

1 Q. Have you seen this document before?

2 GEN. JEFFERSON: Yes.

3 Q. Did you review it in your analysis?

4 GEN. JEFFERSON: Oh, yes. It was
5 amazing.

6 Q. Does the DOE Standard prescribe a
7 particular method for using use in calculating a
8 crash impact probability in a facility like this?

9 GEN. JEFFERSON: It presents a formula,
10 but it is not restrictive in that --

11 MR. SOPER: Objection. Lack of
12 foundation. It's not responsive and I'd object to
13 this witness's answer.

14 MR. BARNETT: I'm asking him a specific
15 question relating to --

16 JUDGE FARRAR: I'm sorry. I was
17 reading the document and not paying as much
18 attention as I should have.

19 MR. SOPER: I object. It's -- Excuse
20 me, your Honor.

21 JUDGE FARRAR: I'm trying to get it
22 read.

23 (Previous question was read back.)

24 JUDGE FARRAR: Go ahead, Mr. Soper,
25 repeat your objection.

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1 MR. SOPER: The question was does it
2 present a formula, and as to which an answer would
3 be appropriate because a person can read this and
4 answer that question. The question was not
5 whether the formula was appropriate or exclusive,
6 and that was what the answer was about to be. I
7 object to that answer as being nonresponsive. And
8 if that question were asked, there's a lack of
9 foundation for this witness to so opine on this
10 DOE document.

11 JUDGE FARRAR: Mr. Barnett?

12 MR. BARNETT: The State asked the
13 question yesterday, or the day before, about
14 whether or not the DOE Standard has some formula
15 with a factor related to pilot avoidance. And
16 what I'm getting at is whether the DOE Standard
17 prescribes a particular formula that would be
18 appropriate to use for the PFSF.

19 MR. SOPER: That's exactly my
20 objection. Could I voir dire the witness?

21 JUDGE FARRAR: Yes, unless it would be
22 simpler -- why don't we first find out what this
23 document says.

24 MR. BARNETT: I can ask the witness
25 that question.

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1 JUDGE FARRAR: Let's back up just a bit
2 and ask that question.

3 Q. (By Mr. Barnett) General Jefferson,
4 what does this document say with respect to the
5 use of a particular formula for calculating a
6 crash impact probability for a facility like the
7 PFSF in Skull Valley?

8 GEN. JEFFERSON: I'd quote on Page 6 at
9 the bottom of the second paragraph.

10 JUDGE FARRAR: Why don't you read it,
11 sir.

12 GEN. JEFFERSON: However, it is not the
13 intent of this standard to imply that these are
14 the only methodologies acceptable for such an
15 assessment. Alternative methodologies that meet
16 the intent of the standard may be proposed and
17 used, but their acceptability needs to be assessed
18 on a case-by-case basis.

19 JUDGE FARRAR: Next question, Mr.
20 Barnett?

21 Q. My next question is do the DOE
22 Standards provide any flexibility in the method
23 you can use to calculate a crash impact
24 probability for a facility like the PFSF?

25 MR. SOPER: Objection. Lack of

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1 foundation.

2 JUDGE FARRAR: I think, in other words,
3 the document says what General Jefferson just said
4 it said. Why don't we ask him what they then did
5 in --

6 MR. BARNETT: That's what I thought I
7 just asked him; whether it provided any
8 flexibility in the method you could use.

9 JUDGE FARRAR: It says here he can use
10 an alternative methodology. The better question
11 would be did they do that, and why, rather than --

12 MR. BARNETT: The point I'm making --

13 JUDGE FARRAR: Unless I'm missing the
14 point.

15 MR. BARNETT: The point I'm making is
16 this is not restrictive and the fact that a factor
17 related to pilot avoidance doesn't appear in this
18 book doesn't mean it is inappropriate to consider
19 pilot avoidance when you are calculating an impact
20 crash probability.

21 MR. SOPER: There is no foundation for
22 him to so opine, is my objection.

23 JUDGE FARRAR: Mr. Barnett, we will
24 give you some leeway here. But we are interested
25 in -- never mind. Go ahead. Objection overruled.

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1 MR. BARNETT: That's all I really had,
2 your Honor. That's the only point I was trying to
3 make was that it was not -- well, the point I was
4 making was the answer to the question that General
5 Jefferson gave.

6 JUDGE FARRAR: Now I'm more confused
7 because I thought there wasn't an answer.

8 MR. BARNETT: General Jefferson, please
9 answer the question.

10 JUDGE FARRAR: Just a moment.

11 MR. BARNETT: I thought he had. I
12 thought he had answered.

13 JUDGE FARRAR: I apologize. I thought
14 he just walked in -- I think we are hopelessly
15 confused here.

16 MR. SOPER: He answered the question as
17 to what the document said by reading it, and there
18 was a question as to further information on what
19 that meant. And I don't think there was a
20 question pending after that.

21 JUDGE FARRAR: Right.

22 Q. (By Mr. Barnett) Okay. Let me ask the
23 question. I thought I asked the question but
24 maybe I hadn't gotten it out. General Jefferson,
25 does the DOE Standard provide any flexibility in

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1 the methodology you could use to calculate crash
2 impact probability for a facility like the PFSF?

3 GEN. JEFFERSON: Yes, it does.

4 Q. Could you describe that?

5 MR. SOPER: I object as lack of
6 foundation. He has read what the document says
7 and I object to him opining on it.

8 JUDGE FARRAR: But we will overrule it.
9 You will have a chance to cross and we may end up
10 disregarding his opinion.

11 MR. SOPER okay. Thank you, your
12 Honor.

13 GEN. JEFFERSON: Your Honor, may I
14 refer to Page 44? The paragraph in the middle of
15 the page where it begins, "It is important." I'll
16 read that. "It is important to recognize that the
17 in-flight analysis for military aviation given
18 below only applies to normal in-flight operations
19 outside military operations areas and low level
20 flight ranges. For facilities at or near those
21 latter types of areas, it is necessary to perform
22 a site-specific assessment of the impact
23 frequencies associated with activities in these
24 areas."

25 Q. So General Jefferson, in your opinion,

1 given your review of the DOE Standard, would it be
2 appropriate to account for pilot avoidance in
3 calculating a crash impact probability at the
4 PFSF?

5 MR. SOPER: Objection. Lack of
6 foundation.

7 JUDGE FARRAR: Same ruling. Go ahead.

8 GEN. JEFFERSON: Yes, I believe it is.
9 It is necessary to do a site-specific assessment
10 and that would be part of the site-specific
11 assessment, since we know details about it.

12 MR. BARNETT: Your Honor, I would move
13 to have this exhibit admitted.

14 JUDGE FARRAR: Mr. Soper, why don't you
15 ask a couple of questions now before we rule on
16 that admission.

17 MR. SOPER: Thank you, your Honor.
18 General Jefferson, what you just read from, Page
19 44, begins, "It is important to recognize that the
20 in-flight analysis for a military aviation given
21 below . . . " What is that given below analysis?

22 GEN. JEFFERSON: There is a section
23 that follows that deals with military aviation.

24 MR. SOPER: Well, I would presume that.
25 But what exactly is it? Is it the formula for

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1 calculation of crash impacts?

2 GEN. JEFFERSON: It's --

3 MR. SOPER: Go ahead, sir.

4 GEN. JEFFERSON: It is found in step
5 10, subtitle 4, Small Military Aviation.

6 MR. SOPER: Step ten reads, multiply
7 the value of $NPf(x,y)$ by the A value determined
8 for air carriers in Step 5." Is that --

9 GEN. JEFFERSON: I'm sorry. I
10 misspoke. It is the way this is categorized, it
11 is under 4, Small Military Aviation, but it is
12 step 15 and step 16. And then it would go on to
13 other things to do after that. And that
14 instruction is that that's not applicable inside
15 the MOA.

16 MR. SOPER: I see. I don't see the
17 formula that appears in NUREG 0800 mentioned
18 within those pages. Would that be correct?

19 GEN. JEFFERSON: No. I do not see that
20 formula from NUREG here. This is the DOE
21 document.

22 MR. SOPER: And the same formula is not
23 mentioned here; is that your testimony?

24 MR. BARNETT: When you say "the same
25 formula", what are you referring to?

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1 MR. SOPER: $P = N \times C \times A/W$.

2 GEN. JEFFERSON: Our reference to
3 characters in this paragraph of N and so forth,
4 prior to that on Page 42, formula 5-2 is very
5 similar to the NUREG formula.

6 MR. SOPER: General, you testified that
7 you have never before applied or used the DOE
8 Standard that is shown in Exhibit SSS, is that
9 true, prior to this project?

10 GEN. JEFFERSON: No. I have done
11 similar things but not that.

12 MR. SOPER: You have never used this
13 document before.

14 GEN. JEFFERSON: Not before this
15 project.

16 MR. SOPER: And you wouldn't consider
17 yourself an expert in it, by any means, would you?

18 GEN. JEFFERSON: I didn't derive it or
19 anything. I can read it.

20 MR. SOPER: We can all read it, sir.
21 But you have never used it before. That's true,
22 correct?

23 GEN. JEFFERSON: Before this project,
24 no.

25 MR. SOPER: I see. And you have no

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1 basis to opine on what it means, other than your
2 reading of it recently? Isn't that true?

3 GEN. JEFFERSON: I read it at the
4 beginning of the project.

5 MR. SOPER: Of this project.

6 GEN. JEFFERSON: Yes.

7 MR. SOPER: I would object to the
8 admission of SSS, your Honor, on the basis that
9 it's excerpts from a full document and the witness
10 can't even identify the process given below, end
11 quote, that he believes he is able to modify based
12 on this. I think this is irrelevant and taken out
13 of context.

14 MR. BARNETT: Your Honor, I think he
15 did identify the process below.

16 MR. SOPER: It mentions the number N or
17 the letter N, is what he said.

18 JUDGE FARRAR: Let me ask a question,
19 General. If I read these six lines that you read,
20 it seems to say that whatever their formula is in
21 here, it applies to normal in-flight operations
22 outside military operations and low level flight
23 ranges. Then it goes on to say for that, and I'm
24 paraphrasing here, for that kind of thing you've
25 got to do something site-specific. Now, my

1 simple-minded way of reading that says if the
2 basic formula for normal areas is going to give
3 you a number, where you're in military operations
4 areas the number is going to be worse and so you
5 better look at it. It says the opposite of the
6 number of what I think the effect if of what you
7 did. Which is, the number in these more dangerous
8 areas, do something different and low and behold
9 you'll come up with a better number. It seems to
10 me what it is saying is you come up with a worse
11 number. Unless I'm mistaken in drawing the
12 inference that the military operations areas and
13 low level flight ranges moves qualitatively more
14 of a risk rather than less of a risk.

15 GEN. JEFFERSON: Your Honor, without
16 presupposing the answer, all I see there is that
17 the formulas for outside the area are not
18 applicable inside, and that you should do a
19 specific assessment of what is going on there.

20 JUDGE FARRAR: Okay. So, not that it
21 is more or less dangerous, but it is outside the
22 envelope. In other words, that this is something
23 completely different so you have to start from
24 scratch? Or --

25 GEN. JEFFERSON: Don't start from

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1 scratch.

2 JUDGE FARRAR: Not from scratch.

3 GEN. JEFFERSON: But you need to be
4 more specific about what is going on there. And
5 that's what we have tried to do.

6 JUDGE LAM: I second Judge Farrar's
7 reading of this particular paragraph. In the
8 business of risk assessment, when you or anybody
9 else is seeking more level of specificity, is
10 generally in the intent to discover more hazards.
11 And I think the way I'm reading this, I think I
12 echo Judge Farrar's perception here. I think the
13 intent is to say, "Aha, fellows, watch it. Let's
14 discover more." Now somehow, I think we had the
15 pleasant surprise here after you gentlemen go down
16 to a level of specificity deeper than what it was
17 required, you find you had additional safety
18 margin. Am I right?

19 GEN. JEFFERSON: Yes. We tried to
20 characterize this for actually what is happening
21 there. F-16 specifics, for instance. Because
22 that is what the risk is.

23 JUDGE LAM: Thank you.

24 MR. TURK: May I offer a comment, not
25 to testify and I certainly am not an expert in

1 this. Today is the first day that I looked at
2 this document. But I believe that the document
3 offered as the exhibit is incomplete. It ends in
4 the section discussing commercial aviation. The
5 very next page has two cases for military
6 aviation; Case Number 3, Large Military Aviation,
7 Case Number 4, Small Military Aviation. And then
8 it goes on for another page to give the
9 appropriate way under the DOE Standard to treat
10 those. Also a reference to Table D 15 that
11 appears on Page 44 of the Applicant-proffered
12 exhibit. If one looks at Table D 15 in the DOE
13 document, you would see a table that lays out
14 maximum and minimum risk numbers, either a 10-6 or
15 10-7, or 10-8, or whatever for each type of
16 aviation; either air carrier, air taxi, large
17 military or small military. And then it goes on
18 to give specific values for each of a list of
19 approximately a dozen or fifteen DOE facilities,
20 with specific values in terms of risk for those
21 facilities. So I think without having a more
22 complete exhibit, you can't really get an
23 understanding of what was meant in the cited
24 paragraph.

25 JUDGE LAM: Yes, indeed, Mr. Turk.

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1 Appreciate that comment.

2 (The Board confers off the record.)

3 JUDGE FARRAR: Mr. Turk, not many
4 batters in the history of the game have gone six
5 for six, but we think the exhibit is incomplete in
6 that it has, on the pages you gave us, references
7 to other pages. So we are going to deny the
8 admission of this exhibit without prejudice to you
9 bringing back another version. But don't bring us
10 back the whole document.

11 MR. BARNETT: I will withdraw it.
12 That's fine.

13 JUDGE FARRAR: And Tuesday afternoon
14 and yesterday morning we were making great
15 progress on the merits of a lot of issues. I'm
16 sensing somehow we are bogging down here in
17 procedure, which is, you know -- I'd ask everybody
18 to think about how we can get at the material
19 maybe more directly. I have no problem with you
20 asking these people their opinions of why they did
21 something, and they will give us their opinion and
22 Mr. Soper will challenge them. But let's get at
23 stuff directly rather than indirectly.

24 At this point, we will take a break,
25 attempt to get our telephone hooked up and see

1 what we can do. Colonel Fly, you are going to
2 call and see where he can be reached?

3 COL. FLY: Yes, sir. I will get the
4 land number and we will call him back.

5 (A break was taken.)

6 JUDGE FARRAR: We adjourned, briefly
7 set up our conference phone, and expected to hear
8 from an active duty Air Force officer about an
9 event that happened to him some time ago. And
10 Colonel Fly, could you tell us what happened next?

11 COL. FLY: Yes, your Honor. His
12 commander has, with Judge Advocate involvement,
13 told him not to testify, is the short answer. He
14 has asked for written questions to which he will
15 respond. And I'm getting the name of the people
16 to send it to. He has also asked for a copy of
17 Lieutenant Colonel Horstman's prefiled testimony
18 for those portions that talk about him, because he
19 had not seen that. And we are basically on hold.
20 There was concern that what he said would be
21 misconstrued as official Air Force policy. So
22 they wanted to make sure that whatever he says is
23 -- well, whatever he says is whatever he says
24 after it gets reviewed by whoever will review it.
25 I guess I should let it go at that.

1 JUDGE FARRAR: Given my background,
2 there was part of me this morning when you
3 promised delivery of this witness that said to
4 myself, "This ain't gonna happen." But nice try.
5 We did, and you did, the best we could. We would
6 much prefer, given our proclivities, to ask
7 follow-up questions, not to have something in
8 writing but, one, to have the witness's
9 spontaneous statement and, two, our ability to
10 follow up with him. But as we said today, in all
11 this type of evidence, we do the best we can. We
12 develop the record as best we can.

13 So we will leave the parties off the
14 record or during a break to figure out a way to
15 get these questions together and get them sent to
16 him. We appreciate your effort.

17 We have a suggestion on this DOE
18 document, and on the whole issue of the Standard
19 Review Plan and the ability to depart from it.
20 And Mr. Soper, hear us out and then tell us what
21 you think.

22 And again I'll speak colloquially.
23 There's two kinds -- I guess there's three kinds
24 of rules that guide us. There's laws passed by
25 the Congress, there's formal regulations adopted

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1 by the Nuclear Regulatory Commission after notice
2 and comment. That's what guides us. And then
3 there's staff standard review plans.

4 Two things, Mr. Soper, that maybe the
5 other people in the room know that you don't know.
6 Or several things. My two colleagues once worked
7 on the Staff and their view from that experience,
8 and mine, and I think Mr. Turk and Ms. Marco would
9 agree, is that these are put out as guides that
10 are how the Staff likes to do business but they
11 are not binding like regulations or acts of
12 Congress. You follow these unless you have a very
13 good reason not to. And that's been kind of my
14 view.

15 On regulations, if I wanted to I could
16 go back and find a number of opinions, or more
17 likely dissenting opinions, I wrote when I was on
18 the appeal board that said the regulations are the
19 regulations, and if an intervener can't challenge
20 the regulations neither can an Applicant. That if
21 it is a regulation, everybody lives with them.
22 The same rules apply to everybody. So you've got
23 someone sitting here who is not going to say, "Oh,
24 well, Applicant didn't win under the normal rule,
25 let him go under an abnormal rule." But these are

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1 not of that status of regulations.

2 Now, in a perfect world, you would have
3 a chance to argue this at the end of the case. We
4 would go around and around with a lot of testimony
5 on this and at the end of the case you would ask
6 us to make a proposed conclusion of law that the
7 regulatory guide is the rule, it doesn't have the
8 R factor, and so the Applicant loses on that
9 point. I think, given our knowledge and our
10 background, we would be very unlikely to accept
11 that.

