it indirectly on these tables, would be to go to a
11 different part of the study where we talk about certain
12 special weekend events which reach peak transients.

13 Q I am not referring to special weekends. I'm just
14 referring to weekends.

15 A Well, then you could go to a situation where you
16 consider the -- during the summertime -- I'm sorry -- weekday
17 versus weekend.

18 Now, in these tables we are referring to the more
19 typical situation, so we are referring to the weekday situa-
20 tion.

21 Q Is it fair to assume, then, that the relative
22 significance of the -- assuming a weekday rather than a
23 weekend is not quantitatively summarized in these tables?

24 A No. I said you would go to the other part of the
25 report to pick up those other events.

1 Q I believe those were special events, is that correct?

2 A Yes.

3 Q And how many weekends were considered there?

4 A Well, we considered the situation, because we were
5 looking at them as special cases, we considered the peak
6 special case.

7 Q How many weekends?

8 A Well, we looked at the peak situation as representa-
9 tive of the most, you know, the most people for a weekend
10 event, so we did it as a one-time event.

11 Q And where was the relative significance of these
12 assumptions quantitatively summarized?

13 A You attempt to take the results of these tables
14 and compare them to the results of that -- of those simulations.

15 Q And where are the results of those simulations?

16 A They are discussed back in the text.

17 Q I am aware of that.

18 A Summarized in Section 1 and -- sorry -- and more --
19 discussed in more detail back in the text of the report.

20 Q Is there anything resembling a quantitative
21 summary?

22 A Yes. We referred to the effect on the time to
23 evacuate. That is the quantitative estimate of the relative
24 significance. The conclusion of our study is in terms of the
25 time required to evacuate.

1 Q But you have not considered the significance of a
2 weekend versus a weekday.

3 A Yes.

4 Q You have considered special events, I believe, is
5 that correct?

6 A Yes. But that is indicative of a weekend when you
7 have a large event.

8 Q But is it indicative of other weekends?

9 A Well, the conclusion is that it does not affect
10 the time estimate, so weekends where there are fewer people
11 certainly is not going to have an effect.

12 Q But it is nowhere -- nowhere are the results of that
13 simulation summarized.

14 MR. BIELAWSKI: That has been asked and answered,
15 Your Honor.

16 JUDGE SMITH: Has it, Mr. Holmbeck?
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1 BY MR. HOLMBECK (Resuming):

2 Q Let's turn to the reference Mr. Horst is making --

3 JUDGE SMITH: I did not know if you agreed with
4 him that has been asked and answered. I was asking if you
5 agree. He made an objection.

6 MR. HOLMBECK: I believe Mr. Horst and I are
7 talking about two different presentations of data. He is
8 talking about a statement in the study stating that there is
9 no significance to assuming weekends, and I would like to
10 find that right now. Could you refer me to exactly where
11 that is ?

12 MR. BIELAWSKI: Your Honor, Mr. Holmbeck has said --
13 what I believe Mr. Horst said is that they considered three
14 special events that occurred during weekends, and where a
15 number of additional people would be in the area and concluded
16 that for those events, evacuation times were still accurate,
17 that they reported there. For Mr. Horst concluded that
18 weekends on which those events were not occurring -- and you
19 would have much fewer people in the 10-mile EPZ -- you would
20 conclude that the evacuation times are also representative.

21 In other words, the population could evacuate
22 in the time reported in this study.

23 WITNESS HORST: First, Mr. Holmbeck, the approach
24 that I described to you is discussed on page 2-3. That is
25 the approach that we took to address the weekend events.

1 The conclusions that I referred to you can find
2 back on page 6-2, and it says that the special events do not
3 increase the required time to evacuate the primary evacuation
4 zones, even though a larger number of vehicles is associated
5 with the special events.

6 BY MR. HOLMBECK (Resuming):

7 Q But it is a case that the significance of those
8 two assumptions, weekday versus weekend, is not summarized
9 in Tables 1-1 and 1-2 of the study.

10 A (Witness Horst) No. You have to go to the text
11 to pull that in.

12 Q So your statement to that effect is incorrect.

13 A With regard to the weekday versus weekend, you
14 have to take Table 1-2 and read it in the context of the
15 material we discussed.

16 Q Could you please direct me to any reference on
17 Tables 1-1 and 1-2 to peak transient versus off-peak
18 transient?

19 A The times considered for the winter versus the
20 summer represent, by one definition, when, you know, the
21 area sees its -- you know, its peak for transient populations.

22 We went on, in addition to that, as we discussed
23 before, because we were considering weekday as the basis in
24 Table 1-1 and 1-2, to consider the largest of those transient
25 events which would occur on the weekends, and we discussed

1 that previously. That is found back on page 6-2.

2 Q Is it clear from looking at these tables what the
3 significance of weekend versus weekday or peak transient
4 versus off-peak transient conditions are?

5 A Yes.

6 Q Despite the fact that there is no statement, no
7 column, to that effect?

8 A To which effect are you referring?

9 Q Either weekend versus weekday or peak transient
10 versus off-peak transient.

11 A The tables obviously have to be read in the
12 context of the text. I mean, if the summary could be
13 summarized simply in the tables alone, then, you know, we
14 could have given you just the tables.

15 Q But the explanations which you have given me
16 for the reason why both of these are not included in the
17 tables are not included in the text, are they?

18 A I don't agree with that characterization. I said
19 if you looked at summer versus winter in here, that is the
20 way I began my explanation -- you will see that contrast.

21 Q Could you direct me to the place in the text
22 where it is specifically stated that peak transient is the
23 summer and off-peak transient is the winter and that is how
24 they are defined in Tables 1-1 and 1-2?

25 A Let me understand what you are asking for. You

1 would like me to direct you to the text where the definition
2 of what the summer population is and the winter population is?

3 Q No. I believe I have asked a number of questions
4 regarding the interpretation of the two tables. You have
5 given me an explanation for each, and I am asking where that
6 explanation might be found in the text.

7 A With regard to the first explanation that we
8 talked about, which is the weekday versus the weekend, I
9 gave you the reference in the previous answer. That was
10 page 2-3. It is throughout that section where we set out
11 the methodology of what each season, what components go
12 into it. That's where all of my answers have come from.

13 MR. BIELAWSKI: To help Mr. Holmbeck, I would --
14 refer him to pages 2-2 and 2-3 of the study, which identify
15 summer season population data and winter season population
16 data.