12 I don't want to exclude you from
13 putting together a marvelous legal brief at the
14 end of the case and arguing that point, and so
15 nothing I say here is final. But yet, I don't
16 want to spend a whole lot more hours debating over
17 whether the Applicant has the right to try to
18 convince us that they can depart -- in other
19 words, all I'm saying is we would say yes, they
20 have the legal right to say what the Staff put in
21 the guideline is a nice guideline but they
22 departed from it for the following reason. The
23 important issue in the case is, is that reasoning
24 sufficient? And then is having had the advantage
25 of that factor -- and let's be specific. They

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1 say, "We have a good reason for using the R
2 factor." They have to prevail on that and then
3 they have to prevail on the fact that what they
4 did in creating the R factor is correct. So you
5 have a lot left to your case, but I don't want to
6 spend a whole lot of time here arguing about
7 something where I don't think we are biased or
8 prejudiced but we have been working the system and
9 this is how the system works.

10 MR. SOPER: I think I can save you some
11 time, your Honor. That's not exactly the State's
12 position. We recognize that this does not have
13 the force of a regulation or a Congressional
14 mandate. We do, however, believe that authorities
15 in the field accord it great weight, as does the
16 NRC. And to assume that there is substantial
17 reason to vary from it is a subject of experts who
18 have used it and have dealt with it, of which
19 General Jefferson is not one. He is a novice to
20 this. And for him to testify as to what the NRC
21 meant and how much variation he has is the basis
22 of our objection.

23 MR. GAUKLER: I would object to the
24 characterization that the testimony is outside.

25 JUDGE FARRAR: Okay. I just sensed,

1 maybe I mis-sensed, but from all the skirmishing
2 over the DOE document, that we were talking about
3 an unimportant part of the case rather than the
4 point you just said, which is clearly wide open
5 and in which we have formed no opinion. So does
6 that help Counsel in determining how to move
7 forward? In other words, the guide is only a
8 guide. But it is a guide. And the Applicant and
9 the Staff need to, you know, have a burden of
10 telling us why don't we use this. Mr. Soper will
11 challenge that and say that they haven't come up
12 with that.

13 MS. MARCO: May I add a word? It's not
14 so much if you have a good enough reason to depart
15 from the NUREG. It's whether you have a good
16 enough reason outside of it to satisfy the
17 Commission. I know you said that, but I wanted to
18 clarify that.

19 JUDGE LAM: And my reading of it is one
20 can have the flexibility to depart from the
21 Standard Review Plan, but the threshold for the
22 departure is high and the burden of justification
23 is on the proponent who wants to deviate from the
24 Standard Review Plan. That's my reading of it.

25 MR. TURK: I think I join in Ms. Marco,

1 however, Judge Lam. There's no presumption that
2 you must follow the guide unless you have a very
3 good reason not to, which I believe I heard Judge
4 Farrar explain going to an alternative. An
5 Applicant can use any methodology it wishes if it
6 proves to be an acceptable one. The Staff gives
7 its idea of how to go about things, but the
8 Applicant can come in with its own and it can be
9 totally different and may not follow the formula
10 at all, if they think this is an acceptable way to
11 satisfy the regulation.

12 JUDGE LAM: Yes, indeed. I fully agree
13 with that. But then my perception is when the
14 Staff exercises oversight and enforcement
15 responsible, the Staff would look at that very
16 seriously as to why the alternative method is
17 acceptable.

18 MR. TURK: We would cast a skeptical
19 eye until we were satisfied.

20 JUDGE LAM: Yes, indeed. I would
21 expect you to.

22 JUDGE FARRAR: Mr. Soper, I hope this
23 discussion helps in terms of framing where we are.
24 And again, nothing is final until the final
25 decision comes out. But just to let you know how

1 we are approaching what I sensed was some
2 confusion where we spent a lot of time on
3 something that maybe didn't move us forward as
4 much as we would like in terms of getting
5 somewhere.

6 MR. SOPER: I appreciate that, your
7 Honor. Is there still an issue pending on that?

8 JUDGE FARRAR: No. But what I'm --

9 MR. SOPER: Going forward, keep it in
10 mind?

11 JUDGE FARRAR: Yeah, right. Then do we
12 need the new version in the DOE document?

13 MR. BARNETT: No, your Honor. I was
14 not planning on bringing back a new version of the
15 DOE document.

16 JUDGE FARRAR: All right, then. It's
17 still your turn.

18 Q. (By Mr. Barnett) General Jefferson,
19 Mr. Soper asked you questions about your
20 background with respect to whether you had ever
21 done this sort of work before, assessing
22 probability of an aircraft crash. What background
23 do you have in modeling or operations research?

24 GEN. JEFFERSON: I have formal
25 education. I have a Master's in operation

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1 research from Stanford. I was in the Ph.D.
2 program at the Stanford School of Business in the
3 field of quantitative decisions or quantitative
4 methods for decision making. I completed all the
5 course work and passed my field oral. I
6 successfully defended my proposal for the
7 dissertation, but I was unable to complete the
8 dissertation.

9 In the field of modeling, I started the
10 first Air Force mission area analysis office,
11 which was involved in modeling each of the mission
12 areas of the Air Force, and understanding the new
13 relationships of the various pieces for the
14 purpose of deciding where is program money the
15 most effective. I taught a course last week in
16 risk management involving risk identification,
17 risk analysis and measurement, and risk
18 mitigation.

19 Q. Could you give us one or two examples
20 of the work that you have done that is pertinent
21 to this project here?

22 GEN. JEFFERSON: In looking at these
23 probabilistic models, I have done weapons
24 assignment type modeling. In other words, if you
25 have a probability of destruction of a particular

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1 site by a certain type of weapon, how many of them
2 do you need to assign to get a certain level of
3 destruction. I have, of course, reviewed accident
4 rates and those kinds of things all my career,
5 just about.

6 Q. Do you consider yourself a, quote/
7 unquote, novice in the area of modeling or risk
8 assessment?

9 GEN. JEFFERSON: No, I don't.

10 Q. Thank you. General Jefferson, I have
11 another question about problemistic methods, or
12 methods of assessing the probability of an
13 aircraft crash. If you have two postulated
14 methods of assessing the probability of a crash
15 impact for a given facility, is there any way to
16 tell beforehand, before actually applying those
17 models, whether one or the other is conservative?

18 GEN. JEFFERSON: No. You have to get
19 in and work them, put real data into them and see
20 what happens to them.

21 MR. BARNETT: I'm distributing copies
22 of another document. This is entitled "A Method
23 For The Site-Specific Assessment of Aircraft Crash
24 Hazards." I'd like to have that marked as --

25 JUDGE FARRAR: Go ahead.

1 MR. BARNETT: I'd like to have this
2 marked as PFS Exhibit TTT.

3 JUDGE FARRAR: All right.

4 (APPLICANT'S EXHIBIT-TTT WAS MARKED.)

5 JUDGE FARRAR: Go ahead, Counsel.

6 Q. (By Mr. Barnett) General Jefferson, do
7 you recall the State asking you whether you had
8 identified any other studies that accounted for
9 pilot avoidance in calculating crash impact
10 probabilities?

11 GEN. JEFFERSON: Yes, I do.

12 Q. Did you identify any such studies?

13 GEN. JEFFERSON: Yes, I did.

14 Q. What did you find?

15 GEN. JEFFERSON: I found this study,
16 which is by the United Kingdom Atomic Energy
17 Authority, their safety and reliability director.
18 It's a method for site-specific assessment of
19 aircraft crash hazards.

20 Q. And what was the purpose of that study?

21 GEN. JEFFERSON: It was to lay out the
22 way to do a site-specific assessment in the U. K.

23 Q. And what did it say -- did it treat the
24 issue of pilot avoidance in the event of an
25 accident?

1 GEN. JEFFERSON: Yes, it did.

2 Q. And what did it say?

3 GEN. JEFFERSON: If I can refer to Page
4 3, at the bottom. Introductory, in the middle of
5 the next-to-the-last paragraph it says, "Military
6 aircraft accidents are divided by the MOD," that's
7 the Ministry of Defense, "Inspectorate of Flight
8 Safety into five categories. Category 4 accidents
9 necessitate major repairs to an aircraft which
10 normally cannot be carried out locally, and
11 Category 5 accidents are so severe that it is not
12 worthwhile repairing the aircraft." That, to me,
13 is parallel to the Class A, Class B, although
14 probably not exactly that.

15 Q. Class A, Class B, or destroyed
16 aircraft?

17 GEN. JEFFERSON: Well, the Category 5
18 would be destroyed. Essentially destroyed.

19 Q. I'm sorry. I may have misunderstood
20 you.

21 GEN. JEFFERSON: And then it goes on
22 and says, "Having defined an aircraft accident --"
23 the second sentence is, "For military aircraft
24 crashing in the U.K., it is reasonable to consider
25 only Category 4 or 5 flying accidents, and also to

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1 exclude from these accidents those where
2 significant pilot control was indicated just
3 before impact. This exclusion is a reflection of
4 an observed 'pilot avoidance' as discussed further
5 in Section 3.1.1(v) and tends to remove about half
6 the total number of Category 4 and 5 accidents."

7 As we go back to Page 5, on the way to
8 Paragraph 3.1.1, just before that sentence I think
9 is a descriptor that is useful. It says, "To
10 assess the crash probability at any given site --"

11 MR. SOPER: What page is the witness
12 reading from?

13 GEN. JEFFERSON: That's Page 5.

14 MR. SOPER: I don't have Page 5 in my
15 exhibit.

16 GEN. JEFFERSON: Didn't we get the
17 whole thing?

18 Q. No. We got pages 3, 7, and 8.

19 GEN. JEFFERSON: Let's go to Page 7,
20 then. That was just an explanatory piece.

21 At the bottom of Page 7 where it talks
22 about restricted flying zones, in the middle of
23 the sentence, the middle of the first paragraph
24 under that category it says, "However, prohibited
25 or restricted zones are sometimes only

1 sufficiently extensive to influence flying
2 patterns (and hence crash rates) of low-flying
3 aircraft. It has been judged that a prohibition
4 on local low-flying leads to a reduction of crash
5 rates of ten times for military aircraft crashing
6 at low impact angles."

7 "For the higher angle crashes, this
8 effect is less well understood. In PRANG," and
9 PRANG is the computer model that they have, "the
10 chosen method is to calculate the crash rate in a
11 cell of interest due to all the effects mentioned
12 above," which are in the previous paragraphs, or
13 the previous paragraph, "and then multiply this
14 rate for any cell corresponding to ground below a
15 restricted or prohibited region by a factor F."

16 And the next paragraph, the next
17 pertinent part, "There are several pieces of
18 evidence which suggests that a value of 0.5 would
19 be a reasonable estimate for F," and there's a
20 subscript there but I can't read it, "i.e., that
21 an average urban area in the U.K. is about half as
22 likely to suffer an aircraft impact as an average
23 rural area of equal size. Analysis of category 4
24 and 5 military air crashes has shown that in
25 roughly 50 percent of non-airfield related crashes

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1 the pilot retains enough control of the aircraft
2 to have some influence over the crash-landing
3 site. These crashes are ones which result in
4 severe damage to the aircraft and stem from
5 failures such as loss of power. It does not seem
6 realistic at this stage to use a value of F lower
7 than 0.5 because it appears that about half the
8 military aircraft crashes arise from causes which
9 effectively prevent any pilot control. One would
10 expect a very small percentage of these controlled
11 crashes to result in the impact of a structure.
12 This is consistent with the views expressed by the
13 CEGB," and that's the Central Electricity
14 Generation Board, "in their submission on aircraft
15 crash made in support of the Sizewell 'B' safety
16 case."

17 I think those paragraphs are indicative
18 of the fact that pilot avoidance has been
19 seriously considered and is a factor in the U. K.,
20 at least.

21 Q. General Jefferson, looking at Skull
22 Valley and the analysis you did, what fraction of
23 the aircraft that might be expected, probabilis-
24 tically expected, to have an accident would be in
25 control at the time of the mishap?

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1 GEN. JEFFERSON: We used a factor of 90
2 percent. We calculated a higher factor than that.

3 Q. What was the basis for the 90 percent?

4 GEN. JEFFERSON: That was our analysis
5 of able-to-avoid accidents. Was that the
6 question?

7 Q. Yes. What was the basis for that?

8 GEN. JEFFERSON: That was based on our
9 study of the accident reports that we use for
10 that. And this is an agreement of our opinion,
11 our considered judgment, I guess is a better way
12 to say it, that only a very small percentage of
13 control crashes would result in an impact to a
14 structure because of pilot avoidance actions.

15 MR. BARNETT: Your Honor, I would ask
16 that this exhibit be admitted.

17 MR. SOPER: You are looking at me
18 expecting that I might have something to say, your
19 Honor.

20 JUDGE FARRAR: There's a motion or
21 offer to admit the exhibit and I thought you might
22 have an objection.

23 MR. SOPER: As a matter of fact, I do.
24 The exhibit -- what was this identified as?

25 JUDGE FARRAR: TTT.

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1 MR. SOPER: It is again excerpts from a
2 document which I have before me which is 19 pages
3 long. Twenty pages long, excuse me. And as the
4 General indicated when he tried to read us
5 portions that weren't included in this exhibit, it
6 is not complete. I object to the edited version
7 of this.

8 MR. BARNETT: Your Honor, we would be
9 happy to put the whole thing in. I was hoping
10 just to put in the parts that were relevant.

11 JUDGE FARRAR: I'm feeling like the
12 tennis ball you all were batting around this
13 morning that the reporter didn't like. Yesterday
14 everyone was complaining that we have a whole
15 exhibit and it has a lot of extraneous stuff. Now
16 they are complaining that we only have a portion
17 of it. And on this one I would think this can be
18 admitted and when you cross-examine you can
19 examine on the whole thing that you have in front
20 of you. And if you think it necessary to admit
21 other portions, we will do that.

22 Having made that ruling, let me ask
23 you, General, I thought the last question asked
24 before the offer had to do with a 90 percent rate,
25 which is control where the pilot remained or

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1 retains control. And your answer dealt with a 95
2 percent. It also included the 95 percent which is
3 what you think the pilots will do in terms of
4 avoidance if they have the opportunity. Is the 90
5 percent, and I think we covered this a couple days
6 ago, but the 90 percent is the engine-out
7 situation. Essentially in those you retained
8 control. What are the noncontrollable ones?

9 GEN. JEFFERSON: The 90 percent is
10 the -- that's correct. It is the one where the
11 pilot has the ability to control the aircraft.

12 JUDGE FARRAR: And then what are the
13 things --

14 GEN. JEFFERSON: But there were a few
15 where the pilot wasn't able to control. I'll have
16 to look them up. Something happened to the
17 airplane that he just didn't have control. But
18 I'll have to look at a specific for that. The 95
19 percent is our judgment --

20 JUDGE FARRAR: No. I don't want to
21 know about the 95.

22 GEN. JEFFERSON: Okay.

23 JUDGE FARRAR: And the 90, of course,
24 deals with peace-time training situations as
25 opposed to --

1 GEN. JEFFERSON: Yes, sir. None of
2 these are war-time accident reports. In fact, I'm
3 not even sure if they categorize it if it is in
4 air combat. Isn't that true?

5 JUDGE FARRAR: So the loss of control
6 would be when a rudder doesn't work or something?

7 GEN. JEFFERSON: I'm not sure if that's
8 an exact example, but that's the idea. Can't
9 control it.

10 JUDGE FARRAR: All right. Then having
11 admitted that exhibit, go ahead, Counsel.

12 (APPLICANT'S EXHIBIT-TTT WAS ADMITTED.)

13 JUDGE FARRAR: I'm sorry. I neglected
14 to ask the Staff on that last one if they
15 objected.

16 MS. MARCO: No objection.

17 Q. (By Mr. Barnett) General Jefferson, do
18 you recall the State asking you about F-16 crash
19 rates and how you used them in calculating an
20 impact probability for the PFSF?

21 GEN. JEFFERSON: Yes, I do.

22 Q. Do you recall the State's exhibit that
23 set forth -- well, it was State's Exhibit 154 that
24 consisted of a bar graph titled "F-16 Crash
25 History" and had attached to it a table of

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1 accident data for the F-16?

2 GEN. JEFFERSON: I don't have that in
3 front of me. I remember the number 154 but I
4 don't have it in front of me.

5 MR. BARNETT: Your Honor, could I take
6 a second to make a copy of this?

7 JUDGE FARRAR: While that is being
8 done, for purposes of planning, apparently the
9 Capitol guards lock down the building at eight
10 o'clock so we will have to finish soon enough
11 before then that you can pack up and get out.

12 MR. SOPER: Maybe we could do some
13 housekeeping, your Honor.

14 JUDGE FARRAR: Go ahead.

15 MR. SOPER: We have Mr. Turk's, I
16 believe it was Mr. Turk's suggestion. No. I
17 guess it was -- Mr. Turk's suggestion and then Mr.
18 Gaukler wanted it modified. Again, it is the 156
19 B now, if you recall that.

20 JUDGE FARRAR: Yes.

21 MR. SOPER: I would like to offer that.

22 MR. GAUKLER: We have no objection to
23 the exhibit.

24 JUDGE FARRAR: The reporter has marked
25 it as 156 B. I'm not even going to ask you if you

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1 have objections because if we don't have it right
2 the third time, there is something wrong with all
3 of us. It will be admitted.

4 MR. GAUKLER: Fortunately there was no
5 objection.

6 (STATE'S EXHIBIT-156B WAS MARKED
7 AND ADMITTED.)