17 BY MR. HOLMBECK (Resuming):

18 Q It's a question of alternative assumptions as
19 relates to peak transient versus off-peak transient popula-
20 tions as addressed through the summer versus winter conditions?
21 Have you then added up the transient population figures in
22 Table 3-4 and added those to the winter data populations?
23 Table 3-4 is camps and recreational areas in the emergency
24 planning zone.

25 MR. BIELAWSKI: For the record, I would make one

1 more point. That is that the stipulation signed by the
2 parties has a commitment and the commitment says that
3 Commonwealth Edison will, in the course of informal pro-
4 ceedings, conversations, discussions with the intervenor,
5 demonstrate that the transient population figures used in
6 this study are representative of conditions which are likely
7 to exist during evacuation.

8 I really think this line of questioning is covered
9 by the commitment and is not really germane to an issue that
10 we are litigating at this point.

11 MR. HOLMBECK: That is not the case, Your Honor.
12 That is a correct characterization of the commitment, but
13 what I am getting at here is the method by which the summer-
14 time peak transient populations were determined; not whether
15 those populations are correct or not.

16 JUDGE SMITH: Proceed.

17 BY MR. HOLMBECK (Resuming):

18 Q Am I correct in assuming that Table 3-4 has been
19 added to the winter daytime population to give the summer
20 daytime population?

21 A (Witness Horst) Are you asking me if 3-4, which
22 is camps and recreational areas, has been added to the winter
23 to give the summer?

24 Q Yes.

25 A Well, it is not quite as simple as that.

1 Q Would you like to explain to me how you arrived
2 at the figures you used?

3 A Well, some of the facilities, of course, are
4 open in the winter, and to that extent, their winter
5 numbers are reflected in the winter.

6 Q Yes.

7 A So, you know, what you have in the summer is
8 what is in the summer.

9 Q Okay.

10 A But it's not simply a matter of the way that
11 table is worked up. On that table, you have things that
12 are, -- you know, some facilities are open in the winter
13 and the summer; they just have different numbers.

14 Q Putting aside those which are open in the winter,
15 adding on the total summertime transient populations repre-
16 sented in Table 3-4 comes to about 15,000. Perhaps you would
17 like to briefly run over it and see if that is roughly
18 correct.

19 A You were saying that the sum of the numbers in
20 Table 3-4 is 15,000.

21 Q Yes.

22 A Can we do that subject to check?

23 MR. BIELAWSKI: Can the witness have a few minutes
24 to compute the figures to verify them?

25 While the witness is doing that, I don't know if

1 I made my point here. The Intervenors' concern, and the
2 reason we were willing to enter into this commitment, is
3 that the Intervenors are concerned that the numbers for
4 transient populations were not accurate, as reflected in
5 the evacuation time study.

6 We entered into a commitment to demonstrate to
7 them, outside of this litigation, that those numbers we
8 used, or as they may be modified, are, in fact, accurate.

9 JUDGE SMITH: You will disclose to them an
10 accurate number, whether these are accurate numbers or not?

11 MR. BIELAWSKI: That is exactly right. I don't
12 understand how Mr. Holmbeck's questions, which apparently
13 are designed to determine whether or not the numbers used in
14 this study as it now is written are accurate, are really
15 relevant to anything other than the commitment that we
16 entered into.

17 MR. HOLMBECK: Your Honor, for this line of
18 questioning, I am assuming that their figures are correct.

19 JUDGE SMITH: The last time you made the point,
20 he explained the relevance, because he is trying to -- at
21 that time was trying to arrive at the daytime figures. I
22 mean, the winter figures.

23 I don't know what he's doing now.

24 MR. BIELAWSKI: I frankly don't either, Your
25 Honor. The point of the matter is that he is concerned --

1 the Intervenor are concerned -- that the transient popula-
2 tion figures used in this study are not accurate.

3 JUDGE SMITH: He has stipulated for this purpose
4 that he is assuming accuracy; he has no other goal. I think
5 we ought to know what the goal is now.

6 MR. HOLMBECK: I am trying to determine how
7 summertime populations were determined.

8 JUDGE SMITH: What are you going to do with the
9 15,000 when you get it?

10 MR. HOLMBECK: Can I get it first and then go
11 from there?

12 (Laughter.)

13 JUDGE SMITH: If that is the only way you can
14 function, all right.

15 MR. HOLMBECK: If you would like for me to
16 explain where I'm going, I will do so.

17 MR. BIELAWSKI: I, for one, Your Honor, would
18 certainly like that explanation simply because I do not
19 see how this line of questioning can be divorced from this
20 commitment. I do not think we should be in a position of
21 having to litigate something twice or having to explain into
22 them in litigation how these figures were derived, and then
23 later having to deal with it in the context of --

24 MR. HOLMPECK: Your Honor, it is easily divorced
25 from that question. I am assuming that these numbers are

1 correct.

2 JUDGE SMITH: You have stated that, and I under-
3 stand that point. But we still should have some idea of
4 what you're going to use this information for. If we reveal
5 it, will it destroy your strategy? Then hang onto it, but
6 we are sensitive to Mr. Bielawski's point. And the only
7 direct point we can see is to test the accuracy so far, but
8 we suspect that you will reveal all in a moment.

9 MR. HOLMBECK: That is the case, I think.

10 JUDGE SMITH: Do you agree with these figures?

11 WITNESS HORST: I'm sorry, Your Honor, I have to
12 ask him how he got the figures. We have daytime, we have
13 nighttimes. Some are summer, some are winter. I would be
14 happy to explain it without going through --

15 BY MR. HOLMBECK (Resuming):

16 Q I explained the daytime figures I'm looking at.

17 JUDGE SMITH: On Table 3-4.

18 MR. HOLMBECK: On Table 3-4, the column that
19 says "Day" at the top.

20 WITNESS HORST: He used the summer only. You
21 excluded the winter?

22 BY MR. HOLMPECK (Resuming):

23 Q (Witness Horst) All right.

24

25

1 (Pause.)

2 MR. BIELAWSKI: Maybe we can speed the process up,
3 Your Honor. For the time being we will stipulate that the
4 figure that Mr. Holmbeck is giving is accurate. But I might
5 renew my objection after I find out where he is going with
6 this line of questioning.