8 MR. BARNETT: These are just extra
9 copies of State's Exhibit 145 that I think you saw
10 yesterday. But just for convenience sake.

11 JUDGE FARRAR: Go ahead.

12 Q. (By Mr. Barnett) General Jefferson, do
13 you have a copy of that exhibit in front of you
14 now?

15 GEN. JEFFERSON: Yes, I do.

16 Q. What data is shown on the graph?

17 GEN. JEFFERSON: The graph shows the
18 Class A mishap rate for 100,000 hours of flight
19 time.

20 Q. And what period of years does it cover?

21 GEN. JEFFERSON: It covers from
22 calendar year '75 to fiscal year '01.

23 Q. What period data did you use to
24 calculate the crash impact probability for the
25 PFSF?

1 GEN. JEFFERSON: The ten years between
2 and including FY89 to FY98.

3 Q. And what happens to the Class A mishap
4 rate or the crash rate that you used to calculate
5 the crash impact probability for the PFSF if you
6 also include the data from fiscal year 1999, 2000,
7 and 2001?

8 GEN. JEFFERSON: It remains about the
9 same. The data that I presented yesterday was a
10 rolling ten-year average. And it, for FY01 it
11 only included the years from '92 to '01. But it
12 was a little lower than the '98 ten-year average.

13 Q. Passing out another document entitled
14 "F-16 Accident Statistics Per 100,000 Flight
15 Hours".

16 JUDGE FARRAR: You want this marked,
17 Counsel?

18 MR. BARNETT: Yes. PFS UUU.

19 (APPLICANT'S EXHIBIT-UUU WAS MARKED.)

20 Q. (By Mr. Barnett) General Jefferson,
21 what is this table?

22 GEN. JEFFERSON: This is an extract
23 from the Air Force's data from their web site
24 about accident statistics for the F-16. And it
25 shows the Class A rate and per 100,000 hours and

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1 the destroyed rate per 100,000 hours for the F-16
2 from the years '89 through 2001. And then at the
3 bottom there is a series of averages. Two of them
4 are ten-year averages and one is a 13-year
5 average.

6 Q. And what is the column entitled
7 "hours"?

8 GEN. JEFFERSON: That's the total
9 number of flight hours taken from this F-16
10 history from the web site.

11 Q. What are the averages at the bottom of
12 the table?

13 GEN. JEFFERSON: The first average is
14 the average Class A mishap rate from '89 to '98.
15 And next to it is the average destroyed aircraft
16 rate per 100,000 hours from those same years. And
17 then sequentially down, the same relationship.

18 Q. And what are those next two pairs of
19 averages?

20 GEN. JEFFERSON: The next average is a
21 13-year average in which the '99, '00, and '01
22 data has been added to the ten-year average. So
23 it becomes a 13-year average of Class A, the Class
24 A rate and the destroyed rate. The last one is
25 simply the rolling ten-year average for the Class

1 A and destroyed rates.

2 Q. Are those averages there, are those
3 averages strictly a matter of adding up the
4 numbers in the columns and then taking an average
5 of them or is there some other --

6 GEN. JEFFERSON: No. Actually, they
7 were taken from the base data that is in the F-16
8 history and that's the number of mishaps
9 themselves divided by the cumulative hours for the
10 particular period.

11 Q. But for the averages themselves, are
12 those just pure, simple --

13 GEN. JEFFERSON: The top part?

14 Q. No. Down at the bottom. Are those
15 simple arithmetic averages or are they something
16 else?

17 GEN. JEFFERSON: No. They are
18 arithmetic averages but they are based on data in
19 the table here.

20 Q. Aren't they weight averages?

21 GEN. JEFFERSON: That's what it would
22 be. It would be a weighted average by the hours.

23 Q. Could you explain just how that works
24 just so everyone is clear on that?

25 GEN. JEFFERSON: Well, in a --

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1 JUDGE FARRAR: Wait. Let me ask this:
2 If I took the ten years and added them and divided
3 by ten, that is not the answer I would get because
4 if the hours are different each year that would
5 account for the hours?

6 GEN. JEFFERSON: That's correct. You
7 have to account for that. What you do is take the
8 total number of mishaps from whatever period you
9 want, add the total number of hours for that same
10 period, and divide the one into the other. So it
11 becomes a weighted average.

12 Q. And why would you use a weighted
13 average to calculate those averages?

14 GEN. JEFFERSON: It would avoid any
15 possible distortion based on hours there. The
16 hours, in fact, are fairly close but they are not
17 all the same. So you'd want to do that.

18 Q. What is the average Class A mishap rate
19 for the period fiscal years '89 to 2001?

20 GEN. JEFFERSON: Approximately .61.

21 Q. And what is the average for the most
22 recent ten-year period from fiscal year '92 to
23 2001?

24 COL. JEFFERSON: 3.5.

25 Q. And how does that compare to the period

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1 you used to calculate the average for the PFS?

2 GEN. JEFFERSON: We used the average
3 3.54 as our base for calculation.

4 Q. And what is the relative difference
5 between those two?

6 GEN. JEFFERSON: It is slightly less.

7 Q. And what is the average for the period
8 fiscal year '89 to '01 if you include the later
9 data, the fiscal year '99, 2000, 2001?

10 GEN. JEFFERSON: It goes up to 3.61.

11 Q. And how does that compare to what you
12 used?

13 GEN. JEFFERSON: We used the 3.54. It
14 is above that.

15 Q. And how much above that, in your
16 estimation?

17 GEN. JEFFERSON: It's about half a
18 percent. That's off the top. I don't know.

19 Q. General Jefferson, what is the
20 difference between a Class A mishap and a
21 destroyed aircraft?

22 GEN. JEFFERSON: A Class A mishap is
23 when the aircraft in flight receives a million
24 dollars or more damage, or more damage is done on
25 the ground from it, or a person is killed. That's

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1 a Class A.

2 Q. And what is a destroyed aircraft?

3 GEN. JEFFERSON: A destroyed aircraft
4 is when the air frame itself is destroyed and not
5 usable anymore. Class A's and destroyed are very
6 close but they are not exactly the same.

7 Q. And if you're considering what sort of
8 mishap would pose a hazard to the Private Fuel
9 Storage facility, what sort of mishap would that
10 be?

11 GEN. JEFFERSON: It would be the
12 destroyed aircraft.

13 Q. And why is that?

14 GEN. JEFFERSON: Because if an
15 aircraft, for instance, were to receive a million
16 dollars worth of damage but the pilot recovered it
17 back to base, it's obviously not a threat to the
18 PFSF. A destroyed aircraft, though, could be.

19 Q. And have you seen that consideration
20 taken into account any other place where the
21 hazard to a ground facility was assessed?

22 GEN. JEFFERSON: The U.K. document I
23 just read had it. I'm trying to think of
24 something else. I can't recall at this moment.

25 Q. What are the averages for destroyed

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1 aircraft for the periods we just discussed for
2 Class A mishaps?

3 GEN. JEFFERSON: They are lower. It's
4 3.46 for the ten-year average '89 to '98, 3.51 for
5 the 13-year period, and 3.37 for the most recent
6 ten-year period.

7 Q. Is it -- how much difference is there
8 between those; the rate that you used for the PFSF
9 and those other two rates, the '89 to 2001, and
10 the '92 to 2001?

11 GEN. JEFFERSON: They are all below the
12 rate that we actually used.

13 Q. What is the -- what's the relative
14 difference for the '89 to '98 compared to the '89
15 to '01 and the '92 to '01? Just relatively
16 speaking. Not to three decimal places.

17 GEN. JEFFERSON: In the destroyed
18 column -- do you want a reference -- are you
19 asking me to reference that?

20 Q. Relative to the '89 to '98, relative to
21 the first average there, the '89 to '98.

22 GEN. JEFFERSON: Destroyed average?

23 Q. Yes. Destroyed aircraft.

24 GEN. JEFFERSON: It went up if you
25 consider the 13-year period, and went down for the

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1 most recent ten-year period.

2 Q. Are those significantly different from
3 the '89 to '98?

4 GEN. JEFFERSON: Yes, I would say the
5 most recent ten-year average is significantly
6 different than the --

7 Q. And in what respect?

8 GEN. JEFFERSON: It's a -- the numbers
9 are quite different.

10 Q. Is the most recent higher or lower?

11 GEN. JEFFERSON: It is lower.

12 MR. BARNETT: Your Honor, I would
13 request the admission of this exhibit.

14 MR. SOPER: No objection.

15 MS. MARCO: No objection, your Honor.

16 JUDGE FARRAR: And then it will be
17 admitted.

18 (APPLICANT'S EXHIBIT-UUU WAS ADMITTED.)

19 JUDGE FARRAR: Is there a Class B?

20 GEN. JEFFERSON: There is a Class B,
21 yes, sir. It is an aircraft mishap. It's not
22 really called an accident. It is a mishap of
23 \$200,000 up to a million dollars.

24 JUDGE FARRAR: Then there's a Class C?

25 GEN. COLE: Yes, sir.

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1 JUDGE FARRAR: Under \$200,000? How
2 does that happen?

3 GEN. COLE: May I, your Honor?

4 JUDGE FARRAR: Yes.

5 GEN. COLE: Simply a matter, sir, of
6 how much the repair and refurbishment cost is.
7 The threshold for Class B is \$200,000 to a
8 million.

9 JUDGE FARRAR: What would happen -- how
10 does a plane get damaged only that little bit?

11 GEN. COLE: You could scrape a wing
12 tip. Have to repair that.

13 JUDGE FARRAR: Okay.

14 COL. FLY: Minor ingestion of something
15 in the engine where the engine runs but you have
16 to replace blades. That type of thing.

17 JUDGE FARRAR: There's no Class D?

18 GEN. COLE: No, sir.

19 JUDGE FARRAR: I'm waiting for counsel
20 to come back with more copies.

21 JUDGE FARRAR: Good. Then we will --
22 why don't we use this opportunity to switch
23 reporters.

24 (A break was taken.)

25 JUDGE FARRAR: We're set up again with

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1 yet again a new reporter. So let's get started.

2 Q. (By Mr. Barnett) General Jefferson, do
3 you have in front of you State's Exhibit 155?

4 GEN. JEFFERSON: Yes, I do.

5 Q. Do you recall being asked about that
6 yesterday?

7 GEN. JEFFERSON: Yes, I do. I'm with
8 you.

9 Q. What does that Exhibit purport to show?

10 GEN. JEFFERSON: It shows the Class A
11 rates plotted on a chart from '95 to '01 with a
12 linear regression trim lines.

13 Q. Have you looked at the accident data
14 for a period broader than the period depicted in
15 this chart?

16 GEN. JEFFERSON: Yes, I have.

17 Q. I'm distributing copies of a document,
18 it's a graph entitled F-16 Destroyed Aircraft
19 Rates, Fiscal Year '89 to '01.

20 JUDGE FARRAR: What are we marking this
21 as?

22 MR. BARNETT: This is Applicant Exhibit
23 VVV.

24 (APPLICANT EXHIBIT-VVV MARKED.)

25 Q. (By Mr. Barnett) General Jefferson,

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1 what is this graph that we just distributed?

2 GEN. JEFFERSON: This is a graph of the
3 destroyed rates for 100,000 hours from the years
4 '89 to '01.

5 Q. And what does it show?

6 GEN. JEFFERSON: It shows the -- it's a
7 scatter diagram of where the points, where the
8 rates were plotted out over the years.

9 Q. And if you look at the period covered
10 by this chart from fiscal '89 to 2001, what do the
11 data show as a whole?

12 GEN. JEFFERSON: It shows a level of
13 declining rate if you were to fit a -- that would
14 be my estimation, if you were to fit a regression
15 line to it.

16 Q. And if you were to look at segments of
17 this data, shorter segments of this data, what
18 would the trend lines there show?

19 GEN. JEFFERSON: Well, if you looked at
20 '95 to '99, in particular, you would have a very
21 steep trend line. If you looked --

22 Q. In what direction?

23 GEN. JEFFERSON: Up. And if you looked
24 at the last three years you would have a very
25 steep line going down.

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1 Q. If you're looking at trends in data, is
2 it appropriate to use shorter periods or longer
3 periods?

4 GEN. JEFFERSON: If the data is
5 consistent it would be better to use a longer one
6 because it would dampen out fluctuations of
7 individual points.

8 Q. And what is your opinion as to why this
9 data is -- why this data would change from one
10 year to the next in this graph?

11 MR. SOPER: Objection, foundation.

12 Q. (By Mr. Jefferson) General Jefferson,
13 based on your knowledge of F-16 accidents and F-16
14 accident rates and your experience in the Air
15 Force and your knowledge of statistics, what is
16 your opinion as to why these rates would change
17 from one year to the next?

18 GEN. JEFFERSON: That's just the
19 accident rate that was experienced for that year
20 and it could be just a random fluctuation around a
21 central value.

22 Q. So if you're evaluating the crash
23 impact hazard to the PSFS for the future, what is
24 the appropriate period of data to consider, in
25 your opinion?

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1 GEN. JEFFERSON: I think it would be a
2 longer one, and I think 10 years is the
3 appropriate value. That's what we've used. That
4 gives you enough data points to be stable and have
5 recency, but not so short that you have variation
6 where you see a trend where it's not really there.

7 Q. General Jefferson, looking again at
8 State Exhibit 155, in your view, if you're
9 attempting to project a trend in F-16 accident
10 rates, is it appropriate to look at the period
11 from fiscal year 1995 to fiscal year 2001?

12 GEN. JEFFERSON: I would consider that
13 too short, particularly since it starts at the two
14 lowest points that are in this larger diagram.

15 MR. BARNETT: Your Honor, I seek to
16 have Exhibit VVV admitted.

17 MR. SOPER: Provided that 155 is also
18 admitted, I have no objection. Since it has not
19 been admitted yet, is my understanding.

20 JUDGE FARRAR: We held off on 155 in
21 order to find out -- in order to find out from
22 your witness about the regression line.

23 MR. SOPER: It's now been identified as
24 such by this witness so I would move it --

25 MR. BARNETT: Yes, that's correct

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1 before.

2 JUDGE FARRAR: Let's admit VVW and
3 we'll still hold off. Even though this witness
4 identified that it looks like a good regression
5 line I still want to hear it from your witness,
6 but I assume that's just a technicality.

7 (APPLICANT EXHIBIT-VVW ADMITTED.)

8 JUDGE FARRAR: Let me ask a question.
9 One of these is the Class A rate and the other is
10 the destroyed rate, and a little while ago when we
11 were talking about the United Kingdom and we
12 talked about different rates, which are we
13 supposed to use A or destroyed, or why don't we
14 combine them? Or no. You told me why we used
15 destroyed and not Class A, but why are the rates
16 so close to each other through the years since
17 we're talking about different kinds of accidents?
18 That's a triple E compound question, but answer
19 it.

20 GEN. JEFFERSON: A destroyed is
21 necessarily a Class A mishap because it's more
22 than a million dollars worth of damage. And then
23 there may be other, a couple -- you know, it's
24 seldom, but there may be others.

25 JUDGE FARRAR: Oh, so destroyed is a

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1 subset of Class A?

2 GEN. JEFFERSON: That's correct.

3 JUDGE FARRAR: Okay. And Class A -- so
4 the number for Class A ought to always be bigger
5 every year, but it's always --

6 GEN. JEFFERSON: Sometimes it's the
7 same, but it can't be less.

8 JUDGE FARRAR: Right. It can be the
9 same or slightly bigger.

10 GEN. JEFFERSON: Right.

11 MR. GAUKLER: Your Honor, I'm about
12 ready to pick up with the accident reports. Do
13 you want to go back to the QQ and just kind of
14 pick up the summaries and where I was in my
15 examination?

16 JUDGE FARRAR: Yes. And how are we
17 going to identify those?

18 MR. GAUKLER: I will have General --

19 JUDGE FARRAR: No, no, no, with what
20 letter, number or letter?

21 MR. SOPER: Do we want to do an exhibit
22 consisting of one each of the 15 accident reports?
23 Would that be convenient or would it be more
24 convenient to do 15 exhibits?

25 MR. GAUKLER: I think we ought to have

1 15 exhibits. I know I'll be probably introducing
2 some other accident reports at some point in time.
3 So I think we ought to have just each accident
4 number should be its own exhibit number.

5 JUDGE FARRAR: Okay. And we've said
6 these are to be Joint?

7 MR. GAUKLER: Yes, Joint Exhibit 1 and
8 Joint Exhibit 2. Is that fine with you?

9 MR. SOPER: Yes, that would be.

10 JUDGE FARRAR: Mr. Turk, do you want to
11 be part of this party?

12 MR. TURK: I'm just dreading when we
13 get to quadruple numbers, your Honor.

14 JUDGE FARRAR: Let's call this Joint
15 Exhibits 1 through 15. And nobody say anything
16 for a long time because the reporter will be
17 stamping like mad.

18 (JOINT EXHIBITS-1 THROUGH 15 MARKED.)

19 (Discussion off the record.)

20 JUDGE FARRAR: Back on the record.
21 We've got all the exhibits passed out and
22 everybody who needs to be here is now here.
23 Counsel, why don't you go through these and name
24 them by with just the date. These are all what
25 are about to be Joint Exhibits. All have a date

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1 on them. Why don't we go through that and just
2 state that date for the record and make sure we
3 have the right Joint Exhibit number on them.

4 MR. GAUKLER: Okay. I believe that we
5 have marked the accident report dated December 26,
6 1989 is marked as Joint Exhibit 1.