7 JUDGE SMITH: It does seem to be somewhere around
8 there.

9 WITNESS HORST: Yes.

10 BY MR. HOLMBECK:

11 Q I am asking was this figure added to the winter
12 daytime population to get the summer daytime population?
13 Was that the method by which you determined the summer daytime
14 population?

15 A (Witness Horst) No. Let's go back to the text
16 where we describe and we'll walk through it, and I think that
17 will be easier than trying --

18 Q I would like to take -- could we -- perhaps you
19 would like to just explain the relationship between the
20 winter daytime and the summer daytime figures. What is there
21 in the summer daytime figures that there is not in the winter
22 daytime figures?

23 A The major things that are added to it are the
24 components; for example, Table 3-4, that represents summer
25 daytime transients. Subtracted from it are winter only events.

1 Q Does that complete your answer?

2 A Yes.

3 Q What is the difference in the figures given for
4 the full EPZ for the summer daytime and the figures for the
5 full EPZ for the winter daytime?

6 JUDGE SMITH: What is the quantity of the differ-
7 ence?

8 MR. HOLMBECK: Yes. The number of persons.

9 WITNESS HORST: If you turn to Table 1-1, which
10 is the summer EPZ, daytime is found in the last row of the
11 first column.

12 BY MR. HOLMBECK:

13 Q I know where it is found. What is the difference
14 between that figure and the figure in the same position for
15 wintertime? It is about 8,000, isn't it?

16 A Yes, roughly speaking.

17 Q Are there activities that are only taking place
18 during the winter daytime which total 7,000 persons?

19 JUDGE SMITH: Seven thousand being the difference
20 between 8,000 and 15,000. Is that the context of it?

21 MR. HOLMBECK: Yes, Your Honor.

22 WITNESS HORST: Well, the schools. The school
23 system --

24 BY MR. HOLMBECK:

25 Q Don't the schools total about 5,000?

1 A (Witness Horst) That includes the staff folks in
2 the school.

3 Q Students and staff is about 5,000.

4 MR. BIELAWSKI: Excuse me?

5 MR. HOLMBECK: I believe students and staff is
6 about 5,000. Actually, I believe it is 5,000 on the nose.

7 MR. BIELAWSKI: I would object to those statements.
8 If you want to ask the witnesses what their understanding is,
9 that's fine, but he's not testifying at this time, although
10 I understand he will be later.

11 BY MR. HOLMBECK:

12 Q If there are 5,000 students and staff, then there
13 are about 2,000 persons involved in some other activities
14 which only take place during the wintertime and are included
15 in this summer -- in the winter.

16 A (Witness Horst) I am not sure we have taken into
17 account the difference between winter only components of the
18 transients, because they have to be subtracted out again.

19 JUDGE SMITH: Do you take into account people who
20 leave the area for warmer climates in the winter -- I can
21 see why they would want to. But, I mean is that an important
22 factor?

23 WITNESS HORST: No, Your Honor, we did not take
24 that into account.

25 MR. HOLMBECK: Your Honor, I will leave those 2,000

1 and move on.

2 MR. BIELAWSKI: Is Mr. Holmbeck leaving this line
3 of questioning at this time?

4 MR. HOLMBECK: Yes, I am.

5 MR. BIELAWSKI: Now I will renew my objection for
6 the whole line of questioning. I think it is clearly covered
7 within the scope of the commitment. He is questioning how
8 the figures in the study in terms of the transients, and it
9 is clearly within the scope of the commitment. I do not under-
10 stand why we just went through this exercise.

11 JUDGE SMITH: I think that you have his thrice-
12 repeated statement now that he is not backing out of the
13 stipulation, that he is merely -- he will accept it. He is
14 merely testing the method. And he has stated that, and he
15 has stated that he is assuming that the transient figures are
16 accurate. So you have the stipulation and you have his
17 reaffirmation of it. I don't see how you can be injured by
18 it.

19 MR. BIELAWSKI: I'm only injured in terms of the
20 time I just spent listening to it. We have a lot of things to
21 do.

22 MR. HOLMBECK: I have agreed to move on.

23 MR. BIELAWSKI: When we go down lines of question-
24 ing that are covered by the stipulation, we certainly will
25 not finish on schedule.

1 MR. HOLMBECK: I renew my response to that that
2 I was not following a line that had anything to do with the
3 commitments.

4 JUDGE SMITH: Let's move along.

5 BY MR. HOLMBECK:

6 Q Would you please to Section 4-2? I would like to
7 move now from assumptions relating to the general populace
8 to assumptions relating to special facilities. What are the
9 primary assumptions that are made on pages 4-6 and 4-7 in
10 that section?

11 A (Witness Horst) Down beginning at the last para-
12 graph there, the reference to mobilization and loading times
13 for special facilities are assumptions. The travel out using
14 the average vehicle speed calculated by the NETVAC model
15 is of course a component, an assumption, if you will. Those
16 are the ones that come to mind, reading it quickly.

17 Q Taking the assumption regarding the mobilization
18 time, would you please define "mobilization time" as that
19 component is used in this study?

20 MR. BIELAWSKI: Your Honor, a similar objection to
21 the last one I just made. Commonwealth Edison has entered
22 into Commitment L, which states it will demonstrate that an
23 annex to the evacuation time estimate study has been
24 developed which presents specific evacuation feasibility
25 analyses for appropriate special facilities so that there is

1 reasonable assurance that in the event of evacuation of the
2 special facility, the health and safety of the residents can
3 be adequately protected. That is a commitment to perform
4 an independent study with respect to special facilities
5 which considers mobilization times associated with the special
6 facilities.

7 We are going into an area that is once again
8 clearly covered by a commitment.

9 MR. HOLMBECK: And, again, the characterization of
10 the commitment is correct. However, I am not looking at the
11 adequacy or the accurateness of the mobilization times which
12 have been used here, which is a subject of the commitment.
13 I am looking at the source of the assumptions made in this
14 section. And the source of the assumptions made is not the
15 subject of the commitment.

16 JUDGE SMITH: The assumptions made in this section
17 for what? What aspect of the section?

18 MR. HOLMBECK: There are a number of assumptions
19 made in this section. One, which the witness has identified,
20 is the generic mobilization time used for special facilities.