7 JUDGE FARRAR: Right.

8 MR. GAUKLER: It has Summary of Facts,
9 Part 1, Kunsan Air Base up at the top.

10 JUDGE FARRAR: Yes.

11 MR. GAUKLER: Joint Exhibit 2 is --

12 JUDGE FARRAR: Just tell me what it
13 says at the top of it.

14 MR. GAUKLER: Authority and Purpose.

15 JUDGE FARRAR: Yes.

16 MR. GAUKLER: Joint Exhibit 3, Aircraft
17 Accident Investigation Report, Crash of F-16C.

18 JUDGE FARRAR: Right.

19 MR. GAUKLER: Joint Exhibit 4, Aircraft
20 Accident Investigation Report Summary, Authority
21 and Purpose.

22 JUDGE FARRAR: Yes.

23 MR. GAUKLER: The next one, Joint
24 Exhibit 5, Aircraft Accident Investigation,
25 Authority.

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1 JUDGE FARRAR: Yes.

2 MR. GAUKLER: Next one is Joint Exhibit
3 7, Aircraft --

4 MR. SOPER: Hold it.

5 JUDGE FARRAR: I have one that has
6 two-thirds, the first page is two-thirds blank.

7 MR. GAUKLER: Yes, I do have that.
8 Joint Exhibit 6 is two-thirds blank and something
9 summary of facts.

10 JUDGE FARRAR: The two-thirds blank one
11 is 6?

12 MR. GAUKLER: Yes. Joint Exhibit 7
13 says Aircraft Accident Investigation, Statement of
14 Authority and Purpose.

15 JUDGE FARRAR: All right. They're
16 starting to have the same name.

17 MR. GAUKLER: Yes, the next one has the
18 same name. The next one, Joint Exhibit 8, is
19 identified in the third line as 21 February 1996
20 to 7 March 1996.

21 JUDGE FARRAR: Right.

22 MR. GAUKLER: Joint Exhibit 9 has a
23 title at the top AFI 51-503 Accident Investigation
24 Report.

25 JUDGE FARRAR: Right.

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1 MR. GAUKLER: Joint Exhibit 10 has
2 Aircraft Accident Investigation, Authority, Under
3 the Provisions of the Air Force Instruction
4 51-503.

5 JUDGE FARRAR: With the date of July
6 11, 1996 for the accident?

7 MR. GAUKLER: Yes. Joint Exhibit 11
8 again has AFI 51-501, Accident Investigation
9 Report. The third line refers to a date of 12
10 December 1996.

11 JUDGE FARRAR: Right.

12 MR. GAUKLER: Joint Exhibit No. 12 has
13 an Executive Summary and title and date is
14 identified as December 15, 1998.

15 JUDGE FARRAR: Right.

16 MR. GAUKLER: Joint Exhibit 13 again
17 has an Executive Summary and the dates identified
18 in the title are January 7, 1999.

19 JUDGE FARRAR: Right.

20 MR. GAUKLER: Joint Exhibit 14 again
21 has the title Executive Summary with the date
22 identified as July 12, 1999. Joint Exhibit 15 has
23 a picture of an airplane, F-16 on the front and
24 says United States Air Force Aircraft Accident
25 Investigation Board Report with a symbol of Air

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1 Combat Command.

2 JUDGE FARRAR: All right. I think
3 we're squared away.

4 JUDGE LAM: I do not have Joint Exhibit
5 No. 8. Can somebody identify what No. 8 is for
6 me, please?

7 JUDGE FARRAR: All right. It looks
8 like this with Colonel Parker's name after number
9 1.

10 JUDGE LAM: All right. Let me do that
11 later then. That's fine.

12 JUDGE FARRAR: Okay. I think we're
13 ready to go. So State and the Applicant are
14 moving the admission of these jointly.

15 MS. MARCO: No objection.

16 JUDGE FARRAR: Thank you.

17 MR. GAUKLER: Since there's been no
18 objection, they're admitted?

19 JUDGE FARRAR: Then they'll be
20 admitted. And our intent is to focus on the
21 avoidance aspect of this. I would like to have
22 the full report available to the extent needed.

23 (JOINT EXHIBITS-1 THROUGH 15 ADMITTED.)

24 Q. (By Mr. Gaukler) Generals Cole and
25 Jefferson, Colonel Fly, I would like to have you

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1 briefly summarize the accident reports, briefly
2 mentioning what we have, and if you would add
3 anything else that would be appropriate to add to
4 understand the point that we're making with
5 respect to these Exhibits. And try to be brief.

6 GEN. COLE: We'll divide them in
7 thirds, five here, five here, five here. I'll
8 give a brief summary of the first one and
9 highlight any significant points and go from
10 there.

11 JUDGE FARRAR: Right. And remember,
12 we're focusing on the avoidance issue. So a brief
13 summary of what went wrong and focus on the
14 avoidance and then we can go from there.

15 GEN. COLE: Yes, sir. The first one
16 occurred on 26 December '89. Not a good time to
17 fly. Engine failure shortly after takeoff. The
18 pilot attempts to regain thrust were unsuccessful.
19 He zoomed and in a resulting glide he made
20 continuous corrections to his flight path to avoid
21 populated areas. He intentionally delayed his
22 ejection to avoid populated areas in his path. He
23 made a successful ejection at 1,400 feet MSL. The
24 important thing to note about this young pilot is
25 he had only 167 hours of F-16, total flight hours

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1 of 1,309. He did a very good job in these
2 circumstances. The aircraft crashed and was
3 destroyed in a rice field.

4 Questions or comments?

5 Q. Let's go through the whole thing.

6 GEN. COLE: Okay. We'll go through all
7 five.

8 Q. And my understanding of what's going to
9 happen is, and we'll do it at some point --

10 GEN. COLE: Fine.

11 Q. -- Mr. Soper will have questions.

12 GEN. COLE: The next one, F-16A, engine
13 failure. Pilot made, this is 16 March '90, he
14 made two unsuccessful attempts to restart the
15 engine. He determined he couldn't make it to
16 Wendover Field out west of the /AOUDer. He
17 pointed the aircraft towards an uninhabited area
18 of the desert and successfully ejected.

19 Next one will be 20 February '91.
20 F-16C experienced catastrophic engine failure.
21 The pilot, Captain Strom. He could see the ground
22 so he determined it was safe to jettison his fuel
23 tanks and ordnance. He did so. And then after
24 descending through the clouds scattered the broken
25 deck, probably about 5/8. He determined he could

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1 not make it to the nearby airfield near
2 Diyarbakir, Turkey. He checked his flight path,
3 determined there was nothing to harm, no inhabited
4 areas or buildings and he successfully ejected.

5 The next one, 16 December '91. F-16C
6 experienced an engine malfunction and a fire.
7 Commenced a descending right-hand turn towards an
8 emergency deferred airfield. The pilot then
9 decided to initiate a controlled ejection and did
10 so. The aircraft impacted in an open field and
11 the captain walked to a nearby house and made a
12 collect phone call to Shaw Air Force Base.

13 The next one is 31 May '92, F-16.
14 Pilot led by first lieutenant experienced an
15 engine seizure after experiencing smoke and fumes
16 in the cockpit. He turned the aircraft towards an
17 uninhabited area, he ejected safely and the
18 aircraft crashed and was destroyed.

19 COL. FLY: 18 September '92. F-16A had
20 a severe engine bangs accompanied by a severe loss
21 in thrust. The pilot turned the aircraft to a
22 northerly heading toward the published control
23 bailout area to minimize ground impact, damages or
24 injuries. The pilot pointed the aircraft to a low
25 populated area and ejected.

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1 2 February '94. Pilot experienced an
2 explosion followed by a loss of thrust. After
3 several unsuccessful air start attempts he
4 directed the aircraft toward an uninhabited wooded
5 area and safely ejected.

6 20 January 1996. The aircraft declared
7 emergency for trapped fuel and started an
8 emergency to divert to Cannon Air Force Base, New
9 Mexico. During the divert the mishap aircraft
10 engine flamed out and the mishap pilot jettisoned
11 his external fuel tanks. Approximately seven
12 minutes later the mishap pilot directed the
13 aircraft away from the inhabited areas and
14 ejected. He testified that he delayed ejection to
15 below recommended altitude to insure collateral
16 damage was minimized.

17 7 June '96. F-16A was doing a weapons
18 system check above the clouds at approximately
19 10,000 feet. He heard a loud bang. He
20 instinctively turned back towards home base and
21 began engine airstart procedures while observing
22 the RPM rapidly decay to zero. Realizing that he
23 did not have enough altitude to glide to home base
24 with the engine seized, the mishap pilot elected
25 not to eject from the mishap aircraft until it

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1 dropped below the clouds. He realized that an
2 airstart was the only possibility for return to
3 the airfield with or without his center line fuel
4 tank.

5 He therefore decided to retain the
6 center line fuel tank due to his position above
7 the clouds and his inability to determine a safe
8 impact point. He penetrated the clouds and then
9 he cleared his aircraft away from inhabited farm
10 sites correcting slightly to the right towards a
11 clear field. Ejected approximately 1,600 feet
12 AGL.

13 11 July '96. Mishap aircraft
14 experienced an engine failure at approximately
15 21,000 feet. He performed the critical action
16 procedures for an engine airstart except that he
17 chose not to accomplish the first step, external
18 stores jettisoned, because he was approaching a
19 populated area at the time and felt that he could
20 delay dropping his wing tanks until over a more
21 suitable area.

22 The mishap pilot turned toward an
23 alternate runway at Pensacola and turned right for
24 a straight-in flameout approach to Runway 107. He
25 didn't think he could make it to the airfield

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1 unless the engine restarted, but decided to head
2 that way just in case it did start. There was a
3 large bay area to the east and the pilot decided
4 if he didn't get any help from the engine he would
5 turn the airplane out over the bay and eject.

6 During the turn the engine restarted
7 and stabilized at idle RPM. All cockpit
8 indications were normal although the MP, mishap
9 pilot, could feel an unusual, pronounced airframe
10 vibration.

11 During the emergency approach,
12 approximately four and-a-half miles from the
13 runway, the engine failed again. The mishap pilot
14 reaccomplished airstart procedures and the engine
15 restarted almost immediately. At this point the
16 mishap pilot knew that he could not make it to the
17 runway and was below the recommended bailout
18 altitude.

19 There were houses everywhere he looked
20 below him and he started a slight right-hand turn
21 to aim the mishap aircraft at an area where there
22 were few, if any, houses. He advanced the
23 throttle to full power, the engine failed a third
24 time. The mishap pilot continued to glide the
25 aircraft into an open area when the mishap

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1 aircraft was so low and slow that his control
2 inputs weren't affecting its flight path and the
3 pilot ejected. He ejected 209 feet, landed in a
4 tree. The aircraft landed in a residential area a
5 mile and-a-half northwest of the regional airport,
6 destroyed a house, damaged another and killed a
7 resident.

8 GEN. JEFFERSON: 21 November 1996. The
9 mishap aircraft had completed a night air
10 refueling and was in route to base for a fuel stop
11 landing. While leveling off at 10,000 at an
12 enroute descent the mishap aircraft experienced a
13 loud bang which knocked his feet off the rudder
14 pedals. He noticed a loss of thrust and decreased
15 engine RPMs. The wingman noticed sparks, flames
16 and baseball-sized pieces of glowing debris
17 exiting the tailpipe.

18 The MP attempted two airstart
19 procedures twice, but when they were unsuccessful
20 and it became apparent to him that the distance to
21 Tulsa was too great to effect a glide, that an
22 ejection to a clear area was necessary. There was
23 an overcast layer at 2,100 feet AGL with tops at
24 3,200 feet and clear above. Moonlight was 60 to
25 70 percent.

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1 Upon receiving a directional heading
2 from the Tulsa radar facility to an unpopulated
3 area, the mishap pilot turned to this heading and
4 prepared for ejection. He ejected at
5 approximately 45,000 AGL at about 150 knots and
6 the aircraft impacted in a field.

7 In this one there was a Statement of
8 Opinion attached. It's not always the case with
9 these, but a Statement of Opinion from the
10 investigating officers states that when faced with
11 no restart capability, the mishap pilot wisely
12 chose the next course of action, steer clear of a
13 populated area and bail out.

14 JUDGE LAM: General, was this an F-16?

15 GEN. JEFFERSON: Yes. All of these are
16 F-16s in this part. When you get back in the back
17 there are different types of aircraft, but all of
18 these in this part are.

19 JUDGE LAM: Now, the wingman, where did
20 the wingman come from?

21 GEN. JEFFERSON: He was flying with him
22 during this. He was part of the training mission.
23 So he was there giving assistance to the mishap
24 pilot and telling him there's fire coming out and
25 that sort of thing.

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1 Q. In the same plane or a different plane
2 accompanying him?

3 GEN. JEFFERSON: No, it was a different
4 plane. Two planes were up there flying together.

5 15 December '98. The mishap aircraft
6 was leading a two-ship of F-16s that had completed
7 its training in the bombing range and starting to
8 return to the base. The flight had departed the
9 range and was in a climb at approximately 2,900
10 feet and 315 knots when the engine failed. Pilot
11 initiated the critical action procedures, the
12 emergency procedures, for a low altitude engine
13 failure.

14 When it became clear that he did not
15 have sufficient altitude and airspeed to achieve
16 an airstart, as stated in the Accident
17 Investigation Report, "ejection became his primary
18 consideration. He made initial turns to avoid
19 populated areas before jettisoning his fuel
20 tanks." Although the report does not mention any
21 further maneuvering by the pilot, he did attempt
22 two airstarts. The airplane impacted in open,
23 level and uninhabited terrain.

24 7 January '99. This was a training
25 mission at Luke Air Force Base. That's in

1 Arizona. The mishap aircraft was a two seat F-16
2 with a pilot referred to as the mishap pilot in
3 the report in the front cockpit and an instructor
4 pilot or the mishap instructor pilot in the rear
5 cockpit.

6 Just after raising the landing gear,
7 approximately 50 seconds after takeoff the engine
8 failed. The aircraft was at between 200 and 500
9 feet AGL with 200 knots of airspeed. The report
10 clearly indicates that the pilots initially
11 started a right turn back toward the airfield, but
12 quickly reversed their direction to turn left
13 toward the relatively unpopulated area northwest
14 of Luke. The pilot also "waited for a few seconds
15 to jettison the stores because he wanted to find
16 an unpopulated area.

17 12 June '99. The mishap aircraft was
18 at approximately 13,160 feet AGL when the engine
19 failed. The mishap pilot turned toward the
20 nearest suitable field for landing while following
21 the emergency procedures to restart the engine.
22 The airstart attempts were unsuccessful and the
23 engine appeared to have seized. The mishap pilot,
24 knowing that his current altitude and airspeed
25 were insufficient to allow him to successfully

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1 glide to the airport, he turned the mishap
2 aircraft towards an uninhabited area in
3 preparation for ejection.

4 31 August '00. The mishap F-16 was in
5 a working area off the New Jersey Coast at
6 approximately 16,000 feet when the engine began to
7 fail. The pilot turned back toward land and flew
8 towards Atlantic City International Airport.
9 Approximately seven miles from the airport at
10 5,000 feet altitude, the pilot determined that the
11 ceiling, that's the clouds, was too low for an
12 engine out approach. The mishap pilot made a
13 left-hand turn to get the aircraft over the water
14 to avoid any populated areas. The mishap pilot
15 then entered the clouds and he subsequently caught
16 a glimpse of the area below the clouds and was
17 able to visually orient himself. He directed one
18 of the other aircraft to clear the area for boats
19 and then the mishap pilot ejected shortly
20 thereafter. The aircraft impacted the water.
21 Those are all F-16 accidents.

22 MR. GAUKLER: I would like now to
23 distribute, I already distributed PFS Exhibit WWW.
24 I would like to distribute PFS Exhibit XXX, YYY,
25 and believe it or not, ZZZ. We've reached the

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1 point where we're going to go to quadruple
2 letters.

3 JUDGE FARRAR: Now, was WWW marked?

4 MR. GAUKLER: I gave it to the court
5 reporter to mark. I don't know if she marked it
6 already or not.

7 JUDGE FARRAR: All right. And this is
8 this Walter Boyne e-mail?

9 MR. GAUKLER: Yes, I believe it is.

10 JUDGE FARRAR: The next ones, Mr.
11 Gaukler, are?

12 MR. GAUKLER: XXX.

13 JUDGE FARRAR: And what are they going
14 to describe?

15 MR. GAUKLER: It should be, if I
16 labeled those correctly, they should be sequential
17 in terms of the accident description under -- in
18 QQQ, it should be the first four accident
19 descriptions under Historical Examples of Pilot
20 Avoidance.

21 JUDGE FARRAR: Okay. Why don't you
22 distribute those then and we'll mark them.

23 (APPLICANT EXHIBITS-WWW, XXX, YYY AND
24 ZZZ.)

25 Q. The last one is from -- in terms of the

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1 historical examples of -- General Cole, can you
2 just tell me what the last one is from?

3 GEN. COLE: Yes. With your permission,
4 your Honor, the last one is from a book, Wild
5 Blue, by Walter Boyne, a noted aviation historian,
6 Beyond the Wild Blue.

7 MR. TURK: Which Exhibit has the
8 distinction of being XXX?

9 MR. GAUKLER: It should be the one that
10 is --

11 (Discussion held off the record.)

12 JUDGE FARRAR: Back on the record.
13 We've had a suggestion that there's too large of a
14 possibility of error if the Applicant goes to a
15 quadruple lettering system. So on the assumption
16 that three times through the alphabet is, indeed,
17 78 Exhibits, but whether or not it is, your next
18 Exhibit will be Applicant 79 and we will all
19 footnote our various opinions and briefs when we
20 write them to just note that, don't go looking for
21 Applicant's 1 to 78. So we've now marked Exhibits
22 WWW, XXX, YYY and ZZZ.

23 Q. (By Mr. Gaukler) General Cole, would
24 you briefly --

25 JUDGE FARRAR: Wait a minute. Let me

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1 make sure -- the W is from Walter Boyne, WWW is
2 from Walter Boyne, XXX is from Gene Frank, YYY is
3 from Francis Woods, and ZZZ is from Richard
4 Noonan; is that correct?

5 JUDGE KLINE: That's correct.

6 JUDGE FARRAR: Go ahead, Mr. Gaukler.

7 Q. (By Mr. Gaukler) General Cole, will
8 you just briefly describe what Exhibits WWW
9 through ZZZ are for the record.

10 GEN. COLE: Yes. Are you ready, your
11 Honor?

12 JUDGE FARRAR: Yeah, I'm listening. Go
13 ahead.

14 GEN. COLE: Well, these were e-mails
15 received at the request of Walter Boyne, former
16 Director of the National Air & Space Museum from
17 friends. I actually got very many. I just
18 selected a few that I thought were representative
19 and put them in here. They're all first person or
20 second person accounts of events that occurred,
21 accidents that happened, pilots that did indeed
22 steer and avoid.

23 We can go over each one briefly if you
24 wish. The interesting thing about the first one
25 in 1956, General Jefferson was there, or you can

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1 peruse them at your convenience. All of them are
2 classic see and avoid accidents. I would commend
3 particularly the one by Colonel Gene Frank. I
4 talked to him, called him on the phone and could
5 not believe the engine failure at the most crucial
6 point in the flight.

7 Q. Which one are you referring to?

8 GEN. COLE: The second one. XXX,
9 excuse me. I apologize. And that one is worth a
10 read.

11 Q. Will you briefly just summarize that
12 for the record.

13 GEN. COLE: Certainly. Number 2 one is
14 quite good, that is Gene Frank, and he calls it a
15 flight to remember, and indeed it was. He took
16 off in an F-100 at England Air Force Base.

17 JUDGE FARRAR: Hold on, General.
18 Wouldn't it be faster -- I mean, the Exhibit is
19 in. Why don't we all just read it.

20 GEN. COLE: I think so, yes.

21 JUDGE FARRAR: Rather than burdening
22 the court reporter.

23 GEN. COLE: They're a very quick read.
24 They are, yes, sir.

25 JUDGE FARRAR: And then after we read

1 it if you want to say the key point in is this
2 such and such, you know, say that. But let's all
3 read it ourselves.

4 JUDGE LAM: While I'm reading this, Mr.
5 Gaukler, would you do me a favor, would you bring
6 me a copy of Exhibit ZZZ?

7 MR. GAUKLER: Yes.

8 JUDGE FARRAR: General, do you want to
9 make a comment about XXX here?

10 GEN. COLE: Yes, your Honor, if I
11 could, please. The important thing about that one
12 is that Gene Frank lost the engine at the more
13 inopportune time, yet he had the presence of mind
14 to steer and avoid. After doing that, when he
15 ejected he got out of the aircraft at 250 feet
16 AGL, the seat was only guaranteed to 500 feet, and
17 the interesting thing is that there was doubt in
18 his mind that the turn caused the aircraft to miss
19 the house. I called him and talked to him about
20 that and he said -- well, he said, it was a very
21 challenging day, but he felt that he did the right
22 thing, and he did.

23 Q. Now, that occurred during takeoff, I
24 take it?

25 GEN. COLE: Yes, right on takeoff. He

1 just raised the gear and retracted the flaps. He
2 was about 4500 feet and he was headed straight for
3 the big white house off the end of the runway.

4 JUDGE FARRAR: Now, do I take it from
5 this that the turn not only saved the house
6 barely, but further endangered him?

7 GEN. COLE: Yes, sir.

8 JUDGE FARRAR: Referring there --

9 MR. TURK: No, I missed it. I see what
10 I was looking for.

11 JUDGE FARRAR: That he knew he was --
12 reading this, it looks like by the time he made
13 the turn from the house he knew he had lost the
14 plane, but he made the turn anyhow.

15 GEN. COLE: That's correct.

16 JUDGE FARRAR: Which put him in a
17 lesser position in terms of the safety of the
18 ejection.

19 GEN. COLE: That's true. And I called
20 him to verify these details and he sent me a short
21 e-mail first and then sent me a subsequent one and
22 said, after setting down and recalling it, and it
23 was a conscious decision, to turn and avoid. He
24 knew where he was but he did it.

25 JUDGE FARRAR: No disrespect to Mr.

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1 Frank, but the things I remember from 1961 I
2 remember in more glorious fashion than they really
3 happened. Is there a -- perhaps the things I'm
4 remembering are nowhere near as important as this.
5 What's your sense from talking to him?

6 GEN. COLE: He recounted, you know,
7 what happened in a very detailed and lucid manner.
8 The thing that impressed me is he didn't embellish
9 it at all. He just said, "I did what I felt I
10 should do." Those were his words on the
11 telephone. And he also said, "Feel free to use my
12 account any way you want."

13 JUDGE FARRAR: All right. Go ahead,
14 Mr. Gaukler.

15 Q. (By Mr. Gaukler) Anything in
16 particular on PFS Exhibit YYY that should be
17 mentioned?

18 GEN. COLE: I think not. I think --
19 this is just one I -- I don't want to burn too
20 much time, your Honor. It's another good
21 narrative of a steer and avoid.

22 Q. And PFS-ZZZ?

23 JUDGE FARRAR: Well, wait a minute. I
24 haven't read YYY through, but as I read your short
25 form version of it in QQQ, that implies that he

1 could have landed the plane safely on top of the
2 troops that were on the field.

3 GEN. COLE: That's correct, sir.

4 JUDGE FARRAR: And he chose not to.

5 GEN. COLE: That's correct.

6 JUDGE FARRAR: Then let's take a moment
7 and read this one.

8 GEN. COLE: Well, an important point,
9 from Colonel Fry, he could have ejected, but he
10 didn't. He turned it away from the field so the
11 aircraft wouldn't impact the troops.

12 JUDGE FARRAR: And he died?

13 GEN. COLE: Yes, sir, he did.

14 JUDGE LAM: I think the record is
15 clear, General, that delaying ejection put the
16 pilot in jeopardy.

17 GEN. COLE: That's an accurate
18 statement, your Honor. And recall, if I could
19 elaborate for a moment, when I said there's a
20 range from regulation, procedure and judgment, and
21 it gets pretty tough decision making in this
22 realm. And 2000 feet is the number for the F-16
23 and there are incidents in these accident reports
24 where pilots chose to give it a little longer,
25 ejected at 1600 feet trying to make a save.

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1 JUDGE LAM: Thank you.

2 JUDGE FARRAR: Maybe I'm reading the
3 wrong one. Okay. No, I'm sorry. YYY is your
4 third one in your little historical examples in
5 QQQ, and this was the school yard one. The ZZZ,
6 that's the troops.

7 GEN. COLE: That's correct. Yes, your
8 Honor.

9 Q. (By Mr. Gaukler) Now, just to clarify
10 this, there's two accidents kind of summarized
11 here?

12 GEN. COLE: Yes. And that is a second
13 person account which I think is a good one.

14 Q. And which one do you summarize in your
15 document YYY?

16 GEN. COLE: The F-3 in the landing
17 pattern.

18 Q. Which is the second one, the first one?

19 JUDGE FARRAR: First one.

20 GEN. COLE: First one.

21 Q. (By Mr. Gaukler) So the second one is
22 something you didn't summarize in the --

23 GEN. COLE: I did not. I mean, simply
24 in the interest of brevity. I got a lot more
25 e-mails, quite candidly, your Honor, and I guess I

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1 just picked the ones I felt were illustrative.
2 And this, obviously, is a second person account.

3 JUDGE FARRAR: Then let me ask about
4 the fourth one, the Ft. Lewis, Washington one.
5 Did that pilot survive?

6 GEN. COLE: No, sir.

7 JUDGE FARRAR: But it sounded like he
8 had picked a place that, notwithstanding what you
9 said this morning about you only land on an
10 airfield, not on the interstate or in a cornfield,
11 he found a parade ground that he thought he could
12 land on, and then at the last minute did not land
13 there because of the troops.

14 GEN. COLE: That's correct, sir. And
15 he could have ejected on the spot when he saw the
16 troops, but he chose to pull the airplane away.

17 JUDGE FARRAR: You don't have a year on
18 that one.

19 GEN. COLE: I don't.

20 JUDGE FARRAR: Let me ask out of turn a
21 question about these four or five. Some of them
22 were a long time ago, and in this country these
23 days there's some concern that the values that
24 motivated people a long time ago no longer
25 motivate them. And we all can cite an example

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1 from the civilian world where you wonder what
2 happened to the values that used to drive this
3 country. Tell me about those values, the
4 difference between 1961 in the Air Force and 2001
5 in the Air Force.

6 GEN. COLE: Sir, I would like to lead
7 and ask my two colleagues follow, if I could. The
8 United States Air Force personnel of today
9 collectively, and specifically the pilots, are the
10 best we've ever had. Their training, their focus,
11 their professionalism, their dedication. They're
12 under a great deal of stress right now. The Air
13 Force went from 607,000 to 385,000. The workload
14 didn't go down much and they're doing just fine.
15 Colonel Fly is exactly right. The tempo, the ops
16 tempo of deployments actually increased as far as
17 sending people over. The times I've been out
18 there with them I am absolutely amazed at their
19 technological efficiency, their focus, their
20 dedication. I've got utmost confidence in them.
21 I would love to turn the clock back and go fly
22 with them, quite honestly.

23 JUDGE FARRAR: All right. Mr. Gaukler,
24 go ahead.

25 Q. (By Mr. Gaukler) Do you have anything

1 to add?

2 COL. FLY: I would just basically
3 second that. I wasn't around in '61 to -- draft
4 range was -- you know, they're hard working,
5 dedicated, a great group of Americans. It was a
6 privilege and a pleasure to serve with them.

7 JUDGE FARRAR: Does the absence of the
8 draft -- well, how does the absence of the draft
9 impact the type of people you get between now and
10 not '61, but the mid ' 60s?

11 GEN. JEFFERSON: Pilots were never
12 drafted except in World War II, I think. So it's
13 been volunteer.

14 JUDGE FARRAR: All along?

15 GEN. JEFFERSON: Yes.

16 COL. FLY: But in general, I think if
17 you go back and look at the quality of the
18 recruits, Vietnam War era versus now, I think
19 you'll generally find that the quality of the
20 education and those things are all better than
21 they were back in the draft era.

22 MR. FARRAR: Go ahead, Mr. Gaukler.

23 Q. (By Mr Gaukler) General Cole, some of
24 the examples you described, in terms of the
25 historic examples with respect to the Accident

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1 Investigation Reports include events that would
2 not be classified as Skull Valley events in your
3 evaluation. For example, the takeoff.

4 GEN. COLE: Uh-huh (affirmative).

5 Q. What relevance is that in terms of your
6 conclusions?

7 GEN. COLE: The important issue here,
8 your Honor, is the fact that the pilots do steer
9 to avoid. The fact that they happen to be Skull
10 Valley incidents is incidental or not, either way.

11 Q. Now, with respect to your determination
12 of the 95 percent factor that pilots who are in
13 control of the plane would avoid the site, would
14 you please summarize for me, General Cole, exactly
15 what forms the basis for that opinion that we've
16 discussed so far today. I need a summary of that.

17 GEN. COLE: Well, I will start, and if
18 it please your Honor, give General Jefferson a
19 chance to add something out. Backing up you'll
20 recall that there's certain kinds of Class A
21 mishaps, midair collision or whatever, that
22 there's no opportunity to steer and avoid. In our
23 analysis, Skull Valley events were basically in
24 the normal phase of flight and the key issue if
25 you're going to have a Class A mishap there is in

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1 engine failure. And going on to that we assessed
2 each one that was a Skull Valley type event and
3 frankly determined we didn't have any that they
4 couldn't control the airplane.

5 We conservatively backed that down to
6 90 percent and maintained control of the airplane
7 and then assessed that 95 percent of those, if
8 they had control of the airplane, would indeed
9 steer to avoid. I'm going to have to check the
10 reference, but as I recall, it was 59 out of 61.
11 And I would ask with your permission --

12 Q. (By Mr. Gaukler) I'm talking
13 specifically about the 95 percent factor of those
14 who are in control of the plane, the basis for the
15 determination that 95 percent of those who are in
16 control of the plane would, in fact, avoid. I
17 believe you started talking about the 90 percent
18 up.

19 GEN. COLE: Well, I was just backing it
20 up to give you the context, but thank you.

21 Given that the pilot, if he or she can,
22 they will, the 95 percent came from looking at
23 each Class A mishap report for the Skull Valley
24 type events, and we studied them individually,
25 this is important, without talking to each other

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1 and then gathered together and collaboratively
2 pounded on them as to how we viewed the
3 circumstances and we reached consensus on those.
4 So that's where the 95 percent came in.

5 Q. And do you have anything beyond the
6 actual accident reports themselves?

7 GEN. COLE: Well, the accident reports
8 were primary. When you looked at the conditions
9 of flight, the altitude that the event occurred,
10 and then what the pilot did. So the Accident
11 Investigation Reports for us were basically a
12 primary source document. Investigations are very
13 professionally done by people, pilots, maintenance
14 experts who know what they're looking for, and we
15 coupled that with more years than I care to recall
16 of flying experience and working in the
17 operational and safety environment to make
18 judgments on that.

19 JUDGE FARRAR: Mr. Gaukler, let me
20 interrupt you again. The two reports here that at
21 least on quick reading are so moving where the
22 pilot sacrificed himself to avoid a school and to
23 avoid fellow troops, you haven't convinced me that
24 those two pilots would have done the same thing to
25 avoid some casks.

1 GEN. COLE: I actually got another one,
2 sir, that I didn't even include, another avoid the
3 school instance.

4 JUDGE FARRAR: Assume for the moment,
5 you know, we'll buy into the school and we all
6 hope, even though we weren't in the Air Force,
7 that we would do the same thing. It's a good
8 example. But schools, landing on a field where
9 your own troops are parading, that's almost -- any
10 human being, that's almost instinctive. Here are
11 real live people to whom you have a connection,
12 they're either troops or they're children. That,
13 to me, it's a big step to go to I'll sacrifice
14 myself for the good of the casks.

15 GEN. COLE: Yes, sir. And absolutely,
16 the human dimension is top priority, far above any
17 inanimate object. The only observation I would
18 make at this point is that Skull Valley, with that
19 one thing out there and not much of a turn
20 required to avoid it, it would be a little easier
21 to do, I believe.

22 Q. (By Mr. Gaukler) You wouldn't be
23 risking your life, in other words, is what you're
24 saying?

25 GEN. JEFFERSON: If I can answer that.

1 I think these examples show that the pilots are
2 thinking about it well before down to the last
3 second to pull it and a handle. You know, if they
4 were out in the desert with a sign out there, and
5 that's the thing that they really see and it's in
6 their path somehow, it's easy for them to try it.
7 But there's no more decision making, they just
8 keep turning and keep on working on the engine or
9 whatever.

10 GEN. COLE: Yes.

11 Q. Excuse me. I misplaced some stuff.
12 Just briefly, General Cole, how many years of Air
13 Force experience do you have and how many hours do
14 you have flying Air Force planes?

15 GEN. COLE: I have 30 years in the
16 United States Air Force, I have a total of 6,500
17 hours. Hours, many hours as an instructor pilot
18 and a check pilot, evaluator, airman. I have
19 flown at least a half a dozen different types of
20 aircraft.

21 Q. Col. Fly, would you briefly tell me how
22 many years you've been in the Air Force.

23 COL. FLY: Twenty-four years of Air
24 Force experience and then a little over -- I don't
25 remember the exact number, but it's over 2500

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1 hours of flying time.

2 Q. General Jefferson, would you briefly
3 summarize very briefly your experience with the
4 Air Force.

5 GEN. JEFFERSON: I have 30 years of
6 commissioned service and four years as a cadet at
7 the Air Force Cadet Academy and I have about 4,500
8 hours of flying time, nine different aircraft.

9 Q. General Cole, based on your extensive
10 experience and review, what is your opinion
11 whether a pilot who is in control of an airplane
12 would take actions to avoid the PFS flight?

13 MR. SOPER: Objection, that's not
14 within the scope of redirect, that's in their
15 crafts report. I don't know why we're going over
16 that.

17 MR. GAUKLER: I think he asked about
18 it, but -- yeah, I think he asked it on cross.

19 JUDGE FARRAR: I think, Mr. Soper, that
20 you did ask about this, but this is looming as to
21 the key question in the case, and we'll allow it
22 on redirect and you can go after it again on
23 recross if you want to.

24 GEN. COLE: If the pilot is in control
25 of the aircraft I'm confident that he or she would

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1 steer to avoid inhabited areas or structures:

2 Q. (BY MR. Gaukler) Colonel Fly, what is
3 your opinion?

4 MR. SOPER: Objection, that's not
5 responsive. Didn't you ask for a percentage, how
6 often or just --

7 MR. GAUKLER: I didn't ask for a
8 percentage, I just asked specifically what his
9 opinion was. Colonel Fly the same question.

10 JUDGE FARRAR: I'm not interested in
11 inhabited areas, I'm not interested in population
12 centers, I'm interested in the casks.

13 Q. (By Mr. Gaukler) Let me ask you this.
14 General Cole, would a pilot, Air Force pilot
15 consider the PSFS a structure or inhabited area
16 something that should be avoided?