21 JUDGE SMITH: Generic mobilization time, did you
22 say?

23 MR. HOLMBECK: Yes, Your Honor. It is a 30-minute
24 time.

25

1 MR. BIELAWSKI: I cannot understand the relevance
2 of that kind of --

3 JUDGE SMITH: Separate from the stipulation.

4 MR. BIALAWSKI: Right. The special facilities
5 have not been considered adequately so that we do not have
6 to litigate that issue in this proceeding. Commonwealth
7 Edison entered into this commitment which says that we will
8 perform independent assessment of special facilities which
9 includes mobilization time and considers evacuation and
10 everything else associated with such a study. And I cannot
11 understand for the life of me how the 30-minute assumption
12 is germane to anything, given this commitment.

13 The reason we entered into the commitment was
14 so that we would not be spending the time litigating this
15 and we would deal with it informally, as the Intervenors
16 agreed to do.

17 JUDGE SMITH: What are you going to use the
18 information for? It does seem to me --

19 MR. HOLMBECK: Our contention, 2-C addresses
20 the relative significance of alternative assumptions. We
21 are looking at a number of assumptions here which are the
22 foundation of special facilities' evacuation times, and I
23 am attempting to look at whether the significance of
24 alternative assumptions has been considered here. And I
25 think it is certainly relevant to Contention 2-C.

1 MR. BIELAWSKI: Your Honor, the bottom line is
2 whether the evacuation time study adequately considers
3 special populations. That is what the commitment is all about.
4 And independent from that, I do not see the relevance of
5 what Mr. Holmbeck is going into.

6 He wants to know -- I think the Intervenors wants
7 to know whether special facilities have been adequately
8 considered. The company has entered into a commitment to
9 make that demonstration to the Intervenors, and I do not
10 understand how anything else is relevant, any of the
11 questioning that he apparently intends to go into, is rele-
12 vant to the bottom line issue, which is whether or not the
13 special facilities have been considered adequately.

14 JUDGE SMITH: What commitment is that?

15 MR. BIELAWSKI: Commitment L. It is on page 2-4
16 of the stipulation.

17 JUDGE SMITH: It does seem to me to be a rather
18 strong commitment on the part of the applicant, and I will
19 put it into the record at this point, the Commitment L.
20 "Demonstrate that an annex to the evacuation time estimate
21 study has been developed, which presents specific evacuation
22 feasibility analyses for appropriate special facilities,
23 such that there is reasonable assurance that in the event
24 of an evacuation of a special facility, the health and
25 safety of its residents can be adequately protected."

1 I don't understand what you can possibly develop
2 on the question of special facilities that will be necessary
3 in your case, in view of this very strong commitment. We're
4 going to be receptive to your explanation; you have not made
5 it yet, as far as I can understand.

6 MR. HOLMBECK: There are several assumptions
7 made in this section which are not the subject of this
8 particular commitment. As I understood the commitment,
9 appropriate special facilities was defined as nursing homes,
10 and one of the assumptions which was made in this section --
11 I should -- I guess I should not state what I think the
12 assumptions are.

13 JUDGE SMITH: We still have to know where you
14 are going, so state it.

15 MR. HOLMBECK: It is my belief that one of the
16 assumptions that is made in this section is that special
17 facilities, including industry, day care centers, recrea-
18 tional areas and schools for the handicapped, do not require
19 a special evacuation time estimate. Now, special facilities
20 aren't defined to include all of those groups. It is
21 stated that evacuation times are going to be performed
22 for special facilities, and then all of a sudden, all of
23 these groups are lost.

24 So, I don't believe Section L, if Mr. Bielawski
25 would like to commit Commonwealth Edison in commitment L to

1 these other groups as well, then I would have no question
2 about that.

3 MR. BIELAWSKI: I don't want to relive our
4 negotiations at this point. I would just like to point out
5 that nursing homes are certainly special facilities which
6 the company agrees to take a look at in the context of this
7 annex.

8 I also believe that schools are so considered.
9 The language of this contention was discussed at length,
10 and we came up with a term, "appropriate special facilities."
11 In other words, those facilities that, I guess in the first
12 instance, Commonwealth Edison believes ought to be con-
13 sidered in such an annex. If, at the time of having demon-
14 strated the commitment, the Intervenors believe that other
15 special facilities which should be considered have not been
16 considered, that is the time to raise it. It is not the
17 time to raise it, here.

18 JUDGE SMITH: Where do we infer from Stipulation L
19 that the Applicant intends to exclude special facilities that
20 you believe should be included?

21 MR. HOLMBECK: Perhaps Mr. Bielawski would like
22 to define "appropriate special facilities" for us.

23 MR. BIELAWSKI: I have no intention of defining
24 "special facilities." I am not an expert in the area.
25 Whatever the experts think are the facilities that ought

1 to be considered in terms of this annex, so that you can
2 have an evacuation time study which is a useful document
3 in making a decision as to whether to evacuate these people.
4 Those are the ones that ought to be looked at. That is a
5 subject that will be discussed -- I thought this was going
6 to be discussed in an informal resolution of Commitment L.

7 MR. HOLMBECK: It was my understanding that
8 "appropriate special facilities" meant nursing homes and
9 it is this assumption by Commonwealth Edison with their
10 consultants that these other facilities do not merit a
11 time estimate. That is what I'm after. I'd like to know why

12 JUDGE SMITH: You were aware of an irreconcilable
13 difference of opinion with respect to Stipulation L and you
14 were silent on it during that stipulation?

15 MR. HOLMBECK: I certainly was not, Your Honor.
16 I argued for quite a long time regarding some other special
17 facilities.

18 JUDGE SMITH: But they were not included in the
19 stipulation, were they? Were they?

20 MR. HOLMBECK: That is the case, yes.

21 JUDGE SMITH: So you are rejecting the stipulation.

22 MR. HOLMBECK: No, Your Honor.

23 JUDGE SMITH: But you were aware that there was
24 a different of opinion and you signed the stipulation --

25 MR. HOLMBECK: That's correct.

1 JUDGE SMITH: -- that they will demonstrate as
2 to appropriate facilities.

3 MR. HOLMBECK: That's correct.

4 JUDGE SMITH: Now you want to litigate what the
5 appropriate ones are.

6 MR. HOLMBECK: Your Honor, I would like to liti-
7 gate Contention 2-C, which is the relative significance of
8 alternative assumptions in the evacuation time estimates,
9 and I think --

10 JUDGE SMITH: You are being evasive now. Do you
11 want to litigate in respect to Section 4.2? What is the
12 basis for the question you have on 4.2; whether certain
13 facilities should be in or out? That is what you have
14 represented so far.

15 MR. HOLMBECK: Your Honor, another assumption
16 made in this section is that --

17 JUDGE SMITH: Before we go to another assumption,
18 let's talk about the assumption that you just raised.
19 Nursing homes, in or out? Is it still your position that
20 you should litigate whether they should be in or out at
21 this stage?

22 MR. HOLMBECK: No, Your Honor, it is not. I
23 would like to know why they are out, however.

24 MR. BIELAWSKI: Your Honor, nobody has said
25 that they were out. We have said that this was going to be

1 discussed informally with Intervenors during our informal
2 process of trying to resolve the concerns raised in the
3 contentions as they are reflected in the commitment. If
4 Mr. Holmbeck can convince my client that whatever special
5 facility he believes ought to be considered as a part of
6 this annex is an appropriate one to be considered, I am
7 sure they will do that. If not, then unfortunately, we
8 will probably be back before you after the annex is
9 completed.

10 But I think the Intervenors -- and I wish Mr.
11 Savage were here because he was a part of those
12 negotiations -- clearly recognized that there might -- that
13 the question of whether a special facility is an appropriate
14 one to consider in this annex was considered when we entered
15 into the stipulation.

16 JUDGE SMITH: Let's move on to the next assump-
17 tion under Section 4.2 that you think should be addressed.

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1 MR. HOLMBECK: One of the assumptions specifically
2 stated in 9654, NUREG-0654, is day versus night. There was
3 the assumption in the Section 4.2 that only daytime evacuation
4 would be necessary.

5 JUDGE SMITH: But they still have the stipulation
6 that they will demonstrate that there is a reasonable
7 assurance that in the event of evacuation of a special
8 facility, the health and safety of its residents can be
9 adequately protected. That is very, very broad. Am I read-
10 ing it correctly? Does it say except at night?

11 MR. HOLMBECK: Your Honor, if you are stating
12 that I should not litigate the assumptions made in this
13 document or that I should not litigate some of the assumptions
14 made in this document, I would like to understand that.

15 JUDGE SMITH: We are not a party to the stipulation,
16 but the stipulation has been made, and I don't know how you
17 can, on the one hand, recognize that they made a stipulation
18 and agreed that they stipulated that they will demonstrate,
19 quote, again, that there is reasonable assurance that in the
20 event of the evacuation of a special facility, the health and
21 safety of its residents can be adequately protected, end of
22 quote.

23 And you read into that conditions would you infer from
24 Section 4.2; they don't say except at night in the stipulation.

25 MR. GOLDBERG: Judge, I might also direct the

1 Board and parties' attention to Commitment G appearing on page
2 2-3 of the stipulation, where the Applicant commenced to
3 demonstrate that the principal assumptions used in developing
4 the estimates are stated and defensible.

5 That seems also to pertain to Mr. Holmbeck's
6 intended examination. And I think if everything in the docu-
7 ment is going to be loosely encompassed within the scope of
8 Contention 2-C pertaining to the relative significance of
9 alternative assumptions, it is essentially going to negate
10 many of the commitments which the Applicant voluntarily enter-
11 ed into.

12 JUDGE SMITH: Perhaps you should wait and consult
13 with Mr. Savage as to your tactics on this.

14 MR. HOLMBECK: Yes.

15 JUDGE SMITH: It seems to me you yourself can be
16 damaged by the departure from the clear language of the
17 stipulation.

18 MR. HOLMBECK: I think Mr. Goldberg has raised
19 an important point. May I --

20 JUDGE SMITH: This might be a good place for
21 recess for tonight and for you to regroup, because if much
22 of your examination plans depend on defining the stipulations
23 or litigating the aspects of it which you think are not
24 covered, then I think maybe you'd better regroup and consider
25 what has happened and consult with Mr. Savage. It is almost

1 breaking time anyway.

2 MR. HOLMBECK: I think I could pursue one other
3 line of questioning which would not -- would certainly not
4 invade upon the stipulation. If you would like to recess,
5 I'm --

6 MR. BIELAWSKI: Your Honor, may I ask Mr. Holmbeck
7 if this was his last line of questioning? We are on a
8 relatively tight schedule. The schedule was -- at least the
9 agreement to litigate this in a week was based on my under-
10 standing that DAARE/SAFE would be represented by counsel. I
11 think Mr. Holmbeck is doing as good of a job as he can. It
12 is not going very quickly, and I am concerned that there is
13 no way we're going to finish in a week if we go at this pace.
14 So if at all possible, I would like to finish up with these
15 witnesses so we can lead on to our other witnesses.

16 JUDGE SMITH: Finish up with them tonight?

17 MR. BIELAWSKI: Yes, if that is possible. If he
18 has lengthy examination on other issues, obviously that will
19 not be possible.

20 JUDGE SMITH: What would you say, Mr. Holmbeck?
21 You have not been making what I would call efficient progress.
22 The pace has been slow of the questioning.

23 Where are you in your cross examination plan?

24 MR. HOLMBECK: I believe I have covered all but
25 Question 10 and Question 14.

1 JUDGE SMITH: Question 10 and Question 15?

2 MR. HOLMBECK: Fourteen.

3 JUDGE SMITH: Fourteen.

4 MR. HOLMBECK: And Question 10 is --

5 JUDGE SMITH: Question 10 we have pretty well
6 ruled on, haven't we, looking at your cross examination plan.

7 MR. HOLMBECK: I don't believe I have presented
8 an overview of the content of all of the questions I was
9 going to ask on Question 10. Can I have just a minute to look
10 over my --

11 JUDGE SMITH: All right.

12 MR. HOLMBECK: Then I can tell you if I can finish
13 up in a short period.

14 MR. BIELAWSKI: I would point out one other thing,
15 Your Honor. During the break I was informed -- I knew there
16 was this possibility, but I was informed that Mr. Holmbeck
17 will be conducting the cross examination of Dr. Golden,
18 Mr. Ead and Mr. Smith.

19 JUDGE SMITH: Where's Mr. Thomas?

20 MR. BIELAWSKI: Mr. Savage will not be conducting
21 the cross. Mr. Thomas is not going to be here. It's going
22 to slow things up. As I said, I think Mr. Holmbeck is doing
23 the best he can, but I am somewhat caught by surprise by
24 this. I am concerned that we're not going to be able to
25 get through these issues on the schedule that all the parties

1 contemplated.