17 MR. SOPER: Objection, that's a
18 compound question.

19 GEN. COLE: Either or.

20 JUDGE FARRAR: Wait, we've got an
21 objection pending. Ask the question again, Mr.
22 Gaukler, or a better question.

23 Q. (By Mr. Gaukler) General Cole, would a
24 Air Force pilot consider a facility such as the
25 PFSF a populated areas that should be avoided as

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1 that term is used in the --

2 MR. SOPER: I object to a lack of
3 foundation for that.

4 MR. GAUKLER: He has 30 years you heard
5 his years of experience.

6 JUDGE FARRAR: He's qualified. Now
7 he's going to give an opinion, but we want an
8 opinion on a question that's important to us. And
9 now your question focuses on a problem. The
10 manual says avoid populated areas. I don't want
11 to get into a huge debate over whether this is a
12 populated area because of the tribe living there
13 or because of the workers in the building. What I
14 want to know is, is this for purposes of your
15 question, is this like a school or is this like
16 the troops on the parade ground, that he's going
17 to have that much -- that we can have that much
18 certainty that any pilot is going to say even at
19 the risk of his life, I'm going to avoid this.
20 You can ask whatever questions you want, but
21 sooner or later we're going to get to this
22 question.

23 Q. (By Mr. Gaukler) You may answer.

24 GEN. COLE: Sir, I'm equally confident
25 because they know what it is they would steer and

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1 avoid. It falls in the category of a structure or
2 spent nuclear fuel facility. They would do that,
3 I'm confident they would.

4 JUDGE FARRAR: Do you say that because
5 even though it's only a cask, it will conjure up
6 in their mind that if I hit that cask I'm going to
7 endanger some people. Not people I can see right
8 in front of me, but some people somewhere, perhaps
9 even 50 miles to the east?

10 GEN. COLE: Yes, sir. Those pilots
11 that fly through that valley know what it is and
12 where it is. Underline what it is.

13 JUDGE FARRAR: Mr. Gaukler, you want to
14 ask the same question of the other witnesses?

15 Q. (By MR. Gaukler) Sure. Colonel Fry,
16 respond to the same question asked by the Chairman
17 of the Board.

18 COL. FLY: It is my belief that Air
19 Force pilots would avoid PSFS if they found
20 themselves in a situation with the engine out and
21 the ability to control the airplane. I can't
22 imagine one of them not.

23 Q. General Jefferson?

24 GEN. JEFFERSON: Yes, that's my belief.
25 And in trying to imagine this thing, it's out

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1 there, there's a lot of empty space around it,
2 it's a structure, it's a man-made thing. They'll
3 know people are around it. It will be a simple
4 decision to say, I don't want to hit that, I'll
5 put it out in the sand somewhere.

6 JUDGE FARRAR: Well, I think each of
7 those answers has kind of in it the assumption
8 that they'll put it out in the sand and then
9 they'll eject safely. The two examples you cited
10 in the e-mails people said, I can't hit those
11 people and I will sacrifice my life. If it came
12 to the same situation here, would they sacrifice
13 their life to make the turn, thereby delaying
14 their ejection, missing the casks but killing
15 themselves?

16 GEN. COLE: May I answer that, your
17 Honor? The Skull Valley situation, when the
18 pilots are flying through there, again, they know
19 what it is and where it is. I can't imagine them
20 putting themselves in the situation where they're
21 literally in the court of last resort, whether
22 it's them or those casks because it's a known, the
23 location and the what is a known, they would have
24 time to avoid that. I'm not presuming to tell you
25 that they would put that above an inhabited

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1 structure with people, no. The people come first,
2 absolutely.

3 JUDGE FARRAR: Mr. Gaukler, I'm going
4 to do something irregular here. Mr. Soper, would
5 you like to follow-up on this right now or would
6 you rather wait?

7 MR. SOPER: Follow-up in which manner,
8 do you mean, your Honor?

9 JUDGE FARRAR: On these questions.
10 Would you want to ask your own questions right now
11 following up on this or would you rather wait?
12 Just this last couple of questions I've asked.

13 MR. SOPER: I'm rather confident that
14 they'll not give a different opinion. I would
15 like to cross-examine them at some point on the
16 anecdotes that they base that on.

17 MR. TURK: May I ask a follow-up
18 question, your Honor?

19 JUDGE FARRAR: On precisely this.

20 MR. TURK: Gentlemen, my name is
21 Sherwin Turk, I'm an attorney with NRC staff. I
22 guess I would direct this to Colonel Fly. In your
23 flights out of Hill, were you aware of other
24 hazardous sites in the vicinity?

25 COL. FLY: There are other areas that

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1 have no fly or minimum altitudes associated with
2 them. There are areas on Dugway that we know that
3 you don't want to hit those necessarily either.
4 There are places -- I'm just trying to think
5 specifically on Hill -- or I'm sorry, on the UTTR
6 which are exclusive no fly areas.

7 MR. TURK: Let me ask you about areas
8 not in the UTTR. For instance, in the Tooele
9 Valley region, did you ever have occasion to fly
10 through there?

11 COL. FLY: I personally never flew
12 through Tooele Valley. You could do that under
13 the proper circumstances, but I don't believe -- I
14 would say that's not a common occurrence for the
15 3-d fighter wing. I would not say that they have
16 ever done that, but I'm personally not aware of it
17 and it's not part of the routine procedures.

18 MR. TURK: As I recall, there are
19 several hazardous facilities in that region.

20 COL. FLY: Yes, there are.

21 MR. TURK: And they include things such
22 as the nerve gas incinerator?

23 COL. FLY: Yes.

24 MR. TURK: And the chemical depot dump
25 for the State?

1 COL. FLY: Yes, they do.

2 MR. TURK: And others. Is there any
3 training given at Hill about what's out there so
4 that pilots are aware of those facilities or is
5 that just not on the flight path so it doesn't
6 come into it?

7 COL. FLY: It's not on the flight path.
8 I knew they were there. And I can't look you in
9 the eye and tell you how I knew that they were
10 there. But I knew they were there and I gained
11 that knowledge sometime after being assigned to
12 Hill Air Force Base. Exactly how I came about it
13 I'm not confident about answering that question.

14 MR. TURK: Let me ask all three of you,
15 then. With respect to your flights out of other
16 facilities aside from Hill, and I don't know what
17 hazardous waste facilities or hazardous facilities
18 may be near those airfields that you flew from,
19 did your training for flights out of those
20 airfields include knowledge of the hazardous
21 facilities that were nearby?

22 GEN. COLE: First, yes, they did.
23 Normally, you have in the base operations area for
24 pilots that are transient visitors that perhaps
25 aren't assigned there, notices identifying a

1 location of something they should be cognizant of.
2 For the pilots assigned to that base you normally
3 have a monthly or quarterly safety briefing where
4 people will highlight that for them. Or that's
5 the way it's been done in my experience. I can't
6 think of one near bases I'm flown out of. There
7 was a big foundry or concrete plant off the runway
8 at Norton Air Force Base that we usually -- and
9 the C-141 is a 150-ton four engine jet transport.
10 We usually took off going the other way to the
11 northeast and the big concrete cement foundry
12 plant was off the other end of the runway. You
13 flew over it when you landed normally.

14 MR. TURK: That wouldn't be a hazardous
15 facility in the sense --

16 GEN. COLE: No.

17 MR. TURK: -- that hitting that
18 wouldn't impact or have an effect on anyone except
19 right in that immediate vicinity?

20 GEN. COLE: That's correct.

21 MR. TURK: General Jefferson, can I ask
22 you the same question?

23 GEN. JEFFERSON: Sure. And I'm just
24 trying to remember. I know there was facilities
25 around Kirkland Air Force Base in Albuquerque.

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1 Most of them were clustered up, you know, around
2 the runway so it was easy to know where they were.
3 But other bases I've been to, most of my flying
4 has been high altitude flying other than low level
5 training routes, and when you go on those you know
6 everything that's on them. The navigators have
7 got it all blocked out.

8 COL. FLY: If I could come back to kind
9 of circle back, when you show up on a new base as
10 a fighter pilot, I assume it's similar for other
11 wings, you go through a little local area
12 orientation. It generally includes a discussion
13 of the local flying area, typical emergency divert
14 bases, hazards in the area. To be quite honest
15 with you, I haven't flown that many places where
16 there were nuclear facilities. There was one down
17 at Homestead Air Force Base that was called Turkey
18 Point, I believe. I flew down at Homestead and
19 everybody knew where it was and everybody knew
20 that you didn't fly close to it. But that was a
21 power -- that was an active reactor in relatively
22 close proximity. If I remember right, it was
23 about four miles from the airfield. Not exactly,
24 don't quote me on the distance, but it was pretty
25 close to the airfield.

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1 JUDGE FARRAR: Mr. Turk, let's get back
2 to --

3 MR. TURK: The last question I was
4 going to ask, really, touches on that last answer.
5 I wanted to ask you then, and let me focus on the
6 Homestead airfield situation. If you found
7 yourself, Colonel Fly, in a situation where you
8 were aiming at that facility, through no fault of
9 your own, and you had an ability to avoid it,
10 would you avoid in order not to impact and
11 possibly cause a radioactive release?

12 COL. FLY: Oh, absolutely.

13 JUDGE FARRAR: And sacrifice your life?

14 COL. FLY: I guess that's a decision
15 you have to ask yourself at that very moment. You
16 at least tell people when you make that ejection
17 decision you've got the rest of your life to make
18 that decision. I'm not trying to be flippant.
19 It's a very serious decision, obviously. Yeah, I
20 guess you could say I would do that, but the
21 moment of truth comes when it's staring you in the
22 face and you have no other options.

23 Again, I would go back to the point of
24 how do you get there and how do I wind up in a
25 position in Skull Valley over the PFSF when I have

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1 no other options, and in all honesty, your Honor,
2 I have difficulty building that flight profile and
3 that series of decisions that puts me in that
4 position. I think there's way too many
5 opportunities significantly earlier than that to
6 make a small directional change to completely
7 remove it as an issue or a decision.

8 JUDGE FARRAR: Mr. Gaukler, we've been
9 on a very useful, but still a detour so we'll get
10 back to you.

11 Q. (By Mr. Gaukler) I have a few more
12 questions on this line and then I'm going to go
13 through some miscellaneous points. General Cole,
14 General Jefferson and Colonel Fly, you have read
15 Colonel Horstman's testimony that counsel for the
16 State asked you about in terms of his interviews
17 with the four pilots, correct?

18 GEN. COLE: That's correct.

19 COL. FLY: Yes.

20 Q. And if I may quote, I would like to
21 read the first paragraph of that testimony. And
22 it says, "I have discussed specific mishap
23 circumstances with four active duty F-16 pilots
24 who have ejected from aircraft. Three of the
25 pilots ejected from F-16s and one pilot ejected

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1 from an F-11, a two-engine fighter aircraft. All
2 four pilots said their thoughts were focused on
3 their own survival and all of the pilots said they
4 did not even consider where the aircraft would
5 impact and did not consider where the jettison
6 stores would impact."

7 And the last sentence is, "All four
8 pilots stated that if they were required to eject
9 in the future they would again not consider where
10 their aircraft ordnance would impact." Focusing
11 specifically on that last sentence, General Cole,
12 do you think that is what pilots would do?

13 GEN. COLE: Let me begin by saying that
14 I'm not even remotely impugning Colonel Hortsman
15 nor any of those four pilots. I wasn't there when
16 the discussion took place, don't know what
17 questions were asked or what answers were
18 proffered. But taking your comment, you know, as
19 you read it, my initial reaction is, frankly,
20 surprise, disappointment, incredulity. I've flown
21 for 30 years. People that I know that wear Air
22 Force wings, that doesn't fit. And I would add
23 disappointed if, indeed, that's the way it is.

24 Q. Colonel Fly?

25 COL. FLY: You're asking my response to

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1 that last statement?

2 Q. That last sentence in particular.

3 COL. FLY: I just can't tell you how
4 strongly I object to that. I just don't believe
5 that. I would speculate -- I would stipulate a
6 little bit that there may be a case such as the
7 F-111 with Colonel Coots where it says 150 feet
8 and 150 knots and a heavy airplane -- well, it
9 doesn't matter. He lost all of his hydraulics, he
10 lost any ability to control the airplane anyway.
11 He had no choice in that case. If you put him
12 back in that exact same situation I suspect he
13 will probably make that same exact decision.

14 My conversation when I put -- in fact,
15 he offered it up, he just said, you know, take the
16 case of an F-16, if I lose my oil pressure and the
17 engine seizes, he says, now I've got options. You
18 know, of course I'm going to consider where am I
19 and what can I do. So I guess I just -- I can't
20 accept that last statement as being a reflection
21 of Air Force pilots and their training.

22 MR. SOPER: Your Honor, could I offer
23 something at this point? Colonel Horstman is
24 going to testify that is, in fact, a
25 mischaracterization of his testimony, and it

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1 should say what Colonel Fly said, given the same
2 circumstances they would again not. So to that
3 extent, Colonel Horstman is going to testify that
4 it's not accurate. Not for his fault but for
5 ours.

6 MR. GAUKLER: I thought you had
7 questioned all people on that last sentence in
8 particular and that's why I was asking them that
9 question. I believe on cross-examination, and I
10 can go back and refresh my recollection, that they
11 were asked whether they agreed with that last
12 sentence. I could be wrong. That's the reason
13 I'm asking this question.

14 JUDGE FARRAR: Mr. Soper, you're not
15 objecting to what just happened, you're simply
16 pointing out that the record is not finished on
17 that and we should keep an open mind until we hear
18 from Colonel Horstman?

19 MR. SOPER: Yes. In other words,
20 that's not going to be in dispute, just so there's
21 any question. Colonel Horstman just reminded me
22 of that.

23 JUDGE FARRAR: Thank you.

24 Q. (By Mr. Gaukler) Gen. Jefferson,
25 what's your opinion of that last sentence there?

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1 GEN. JEFFERSON: When I read that I was
2 appalled because it goes against everything that I
3 know, my own experience and everything I know
4 about other pilots. I couldn't believe it. And I
5 really hoped that that was some sort of mistake.

6 MR. GAUKLER: Your Honor, I'm about to
7 go to some miscellaneous areas and I need to
8 gather a few things if I could take a short break.

9 JUDGE FARRAR: Mr. Gaukler, it's now 20
10 to 6:00. How much longer do you have on redirect?

11 MR. GAUKLER: Less than a half hour, I
12 think.

13 JUDGE FARRAR: Then the staff told us
14 they would have a very short cross.

15 MR. TURK: I think within 10 minutes,
16 less than 10 minutes.

17 JUDGE FARRAR: And, Mr. Soper, how long
18 do you think you'll be?

19 MR. SOPER: I would try to do it in an
20 hour, your Honor. Possibly less.

21 JUDGE FARRAR: And I know, this is all
22 just planning. I don't want to limit you. Okay.
23 Mr. Gaukler, you said there's a chance we could
24 finish then with these witnesses tonight?

25 MR. SILBERG: Let's go for it.

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1 JUDGE FARRAR: You say you needed a
2 couple of minutes.

3 MR. GAUKLER: I need a break personally
4 for myself.

5 JUDGE FARRAR: Let's all make it fast,
6 take a five-minute break and be back in five
7 minutes.

8 (Recess taken.)

9 JUDGE FARRAR: We're back on the record
10 with everybody we need to. During the break we
11 received an interesting informal report about
12 other goings-on today at the United States
13 District Court on matters that are very
14 interesting to the parties but don't affect
15 anything we're doing here today. But it's just
16 been a very busy day on all fronts for everybody.
17 Let's go ahead, Mr. Gaukler. Our goal -- it's 10
18 of 6:00. Our goal is to finish these witnesses
19 tonight if at all possible, and the gates close at
20 8:00 p.m. So we better, unless we want to spend
21 the night together, let's get going.

22 Q. (By Mr. Gaukler) Let's go. General
23 Cole, yesterday we were talking about the number
24 of flights to use in the formula or in the
25 calculation of the risk. And as was described,

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1 what you used was an average of the 1999 to 2000
2 year sorties -- 2000 year sorties. And that was
3 1999 was approximately 4000 something and 2000 was
4 approximately 5,870, and you've averaged for those
5 two years as the basis for the projection would
6 the average speed increase to include the
7 additional aircraft at Hill Air Force Base. What
8 reasons, why do you believe an average is an
9 appropriate number?

10 GEN. COLE: Well, first the '99 number
11 of 4,250 obviously represented, you know, a higher
12 level than the year before. It went up to I think
13 5,750 in 2000. We averaged those to use 5000.
14 Accounting for the 12 additional aircraft assigned
15 to Hill, we added that up and it was 14 percent in
16 and boosted it up to 5,870. That seems like a
17 reasonable number. The issue would be, well,
18 could it not become a larger number downstream?

19 Predicting the future is difficult, but
20 I would point out that matters of national policy
21 and national budgets, being what they are, the
22 number of aircraft in the U.S. Air Force
23 inventory, that's total aircraft, not just active
24 duty, but Guard and Reserve, has gone from
25 approximately 9,000 down to 6,000 over an eight or

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1 10-year period, which is a 30 percent decrease,
2 roughly. The number of people in the United
3 States Air Force has gone from 607,000 down to
4 375,000 in about the same time period. And so
5 less people, less airplanes.

6 And also, the proposed replacement for
7 the F-16, the F-35, the original F-16 buy was
8 2,230 aircraft. The proposed F-35 buy for the
9 United States Air Force is 1,763. So given that,
10 I feel like we took some deep values, averaged the
11 last two years, and I don't think at this point in
12 time we could be predicting using bigger numbers
13 in the foreseeable future.