2 JUDGE SMITH: I don't know just what we can do
3 about that. The pace has been very slow. But it is a diffi-
4 cult task to learn the techniques of cross examination.

5 MR. BIELAWSKI: Certainly. I recognize that.
6 That's why when I established the schedule -- I had been
7 negotiating with Mr. Savage -- I anticipated that Mr. Savage
8 would conduct the cross examination. I don't know what I
9 can do. I don't know what you can do to deal with this,
10 with the situation.

11 I guess I am telling you I am kind of surprised
12 by this.

13 JUDGE SMITH: The way it has gone, we have used
14 about half of the four days available, and we have not covered,
15 as far as I can see, anywhere near -- I mean we have used
16 about one-eighth of the four days available, and we have not
17 covered anywhere near the proportionate amount of subject
18 matter. We're not even close to it, not even in the same
19 range.

20 Maybe we'd better talk about scheduling. Is that
21 a fact, that Mr. Savage is not going to be available?

22 MR. HOLMBECK: Yes, I believe that is the case,
23 Your Honor.

24 JUDGE SMITH: Not at all, not for any of the
25 witnesses?

1 MR. HOLMBECK: He will be available when our
2 witnesses are cross examined.

3 JUDGE SMITH: Ms. Chavez.

4 MS. CHAVEZ: Your Honor, I would like to put in a
5 few words here to point out the fact that although the Board
6 and the present schedule have been proceeding somewhat
7 impacted, this is partly due, of course, to the realization
8 that the scheduling of the fuel loading operation was
9 scheduled for August of 1983.

10 I think with Edison's indication today that the
11 scheduling date for the fuel load operation could be as late
12 as November 1983, I think that the degree of impactment in
13 this hearing schedule might not necessarily need to be the
14 case of particular contentions. And the evacuation has been
15 one contention which all of the parties have recognized would
16 require a great deal of time.

17 So I would say that perhaps through consultation
18 with the parties a schedule could be worked out which would
19 allow a little more time --

20 JUDGE SMITH: I don't believe there is enough time
21 anywhere to accommodate the pace that we are moving at.

22 (Laughter.)

23 MR. BIELAWSKI: Your Honor, I would point out that
24 even though we have indicated that the fuel load date might
25 slip to December -- November, I'm sorry --

1 (Laughter.)

2 MR. BIELAWSKI: -- It is still probably an
3 impacted case.

4 JUDGE SMITH: Yes. As a matter of fact, our own
5 estimates, based on our own estimates which we have reported
6 to the Commissioners, were based on the schedule that you
7 had stipulated to before it got out of hand; that we would
8 perhaps have a decision in November. It takes a long time.

9 MR. BIELAWSKI: The other point is Ms. Chavez
10 said, and everyone realizes, that the emergency planning
11 contention would take a long time. That is precisely why
12 the company was willing to enter into -- one of the reasons
13 it was willing to enter into the stipulation and make the
14 commitments that it made at considerable sacrifice.

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1 MR.HOLMBECK: Can you give me some idea of how
2 much longer you would want to go this evening, and I can
3 tell you if I can finish up or not.

4 JUDGE SMITH: Our regular schedule is to stop
5 at 6:00 o'clock. If we can get any extra time it would be
6 fine because we have -- I don't think we can leave our files
7 in this building and we have to move out this evening.

8 MR. HOLMBECK: Your Honor, I believe the two
9 lines of questions that I have remaining, one being on
10 site weather characteristics and one other line of questions
11 regarding behavior aspects, would probably -- well, would
12 probably be done much more quickly tomorrow if I had some
13 time.

14 JUDGE SMITH: Let's bear in mind that Mr.
15 Goldberg pointed out Commitment G, that they have to demon-
16 strate that the principal assumptions used to develop the
17 estimates are stated and defensible, and if you do not --
18 I think people keep cross examination plans a little bit
19 too confidential, but aren't you going to attempt to attack
20 the principal assumptions now by some of your questions of
21 the time study plan?

22 MR. HOLMBECK: Your Honor, if there is a conflict
23 between the subjects raised in Contention 2-C, E and K and
24 those raised in the commitment, I believe that -- don't we
25 have some standing to ask these questions? I am willing to

1 recognize Mr. Goldberg's statement about G and forego quite
2 a bit of cross examination. But --

3 JUDGE SMITH: Just a moment. The contention that
4 the stipulation refers to --

5 MR. HOLMBECK: I am willing to forego further
6 cross examination. I am quite sure that I can forego
7 cross examination on question 10, further cross examination.

8 Your Honor, it seems to me there is some conflict
9 here between --

10 JUDGE SMITH: Let's address this particular
11 point. He is making the point on page 2-3 of the stipulation
12 Commonwealth Edison agrees with respect to certain conten-
13 tions to demonstrate that the principal assumptions used in
14 developing estimates are stated and defensible, but left out
15 of that are the certain contentions, C and E and A, I guess,
16 and K.

17 Do you think your stipulation, your commitment
18 to address those points --

19 MR. BIELAWSKI: I can explain the reasons why
20 we have this commitment, and we also agreed to litigate
21 2-C or whatever one that was alternative assumptions.
22 The commitment G states that we will demonstrate that the
23 principal assumptions used in developing the estimates
24 are stated and defensible. It does not say that we will
25 address the relative significance of alternative assumptions.

1 If you look at NUREG-0654, page 4-7 --

2 JUDGE SMITH: We don't have that.

3 MR. BIELAWSKI: I will read a sentence to you.

4 "Relative significance of alternative assumptions shall be
5 addressed, especially with regard to time-dependent traffic
6 loading of the segments of the evacuation roadway network."

7 With respect to that sentence, -- and this is
8 where Mr. Holmbeck gets his term "relative significance of
9 alternative assumptions" -- the witnesses have addressed it
10 in their testimony in terms of time-dependent traffic
11 loading. And we believe it is different than demonstrating
12 that principal assumptions used are stated and defensible.

13 Mr. Holmbeck is requesting that we look at
14 alternative assumptions and the witnesses are saying that
15 the , in fact, have, and have considered them in terms of
16 time-dependent traffic loading. And that is not covered by
17 the commitment.

18 JUDGE SMITH: It is not.

19 MR. BIELAWSKI: It is not.

20 MR. HOLMBECK: It seems to me, Your Honor, that
21 the significance of any assumption is measured by a consid-
22 eration of the consequences of making an alternative assump-
23 tion. That was my understanding of how to approach 2-C.
24 If there is a conflict between 2-C and commitment G, and
25 that conflict -- whatever it was, it was also entered into

1 by Commonwealth Edison Company and we both had our interpre-
2 tations of what the commitment is. And obviously, neither
3 one of us thought that there was a conflict.

4 MR. BIELAWSKI: I disagree there. I do not see
5 that there is a conflict. The commitment says that we will
6 demonstrate principal assumptions are stated and defensible.
7 Mr. Holmbeck just stated that the only way he can evaluate
8 that is if you consider the relative significance of alterna-
9 tive assumptions. I do not know that we agree with that
10 position, and that is the way he would want to evaluate it and
11 I do not know that we would agree.

12 JUDGE SMITH: I understand the words that you're
13 saying and I understand the words that he says, but I cannot
14 place them into any sense of reality to me. I do not really
15 know what they mean, I have to admit.

16 MR. GOLDBERG: Judge, unfortunately, the termin-
17 ology in NUREG-0654 is not that clear. We will have a
18 witness later in the week who can perhaps shed some light on
19 what the derivation of the provision cited to you by Mr.
20 Bielawski in Appendix 4 to 0654 for the term, for the
21 provision there that the evacuation time estimates addressed
22 the relative significance of alternative assumptions.

23 But reading that term in the context in which
24 it appears in 0654, it does seem somewhat self-limiting.
25 And it would not appear to -- for example, the sentence

1 which precedes it and the passage that Mr. Bielawski alluded
2 to states, "The text accompanying the tables must clearly
3 indicate the critical assumptions which underlie the time
4 estimates; e.g., day versus night, workday versus weekend,
5 peak transient versus off-peak transient, and evacuation on
6 adjacent sectors versus not evacuation." And that goes on
7 with the phrase, "The relative significance of alternative
8 assumptions shall be addressed, especially with regard to
9 time-dependent traffic loading of the segments of the
10 evacuation roadway network."

11 Mr. Holmbeck certainly has posed a lot of
12 questions about day versus night, peak transient versus
13 off-peak transient and the various traffic loading conditions.
14 It does not seem to me that questioning about the population
15 of special facilities, which is not, to my knowledge,
16 considered a transient population, is really germane to
17 this particular provision, which I think Mr. Holmbeck will
18 acknowledge that the inspiration for Contention 2-C was
19 this particular passage in NUREG-0654, which admittedly,
20 there is some ambiguity. But the nature of the document
21 is that it's only a guidance document; it is not a regulation.

22 I think where there is a conflict between a
23 general provision and a contention which the parties have
24 agreed to litigate versus a specific commitment to do
25 something to avoid unnecessary litigation, that the specific

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1 commitment should control. And I will say we were not --
2 the inspiration for the specific commitments was not the
3 stamps. I am not proposing to interpret the meaning that
4 the other parties attach to it. I just think there had to
5 be some purpose for entering into it, and with a specific
6 commitment, it should govern a more general contention.

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1 JUDGE SMITH: I really think we are in difficulty
2 here. The cross examination simply has not produced any-
3 thing that is concrete that we can make findings on. It
4 does not intend to do it; I do not know where it is going
5 and what you are accomplishing by it.

6 However, maybe we have not seen it come to the
7 end yet. Clearly, we are not going to finish up this
8 litigation this week at this pace. It just is not going
9 to be done.

10 MR. HOLMBECK: Your Honor, just a couple of
11 last points. I am sorry that you feel that no significant
12 points have come out of the cross examination.

13 JUDGE SMITH: What has come out? What have you
14 established? I'm having difficulty myself seeing what your
15 objectives are. That's the problem.

16 MR. HOLMBECK: Would you like me to go through
17 the cross examination plan? I can give you some proposed
18 findings now, if you would like, to convince you of the
19 importance of what has gone on so far today.

20 JUDGE SMITH: Just give me an example of what
21 you have accomplished.

22 MR. HOLMBECK: I believe I have gotten --
23 drawn a much better picture of what the witnesses believe
24 or do not believe an evacuation time estimate study is used
25 for.

1 JUDGE SMITH: Okay.

2 MR. HOLMBECK: I believe it has become apparent
3 that the evacuation time estimate study -- there is a certain
4 degree of uncertainty as to what it is to be used for. The
5 fact that these are assumptions made about behavior of
6 human beings which do not take into consideration what
7 these human beings have been told to do, there is no consid-
8 eration of what human beings have been told to do. And
9 yet, we are told that people are told to follow instructions,
10 and that they will follow instructions.

11 I could continue. I don't know that that is
12 appropriate.

13 JUDGE SMITH: All right, just go ahead. We will
14 go until 6:00 o'clock and then break.

15 BY MR. HOLMBECK (Resuming):

16 Q Is it true that Stone & Webster prepared evacua-
17 tion time estimates for Dresden, LaSalle, Quad Cities
18 and Zion?

19 A (Witness McCluskey) Yes.

20 Q Did you have any part in the preparation of
21 those studies?

22 A Yes.

23 Q Are you familiar with the results of -- strike that.
24 These studies were submitted to the NRC following
25 up on their request of November 29, 1979 for time estimates.

1 Is that correct?

2 A Yes.

3 Q And the results of the NRC's analysis are found
4 in NUREG/CR-1856 entitled, "An analysis of evacuation time
5 estimates around 52 nuclear power plant sites." Is that
6 correct?

7 A Yes.

8 Q Adverse weather response time considerations
9 were rated in that document, were they not?

10 A Pardon me? I'm sorry, I didn't hear you.

11 Q Adverse weather response time considerations
12 were rated in that document, were they not?

13 MR. BIELAWSKI: I would like to object to this
14 line of questioning, at least insofar as these witnesses
15 do not have the document to which Mr. Holmbeck is referring,
16 unless he is trying to test their memory of that.

17 MR. HOLMBECK: I can certainly provide them
18 with a copy.

19 MR. BIELAWSKI: Number one. Number two, I do
20 not understand how the evacuation time estimates for other
21 nuclear power plants are at issue in this proceeding. We
22 are considering whether the evacuation time estimate for
23 the Byron facility is adequate.