14 Q. Is this discussed in your prefiled
15 testimony?

16 GEN. COLE: Yes, it is.

17 Q. General Jefferson, yesterday we were
18 talking about the width of the valley used in your
19 calculation of the probability calculation and we
20 talked about how initially in your first
21 calculation you had assumed everything over on the
22 east side of the valley and then you did a second
23 calculation in which you randomly spread out the
24 planes using the width as 10 miles for the
25 formula. Why did you spread out the planes evenly

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1 and what was the basis of that?

2 GEN. JEFFERSON: Well, we did it as a
3 result of the NRC review of our earlier submission
4 and they requested that we change that to an
5 assumption that the aircraft were spread out
6 evenly in the area.

7 Q. Was that both widthwise and depthwise
8 or --

9 GEN. JEFFERSON: Yes, we took it as
10 unconstrained in all directions. We had started
11 out 3 to 4,000 feet and five miles east. We did
12 away with both of those restrictions and spread
13 the aircraft out vertically and horizontally in
14 the flyable air space.

15 Q. And is that reflected in a document?

16 GEN. JEFFERSON: Yes. There's a
17 commitment resolution letter No. 10 dated July
18 22nd, 1999 where the NRC comment is encapsulate in
19 paragraph 1 on page 2.

20 Q. And what does the last part of comment
21 say?

22 GEN. JEFFERSON: It says,
23 "Alternatively PFS should show that the F-16
24 flights do not pose a significant hazard to the
25 PFSF, assuming their paths through Skull Valley

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1 are not constrained."

2 Q. Now, we also were talking about the
3 effect or impact or potential effect of if you
4 used a width less than 10 miles. There's a
5 question of whether or not -- assuming once you
6 did this distribution across the valley, is the
7 appropriate width 10 miles or some other number.
8 Could you tell me what the impact on the
9 calculation would be, say, if you used a nine-mile
10 width instead of a 10-mile width?

11 GEN. JEFFERSON: Yes. If you change
12 from 10 to nine the factors that are concerned
13 with Skull Valley, the risk factors go up by 11
14 percent. The airways and those other things don't
15 change.

16 Q. So, for example, what would that be in
17 terms of the actual number we have for Skull
18 Valley?

19 GEN. JEFFERSON: The Skull Valley
20 F-16s, and I'm referring to page 19 in our report
21 where the table is summarized is 3.11 times 10 to
22 the minus 7 probability. If it went up -- if we
23 moved the width to nine miles and it went up 11
24 percent that would be 3.45 times 10 to the minus
25 7. The ordnance calculation would also go up 11

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1 percent from 1.49 times 10 to the minus 7 to 1.65.
2 Total probability then would come to less than --
3 from less than 5.34 10 to the minus 7 to less than
4 5.84 times 10 to the minus 7.

5 Q. And assume that you -- well, what if
6 you assume the width was eight miles instead of 10
7 miles, what effect would that have?

8 GEN. JEFFERSON: Then the factors are
9 affected by a 25 percent increase for those two
10 factors. The 3.11 becomes 3.89 times 10 to the
11 minus 7. The ordnance 1.49 becomes 1.86 times 10
12 to the minus 7, and the total changes from less
13 than 5.34 times 10 to the minus 7 to less than
14 6.49 times 10 to the minus 7.

15 Q. And do you believe that those numbers
16 are conservative whether you use a 10-mile width
17 or 9-mile width or 8-mile width?

18 GEN. JEFFERSON: Yes, because those
19 were hypothetical distributions. As well, since
20 this was done, we are now including aircraft in
21 Sevier B MOA, which is above that, and those
22 aircraft are not constrained at all by the
23 mountains, they have the use of the full 12-mile
24 width. Of course, there's not a large number of
25 them, but they could possibly influence this.

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1 Q. You had some questions -- some
2 questions were asked in your cross-examination in
3 terms of how many Generals and how many Colonels
4 there were in the United States Air Force. Have
5 you been able to get exact figures in terms of at
6 least a particular point in time in terms of the
7 number of Generals?

8 GEN. JEFFERSON: Yes. I thought I was
9 going to be asked that question too so I got
10 ready. I got numbers from 1998.

11 Q. And what are those numbers?

12 GEN. JEFFERSON: Four Star Generals are
13 11. At that time I think they were about the
14 same. Lieutenant General was 36, Major General
15 was 81.

16 Q. Now, Lieutenant General is a --

17 GEN. JEFFERSON: Lieutenant General is
18 a Three Star General. Major General, like me, Two
19 Star General. Brigadier Generals like General
20 Cole were 141, Colonels, 3,818, and Lieutenant
21 Colonels, 10,055.

22 Q. Colonel Fly, in the testimony yesterday
23 there was some reference to your retirement from
24 the Air Force and connected with, I suppose, the
25 safety concerns. What was the basis of your

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1 retirement from the Air Force itself?

2 COL. FLY: As I talked yesterday, the
3 -- as a result of the accidents, the Four Star
4 General had a policy to -- his policy was actually
5 fairly standard in the Air Force, that basically
6 three accidents and it didn't matter what the
7 accident report said about the quality of the
8 training, the leadership and the supervision, he
9 was going to come in with a new commander. I
10 mean, it comes with the territory of command. So
11 they offered me -- actually, my Three Star, who
12 was my immediate boss, attempted to talk him out
13 of it is the short answer.

14 Q. He wanted you to stay; is that correct?

15 COL. FLY: Yes. He had recently
16 visited the wing and spent three days there and
17 had -- when the Four Star called the Three Star,
18 the Three Star had told him and he said, "Sir, you
19 know I was just there." He said, "That's a
20 well-run wing." It's easier to say. "Excellent
21 leadership, it's tight. Morale is much better
22 than it was a year prior. Things are going well
23 and it's just -- it's a top flight wing. He's a
24 great commander." And the Four Star said, you
25 know, "These are my policies." He says, "Find him

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1 a good job."

2 So they offered me jobs at the
3 Pentagon, on the Joint Staff. Actually, a couple
4 over in Hawaii. The Three Star asked me to come
5 and work for him, but I looked back and said,
6 "It's been 24 great and wonderful years," and I
7 had done the four things I had wanted to do. I
8 got to go to fighter weapon school, I had been a
9 fighter squadron commander, an operations group
10 commander and a wing commander. And I said,
11 "Twenty-four wonderful years. I look back on it
12 with great pride and pleasure. It was an honor to
13 serve the country."

14 Q. Did you receive any award subsequent?

15 COL. FLY: Yes. Legion Emerit is the
16 -- was the award that they presented to me. It's
17 a fairly senior -- well, actually, it's a pretty
18 high award for service to the country.

19 Q. And do many people get this Legion
20 Emerit?

21 COL. FLY: Some people do at the rank
22 of Colonel. I wouldn't say many. Hardly anybody
23 below that rank.

24 Q. Colonel Fly, you also mentioned that
25 you talked to a Colonel Coots?

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1 COL. FLY: Coots, yes. He was the 3-d
2 operations group commander?

3 Q. Yes.

4 COL. FLY: Yes. He was the California
5 telephone call, your Honor.

6 Q. And we were going to cover the
7 conference call and since we don't know exactly
8 what's happened we're going to cover the second
9 one as well and so it will be on the record.

10 You had talked with Colonel Coots in
11 terms of the use of the Moser recovery?

12 COL. FLY: That's correct.

13 Q. And what did he advise you in that
14 respect?

15 COL. FLY: I asked him how often it was
16 used and he said hardly ever. He said he had --
17 he's been there almost two years, it will be two
18 years in June, he had not flown it, he didn't
19 think, fivetimes. Five would be a high number
20 for him. I asked him, "Can you give me a
21 percentage?" And he basically said, "Around, oh,
22 I don't know."

23 Well, actually, let me back up. I
24 said, "So you think you've flown it five times?"
25 And he said yes. And I said, "Are you typical of

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1 the six that flies once a week even when you want
2 to fly twice a week?" And he said yes. And I
3 said, "You've been there two years?" And he said
4 yes. "Have you flown about 120 sorties or so?"
5 And he said, "Yeah, that's probably about right."
6 So I offer -- I may have offered the number five,
7 I don't know. But I said, "So are you talking
8 somewhere in that regime?" And he said, "Yeah,
9 that would be about right."

10 I told him I was kind of interested to
11 hear that because that's the same number that the
12 Salt Lake City controller had given Colonel -- or
13 General Cole. I then asked him what drives the
14 Moser recovery and he said they have a strong
15 preference not to use it, is the bottom line. He
16 will land -- if the weather is clear he will land
17 with up to 15 knots of tail wind is what he told
18 me to stay off of the Moser recovery.

19 At night they have lost their ability
20 to -- let me restate or rephrase that. Apparently
21 since I left active duty they have made some
22 changes in what they will allow pilots to do
23 visually at night. That's one of the
24 considerations that they look at, but he said even
25 at night they will go with 10 knots of tail wind

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1 rather than use the Moser. If they do have to
2 land to the north, which is not the normal way
3 that they do it, there are other ways under most
4 conditions that they can return to the base and
5 maneuver around and then land to the north to
6 avoid have to land to the south. He said that
7 Salt Lake City was a big consideration. They
8 really don't like it when Hill is landing to the
9 north if they're not also operating to the north.

10 JUDGE FARRAR: I'll go back just 30
11 seconds. You said there were -- did I hear you
12 say there are other ways to land to the north
13 other than using Moser recovery?

14 COL. FLY: Yes, your Honor. Let's say
15 there were very strong winds to where they needed
16 to land to the north. They could, depending on
17 the ceiling, as long as they had 2,500 feet or
18 better visibility -- I'm sorry, not visibility,
19 2,500 foot ceiling or better, the overhead pattern
20 is open so pilots can maneuver visually, is
21 another way to say that. He said they would fly
22 the northern recovery and get below the weather,
23 if the weather is even a factor, and then visually
24 position themselves to land toward the north.

25 Q. (By Mr. Gaukler) And so the number,

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1 approximately 5 percent or more?

2 COL. FLY: He said 5 percent was a good
3 number. He said if you wanted to be really,
4 really conservative you could go as high as -- he
5 didn't say really, really conservative, he implied
6 it. I don't want to attribute a quote to a
7 number.

8 JUDGE FARRAR: To land to the north,
9 does that mean you've got to -- instead of coming
10 up Moser you would swing to the east, way to the
11 east somehow?

12 COL. FLY: I'm not sure we can blow it
13 up well enough, your Honor.

14 JUDGE FARRAR: Take the one that's up
15 there now. It's easier for me if you would use
16 that map.

17 COL. FLY: They could fly the mobile
18 recovery, your Honor, which comes in this way. It
19 sticks out there in this general area called Mud
20 Flats. They would turn down this way and maneuver
21 toward the field and come around this way.

22 JUDGE FARRAR: In my language make a
23 U-turn?

24 COL. FLY: Exactly. That's a technical
25 aviation term as well.

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1 JUDGE FARRAR: I'm getting better at
2 this. Thank you. That kind of answers my wind
3 question. In other words, where instead of me
4 thinking about how a national airport seems 50/50,
5 if you would have a rule that you'll land always
6 to the south whenever you can, that means you're
7 always to the south except the very few times that
8 the wind is more than 15 knots from the north.

9 COL. FLY: Yes, your Honor. Now, I'm
10 just trying to recollect. If the runway is wet,
11 if there's a rainstorm going on, he will not land
12 with as strong a tail wind. In that case he would
13 switch runways and land into the head wind.
14 Because in a rainstorm you don't have as much
15 braking action.

16 JUDGE FARRAR: Right.

17 MR. GAUKLER: Let me take a second and
18 see if I have anything else. I have nothing else,
19 your Honor.

20 JUDGE FARRAR: Thank you, Mr. Gaukler,
21 you did better than you said.

22 MR. GAUKLER: Thank goodness I got one
23 estimate, at least.

24 JUDGE FARRAR: Ms. Marco, Mr. Turk, it
25 appears you have three minutes.

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1 MR. TURK: I think I'll ask a few
2 questions, your Honor.

3 JUDGE FARRAR: Okay. Go ahead.

4
5 RECROSS EXAMINATION

6 BY MR. TURK:

7 Q. Gentlemen, do you have the State's
8 Exhibit 154 in front of you? That's the one that
9 has the vertical bar graphs, the first two bars of
10 which have arrows pointing upwards?

11 GEN. JEFFERSON: Yes, we have a copy.

12 Q. If we look first at the vertical bar,
13 the first vertical bar that's calendar year 1975,
14 that seems to have a very high, probably the
15 highest crash rate on this chart. Do you know how
16 many hours of flying are represented in that?

17 GEN. JEFFERSON: Yes, I do. In the
18 F-16 history that looks like this, I don't know if
19 it's attached to your copy or not.

20 Q. The second page of the Exhibit?

21 COL. FLY: Yes.

22 GEN. JEFFERSON: I believe it is.

23 Q. And over in the right under the Hours
24 column there is a -- it says there was one Class A
25 in 161 hours. And of course if you move that to

1 100,000 hour base you would get a huge spike up.

2 COL. FLY: I would like to also point
3 out if I could, please, if you'll look at that, it
4 says Class As, 1. You move over and it says
5 Number of Destroyed Aircraft, zero. You move over
6 and it says Fatal Pilots, zero. All zero. So
7 nobody was killed. We didn't crash an airplane.
8 We're not sure what happened to exceed -- my
9 assumption would be something happened that
10 exceeded the dollar threshold. I know of examples
11 of ground accidents where people were killed which
12 would be classified as a Class A even though the
13 airplane itself was not damaged. So I don't have
14 a good explanation for why that rate is so high.
15 I don't know what the Class A was. And if you
16 look at calendar year '76, again, no destroyed
17 aircraft, no fatalities. But there was one Class
18 A.

19 Q. Let me ask you the same type of
20 question I just asked you for calendar year '75.
21 Go to calendar year '76, which also is a very high
22 vertical bar. Is it correct looking at page 2 of
23 the Exhibit that that represents 387 hours of
24 flying time?

25 GEN. JEFFERSON: No. That would be --

1 that 387 is cumulative hours. What's plotted on
2 this chart are annual rates. So that would be one
3 Class A in 226 hours.

4 Q. Okay. Similarly for calendar year '79,
5 which is represented on page 1 of this Exhibit as
6 having a crash rate of 30.64 Class A incidents.
7 How many hours are represented for that year?

8 GEN. JEFFERSON: That's 6,527 hours.
9 Two Class A mishaps for that amount of flying.

10 Q. And then again for calendar year 1980
11 in which the crash rate is 18.65?

12 GEN. JEFFERSON: That was 26,803 hours
13 and five Class As.

14 Q. Is it significant in your mind that for
15 years in which there was a low number of flying
16 hours, such as for these years, that the crash
17 rate is higher than years in which there's a
18 larger number of flying hours?

19 GEN. JEFFERSON: No. I think that's
20 just a statistical way of -- when you use a base
21 of 100,000 hours, that's the way it's going to
22 turn out. That's not a -- but it does not mean
23 that the threat to a ground facility is that much
24 higher just because that rate is so high.

25 Q. Why does the Air Force speak in terms

1 of crash rate per hundred thousand hours?

2 GEN. JEFFERSON: Normally, the type of
3 aircraft that is flying. As you see here later on
4 down here, 400,000 hours a year. That gives a
5 better way to measure. You know, as long as the
6 hours are reasonably consistent it gives you a way
7 of measuring your progress or your safety record.

8 GEN. COLE: That's right.

9 Q. Would it be reasonable to conclude that
10 where you have a larger number of flying hours you
11 have a greater statistical base?

12 GEN. JEFFERSON: Oh, absolutely.

13 Q. A greater database from which to draw a
14 conclusion as to the validity of the crash rate?

15 GEN. JEFFERSON: Absolutely.

16 Q. You may have done this already on the
17 record, I apologize if you've already stated it.
18 Is there a similar formula for converting knots to
19 miles per hour?

20 COL. FLY: What I have always used and
21 it worked out fairly well, about 1.15. Two knots
22 would be about 11.5 statute miles. Nautical miles
23 is 6,076 feet, if I remember correctly. If
24 somebody would like to do the math.

25 Q. That will be useful later when we're

1 trying to understand air speeds. General Cole, at
2 one point in your testimony yesterday you were
3 talking about a meeting between -- or a meeting
4 that occurred with Hill Air Force Base. And I
5 believe the way you described this as you said,
6 "We had a meeting with NRC staff and Hill Air
7 Force Base." You were talking about the September
8 2001 meeting. Do you recall that testimony?

9 GEN. COLE: September 7th, 2001. That
10 wasn't me. I was commenting on a memo that the
11 Hill Air Force Base staff put out, I think of a
12 meeting with your staff if, I'm not mistaken.

13 Q. In other words, that was not a meeting
14 at which you or PFS was involved?

15 GEN. COLE: No, sir, I was not there.

16 Q. You had the memo that summarized the
17 meeting?

18 GEN. COLE: Yes. I knew about the
19 meeting, right.

20 MR. TURK: Let me have just a moment,
21 your Honor.

22 Q. General Cole, also you've discussed the
23 accident reports that you reviewed when you were
24 looking to understand whether pilots would avoid a
25 ground object or not. In your review of those

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1 accident reports, I'm not thinking now of the 15
2 that we admitted into evidence, but the other
3 reports, did you find any indications that a pilot
4 did not avoid, either a statement that he did not
5 avoid or some kind of indication other than
6 whether or not an object was struck?

7 GEN. COLE: I did not. We reviewed 126
8 of those accident reports, each of us
9 independently, and then collectively got together,
10 you know, for a consensus statement on them. I
11 cannot recall any. I don't believe there were
12 any. I would ask my two colleagues to refresh, if
13 I missed it.