24 JUDGE SMITH: What are you getting at?

25 MR. HOLMBECK: That these studies were prepared

1 by the same firm, and I would like to determine whether
2 there are similarities between them, and thus, whether
3 these areas in which these studies were rated poorly would
4 also affect and -- the Byron study.

5 JUDGE SMITH: Do you know the answer to the
6 questions you are asking?

7 MR. HOLMBECK: I have known answers to all of
8 the questions I have been asking so far.

9 JUDGE SMITH: You have?

10 MR. HOLMBECK: Yes, I have.

11 BY MR. HOLMBECK (Resuming):

12 Q Would you like a copy of it?

13 (Counsel handing document to witnesses.)

14 MR. BIELAWSKI: I believe -- and I'm not
15 certain, but I believe that the evacuation time studies
16 which are discussed in that document -- more information
17 since that time has been provided to the staff. Especially
18 with respect to adverse weather conditions. So I am not
19 certain what the probative value of the questioning on this
20 document is.

21 JUDGE SMITH: I think maybe you should develop
22 that information from the witnesses or somebody else rather
23 than stating it, but I think that it is a fair area of
24 inquiry.

25 BY MR. HOLMBECK (Resuming):

1 Q Do you recall in those studies what the reduction
2 in roadway capacity was for adverse weather conditions?

3 A (Witness McCluskey) No, I don't recall.

4 Q Did you assist in preparing those documents?

5 A I prepared the documents.

6 Q And you don't know if the same production roadway
7 capacity due to weather conditions was used in those studies
8 as was used in the Byron study?

9 MR. BIELAWSKI: That has been asked and answered,
10 Your Honor.

11 MR. HOLMBECK: Okay.

12 BY MR. HOLMBECK (Resuming):

13 Q Do you recall what ratings were assigned to the
14 Stone & Webster studies for Dresden, LaSalle, Quad Cities
15 and Zion for their consideration of adverse weather response
16 time?

17 A (Witness McCluskey) No, I indicated I did not
18 recall.

19 Q Does the document refresh your memory?

20 A Would you give me time to read it?

21 Q There is one page assigned to each one. They
22 are in alphabetical order.

23 A But you are asking me questions as fast as I can
24 turn the page, and --

25 JUDGE SMITH: If he is asking her if her memory

1 is refreshed, then she should have all the time she needs
2 to look at the information you think will refresh your
3 memory.

4 MR. HOLMBECK: Certainly.

5 MR. BIELAWSKI: Your Honor, it is 6:00 o'clock.
6 Maybe the witness --

7 JUDGE SMITH: Are you going to be examining this
8 witness on this document tomorrow?

9 MR. HOLMBECK: I could, Your Honor. I have
10 possibly two more questions on this line, and I will
11 complete that line of questioning.

12 JUDGE SMITH: I have no idea about the quantity
13 of information you are asking her to assimilate now, to
14 answer your previous question. I don't know how much it
15 is.

16 MR. HOLMBECK: It is a matter of flipping through
17 the pages and finding -- there are 52 plants. There are
18 four from Commonwealth Edison, there are two pages given to
19 each plant. It is a matter of going through and they are in
20 alphabetical order. It couldn't take more than 30 seconds.

21 JUDGE SMITH: Are you able to do that?

22 WITNESS McCLUSKEY: Well, I certainly don't want
23 to just quickly flip through it. If I am going to testify
24 on something, I would like time to look at it, again. But
25 I would also like to point out that the two methodologies

1 used are different, and the documentation available at
2 the time of this study and the number of times that the
3 various studies have been done since then have certainly
4 provided some different aspects to the two studies. The
5 two methodologies are quite different.

6 MR. HOLMBECK: That, in fact, was my next
7 questions, as to whether the two differences were there.

8 JUDGE SMITH: She has indicated in a matter of
9 30 seconds she cannot testify, in any event, that she needs
10 more time to familiarize herself with the information you
11 are asking her to --

12 MR. HOLMBECK: If the witness is unable to make
13 any comparison of the studies with respect to adverse weather
14 response time considerations.

15 BY MR. HOLMBECK (Resuming):

16 Q Is that the case?

17 A (Witness McCluskey) The case is you asked me to
18 indicate what this rating was in here with respect to that
19 particular aspect of the study. I have not really determined
20 what the rating is and, therefore, yes, I'm not going to
21 make a comparison between the two studies on that point.

22 Q If you are not familiar with the exact -- adverse
23 weather response time considerations of the two studies and
24 able to compare the two, then I do not have any further
25 questions about it, and the comparison will not be relevant,

1 if that is the case.

2 MR. BIELAWSKI: I did not follow what Mr.
3 Holmbeck is saying.

4 MR. HOLMBECK: The comparison would require a
5 familiarity with the other studies, which I believe the
6 witnesses have indicated they don't have.

7 MR. BIELAWSKI: I don't know that they have
8 indicated that. I think they indicated the fact that they
9 want to take a look at this document to see what it says
10 before they answer any questions based on it.

11 JUDGE SMITH: She at least suggested that even
12 by looking at the document, because of the change in
13 methodologies and additional information, she may not be
14 able to make a comparison.

15 MR. BIELAWSKI: I'm sorry, I missed that. I
16 apologize.

17 JUDGE SMITH: Was that your statement?

18 WITNESS McCLUSKEY: Yes.

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1 JUDGE SMITH: And Mr. Holmbeck said in that
2 event it would be pointless to continue. Is that where we are?

3 MR. HOLMBECK: Yes, sir.

4 I have no further questions today.

5 JUDGE SMITH: Of this panel? Tomorrow, you have
6 more questions tomorrow?

7 MR. HOLMBECK: Yes.

8 JUDGE SMITH: We will adjourn then until 9:00 a.m.
9 We will meet tomorrow at Courtroom 210 -- 209. 209. We
10 are adjourned until that time.

11 (Whereupon, at 6:05 p.m., the hearing was recessed,
12 to be reconvened at 9:00 a.m., the following day, Tuesday,
13 April 19, 1983.)

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CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NPC COMMISSION

In the matter of: Commonwealth Edison Company
Byron Nuclear Station, Units 1 & 2

Date of Proceeding: April 18, 1983

Place of Proceeding: Rockford, Illinois

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

BARBARA WHITLOCK

Official Reporter - Typed

Barbara L. Whitlock

Official Reporter - Signature