14 COL. FLY: I would agree, there were
15 none that I can recall either where something
16 should have been avoided and it wasn't.

17 Q. No discussion something like the pilot
18 failed to avoid something?

19 COL. FLY: No, sir. Now, that's with
20 the pilot in control. There were circumstances
21 when the pilot was out of -- when the aircraft was
22 out of control and it may have hit something, but
23 we wouldn't have put that into that category.
24 That was an out of control and clearly it's going
25 to hit where it hits in that case.

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1 Q. Also in the testimony, I believe this
2 was Colonel Fly, you were discussing simulator
3 training. In the simulator training for the F-16,
4 do they run through the procedures that you would
5 follow in the event of an engine failure, engine
6 flameout or other failure?

7 COL. FLY: Yes, they do, under a
8 variety of different circumstances.

9 Q. And among the procedures that you're
10 trained to follow in simulator training, do they
11 include anything about avoidance of objects on the
12 ground?

13 COL. FLY: It's a topic of discussion.
14 The simulators, the way they are, the visual when
15 I last flew with the Air Force, the simulator had
16 very limited visual capability. So you couldn't
17 really project this great big beautiful, you know,
18 scene with whatever you wanted in there. They had
19 some capability, but it was very limited. It was
20 something that pilots did talk about and consider
21 and it was part and parcel to the process.

22 Q. During the simulator training?

23 COL. FLY: Yes. You would normally go
24 over and have a pre-briefing with the simulator
25 instructor. You would fly your simulator mission

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1 and then you would have a debrief. We had two
2 types of simulators, and I'll try to keep it
3 short. One would be a tactical or training
4 simulator where you would go out and practice
5 intercepts and dropping bombs and things like that
6 in a simulator. The other one would be more
7 oriented toward emergency procedures. In fact, we
8 were periodically reviewed, evaluated on our
9 handling of emergencies by an instructor pilot,
10 standardization pilot. And that was done -- there
11 would be a ground evaluation, but it was also done
12 in a simulator to see how well you could handle
13 the various situations and emergencies that they
14 would throw at you.

15 Q. Do you believe that F-16 pilots are
16 different from general aviation pilots in terms of
17 their training or inclination to avoid populated
18 areas or structures on the ground?

19 GEN. JEFFERSON: From my experience
20 with general aviation pilots, they are not well
21 trained, but they have a vested interest in not
22 hitting anything because they can't bailout. So
23 they will get to a flat that place if they can.

24 COL. FLY: I was just going to say, I
25 also personally believe that the United States Air

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1 Force does the best job going in training their
2 pilots and the selection process, but also just
3 the level of training throughout the roughly two
4 years that it takes to get to be a operational
5 F-16 pilot. I think it's very good and very
6 thorough.

7 Q. If you're looking to calculate a value
8 for R for a general aviation class of pilots as
9 opposed to an F-16 group of pilots, would you use
10 the same R factor or would you think that it
11 should be different? And this, again, the plane
12 is in control, the pilot can avoid something in
13 its path. I guess a part of it is that the
14 general aviation aircraft pilot is not going to
15 eject?

16 COL. FLY: He really has no option.
17 I'm assuming they don't -- I know they don't have
18 ejection seats. I don't think they can jump out
19 over the wing. The other thing that needs to be
20 considered, is like the little Cessna, he has the
21 capability to land on dirt or little roads that an
22 F-16 is not supposed to. That's one of the things
23 that I can remember from my P41 training, which is
24 a Cessna 172 souped up engine. That was one of
25 the things that the instructor pilot was always

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1 doing. He would say, "You've got to be looking
2 for places to land, looking for places to land."
3 Open fields or runway -- or not runway. If
4 there's a runway that's great, but roads. And
5 what they would do is just a matter of course,
6 they would go up and they would pull the throttle
7 back to idle and say, "You've just lost your
8 engine, now land it." And you would go all the
9 way down, you would pick out your field, you would
10 figure out and do all you were going to do. We,
11 obviously, wouldn't land in the field, but we
12 would go down and do that. So they have that
13 option available to them, but they don't have the
14 ejection option.

15 MR. TURK: I think that's all I have,
16 your Honor. Thank you very much.

17 JUDGE FARRAR: Thank you, Mr. Turk.
18 Mr. Soper, were you going to cross?

19 MR. SOPER: Thank you, your Honor.

20

21

22 RE CROSS-EXAMINATION

23 BY MR. SOPER:

24 Q. General Jefferson, in connection with
25 your review of the 126 mishap reports that you

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1 reviewed, they were all from the period '89
2 through '98; is that correct?

3 GEN. JEFFERSON: That's correct.

4 Q. And you've reported those on Exhibit X
5 that's attached to the prefiled testimony in
6 Exhibit 1; is that right? Each of those 126
7 reports are listed there? Does your Honors have
8 that? I don't have another copy. It's Exhibit X
9 to the prefiled testimony.

10 GEN. JEFFERSON: Yes, we do.

11 Q. Are each of those 126 accidents
12 accounted for on Exhibit X?

13 GEN. JEFFERSON: No, there are 121
14 here.

15 Q. But you reviewed 126; is that right?

16 GEN. JEFFERSON: That's correct.

17 Q. Why don't the other ones appear here?

18 GEN. JEFFERSON: I would have to look
19 it up, but I believe there was a Class A, for
20 instance, where a F-16 hit a glider. The pilot of
21 the glider was killed but the F-16 came back. So
22 that became a Class A, but it didn't seem
23 pertinent to what we were doing.

24 Q. So these are only destroyed aircraft,
25 am I understanding you right? I'm just wondering

1 what was the criteria on which you omitted the
2 other?

3 GEN. JEFFERSON: Yes, these are
4 destroyed aircraft.

5 Q. And so you the ones you omitted were
6 all not destroyed, that was the basis?

7 GEN. JEFFERSON: That was the basis.

8 Q. I notice that you have a column here
9 Able to Avoid PSFS, and after each accident report
10 you have either yes or no. What does able to
11 avoid PFSF mean, PFSF?

12 GEN. JEFFERSON: That's an abbreviation
13 for the category that we established where we
14 rated the events of the accident as to whether we
15 thought the pilot had the capability, time and
16 control to avoid the PFSF.

17 Q. Counting up the yeses and nos, I see
18 that you've determined in 41 percent of these
19 accident reports the pilot would not be able to
20 avoid the PFSF; is that correct?

21 GEN. JEFFERSON: I don't know that I
22 made that calculation. Your question was there
23 were --

24 Q. Forty-one percent.

25 GEN. JEFFERSON: A difference between

1 the yeses and nos in that column?

2 Q. Well, I'm saying if you use the total
3 reports 121 as a denominator, how many nos do you
4 have over that?

5 GEN. JEFFERSON: I'll have to add it up
6 and see.

7 MR. GAUKLER: Do you want him to add it
8 up? That's a computation he didn't make, I don't
9 think. Do you want him to add them up and take
10 the time to do it?

11 Q. Well, you have determined a certain
12 number of aircraft that are not able to avoid the
13 PFS site. I think it's important we know that.

14 GEN. JEFFERSON: Yes. Well, I can
15 speak to it generally. I haven't added it up to
16 get the number.

17 Q. Well, let me suggest to you that we
18 have done that and it comes out to 41 percent.
19 Any reason to disbelieve that?

20 GEN. JEFFERSON: I would prefer to
21 check it.

22 Q. Would you please?

23 GEN. JEFFERSON: Okay. You said 41
24 percent; is that correct?

25 Q. It's looking more like 45 percent now,

1 but what did you get?

2 GEN. JEFFERSON: Forty-two percent.

3 Q. How many nos did you come up with?

4 GEN. JEFFERSON: I actually did it with
5 yeses, but I had 69 yeses and then I subtracted
6 that.

7 Q. Excuse me, sir, how many yeses?

8 GEN. JEFFERSON: Sixty-nine.

9 Q. And you subtracted that from 121?

10 GEN. JEFFERSON: Actually, I subtracted
11 it from 118 because there were several listed here
12 with N/A in that column. I don't know -- I don't
13 recall exactly what the situation was, but I
14 thought that would be more correct.

15 Q. So whether or not our math is right,
16 you have come up with 42 percent that you have
17 characterized as not able to avoid; is that right?

18 GEN. JEFFERSON: That's correct.

19 Q. Does that mean, sir, that in 42 percent
20 of the crashes that you reviewed, it was your
21 determination that the pilot did not have control
22 of the plane such that he could avoid it even if
23 he so desired?

24 GEN. JEFFERSON: That's correct. Over
25 all categories, yes.

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1 Q. All right. Thank you. Now, I'm
2 looking at the Air Force Instruction 51-503 which
3 of course is the instruction that directs the
4 preparation of these accident reports; is that
5 true?

6 GEN. JEFFERSON: That does. I don't
7 have a copy in front of me, but that's what that
8 does.

9 GEN. COLE: I've got that.

10 Q. Have you read that entire instruction,
11 in general?

12 GEN. JEFFERSON: No, I have not.

13 Q. Have any of you other witnesses read
14 that instruction?

15 GEN. COLE: I have.

16 Q. Have you read the entire thing, General
17 Cole?

18 GEN. COLE: I have.

19 Q. As it turns out, I have too. And I
20 don't find any reference to a section dedicated or
21 any instruction instructing to inquire into
22 whether or not a pilot avoided anything; isn't
23 that true?

24 GEN. COLE: That is true.

25 Q. So the fact that it's mentioned, if at

1 all, it's not pursuant to the directive of the
2 instruction; isn't that right?

3 GEN. COLE: That is not accurate, sir.

4 Q. Well, let me go back to the other
5 question. It is not mentioned in the instruction?

6 GEN. COLE: That is accurate.

7 Q. All righty. And it turns out that on
8 the document that's been offered as PFS QQQ, is
9 that before you, sir? It hasn't been admitted,
10 has it, your Honor?

11 MR. TURK: My notes shows it was
12 deferred pending recross.

13 JUDGE FARRAR: What does it look like?

14 MR. SOPER: It says AF Instruction
15 51-503 at the top and it's several pages long and
16 it includes some anecdotal references.

17 JUDGE FARRAR: I can't seem to put my
18 hand right on it here. Somebody just hold it up.

19 MR. SOPER: (Indicating.) It's been
20 marked but not offered. It's been marked anyway.

21 JUDGE LAM: Here.

22 JUDGE FARRAR: I'm sorry, the document
23 we were talking about this afternoon?

24 MR. SOPER: Yes.

25 JUDGE FARRAR: Yeah. Had it been

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1 offered?

2 MR. GAUKLER: It's been offered but not
3 admitted.

4 MR. SOPER: I am going to use that --

5 JUDGE FARRAR: It was identified.

6 MR. GAUKLER: Right.

7 JUDGE FARRAR: But not offered, or was
8 it?

9 MR. GAUKLER: I forget whether it was
10 offered or not, but it was identified and decided
11 to defer whether it would be admitted until after
12 cross-examination, if I recall correctly.

13 JUDGE FARRAR: Right.

14 MR. SOPER: There was testimony
15 concerning it and I would like to make reference
16 to that now.

17 JUDGE FARRAR: Sure.

18 Q. General Jefferson, do you have a copy
19 of what I believe was marked as Applicant's QQQ
20 and of which you read portions?

21 GEN. JEFFERSON: Yes, I do.

22 Q. And in connection with this there was
23 testimony from, I believe it was you, that 15 of
24 these accident reports that you had reviewed were
25 included in this document. Is that correct?

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1 GEN. JEFFERSON: In QQQ, yes.

2 Q. It turns out that on page 5 there are
3 three accident reports that are not within the
4 10-year period which you analyzed; isn't that
5 right? In other words, they would be 7 Jan '99,
6 12 July '99, 31 August '00. Those three reports
7 would not be within the 10-year period you've
8 analyzed?

9 GEN. JEFFERSON: You're correct. I
10 think that was addressed when we submitted this.

11 Q. My reference is this. Judge Lam was
12 indicating there were 15 out of the 126 reports
13 you reviewed that made some sort of reference, and
14 I just wanted to correct that this 15 is not from
15 the total of the 126 you reviewed.

16 GEN. JEFFERSON: That would be correct.

17 Q. There would be 12 from that period;
18 isn't that right?

19 GEN. JEFFERSON: Uh-huh (affirmative).

20 Q. I'm sorry, sir?

21 GEN. JEFFERSON: That would be correct.

22 Q. If I could direct your attention, sir,
23 to the very first reference to an accident report
24 of 26 December '89, underlined on my copy, at
25 least, it says, "The pilot," underlined,

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1 "intentionally delayed ejection to further avoid
2 populated areas in his flight path." Do you see
3 that, sir?

4 GEN. JEFFERSON: Yes, I do.

5 Q. What were those populated areas, were
6 they cities?

7 GEN. JEFFERSON: I'll have to look at
8 the document.

9 MR. GAUKLER: General Cole, can you
10 answer the question directly?

11 GEN. COLE: May I, sir?

12 MR. SOPER: Certainly.

13 GEN. COLE: In the Accident
14 Investigation Report it simply specifies them as
15 populated areas. The quote from the Accident
16 Investigation Report says, "During a zoom and
17 glide the pilot made frequent corrections to his
18 flight path to avoid populated areas."

19 Q. So we don't know if that was a city?

20 GEN. COLE: There's nothing to indicate
21 it was a city or a small village.

22 Q. I see. There's no indication that the
23 pilot attempted to avoid a specific site, is
24 there, other than populated areas?

25 GEN. COLE: No. Well, there's another

1 comment at the bottom of page 2 of the Accident
2 Investigation Report that says, "The pilot
3 intentionally delayed ejection below minimums to
4 avoid populated areas and flight path," which
5 tells me there was more than one.

6 Q. Actually, that's the sentence I read.
7 But it doesn't give us any clue as to what the
8 populated area was that he was avoiding, does it?

9 GEN. COLE: I don't see any degree of
10 specificity here, but one life is as precious as
11 ten.

12 Q. I see that, sir, but it's easier to
13 avoid a city than a cask of fuel, isn't it?

14 GEN. COLE: Well, I would presume so,
15 yes, sir.

16 Q. And I note here that the pilot ejected
17 at 1400 feet MSL. Do you see that?

18 GEN. COLE: I see that.

19 Q. And this particular accident happened
20 at sea level; isn't that true?

21 GEN. COLE: That's true.

22 Q. So that would also be 1400 foot AGL,
23 above ground level?

24 GEN. COLE: Not necessarily. Where he
25 was near, Kunsan, I have landed there. I can't

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1 recall how far it is above sea level. It might be
2 somewhat less than that. I don't know how much.

3 Q. But it's certainly an indication he's
4 below the published minimums for ejection,
5 wouldn't you --

6 GEN. COLE: That is an accurate
7 statement, but he did it, I'm certain, to further
8 avoid populated areas.

9 Q. And if I could direct your attention,
10 sir, to the next one, I'll go with you, General
11 Cole, I can't remember who read these particular
12 excerpts, but referring to the 16 March 1990
13 report. First of all, this is one of the reports
14 that you determined on Exhibit X could not happen
15 under Skull Valley conditions; isn't that right?

16 GEN. COLE: Let me check the master
17 list. Just a moment. The problem occurred 19
18 minutes into his flight time. And that's correct,
19 he was on a functional check flight, which is an
20 instance where you take an airplane up and test
21 out various systems. You wouldn't be doing that
22 in Skull Valley.

23 Q. This particular accident happened in a
24 bombing range, did it not?

25 GEN. COLE: It appears it did if he was

1 near Wendover. I'm trying to find the coordinates
2 of the exact location of it.

3 MR. GAUKLER: General Cole, do you have
4 the table of the airport crash report in front of
5 you?

6 Q. He was over a bombing range, not
7 conducting bombing, is my question, sir.

8 GEN. COLE: I believe he was.

9 Q. And what site is it that the pilot
10 located and then tried to avoid that you make
11 reference to this?

12 GEN. COLE: This is a matter of
13 conscious distressal and decision by the pilot.
14 He simply pointed it towards an uninhabited area
15 of the desert and successfully ejected.

16 Q. It seems to me, General, that he was in
17 an uninhabited area of the desert and there was
18 nothing to avoid here. Is there something that
19 you think the report makes reference to that the
20 pilot was avoiding?

21 GEN. COLE: It was an observation by
22 the board that he made a conscious decision to
23 point it towards and uninhabited area of the
24 desert.

25 Q. Well, does it say he made a conscious

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1 decision or is that your editorial?

2 GEN. COLE: Well, that's my editorial.
3 But that's also a quote from the Accident
4 Investigation Report.

5 Q. Well, the quote is, "He pointed the
6 aircraft towards an uninhabited area of desert."

7 GEN. COLE: That's accurate.

8 Q. We don't have any idea if he was trying
9 to avoid anything, do we?

10 GEN. COLE: Well, if he made a
11 conscious decision to point it towards an
12 uninhabited area, it just could be he was pointing
13 it away from a ranch or something like that.

14 Q. My question is, sir, the Accident
15 Report doesn't reveal anything, does it?

16 GEN. COLE: As I scan it, I can't
17 specifically find anything that would say what he
18 is turning away from. I would restate, however,
19 that he points it towards an open uninhabited
20 area. That's a conscious decision to do so.

21 Q. So he pointed the aircraft
22 affirmatively in some direction, but we don't know
23 if he took any specific avoidance maneuvers; is
24 that right?

25 GEN. COLE: We don't know that.

1 Q. If I could direct your attention to the
2 following Accident Report, 20 February 1991, the
3 underlined portions read: "Could see the ground
4 and determined that it was safe to jettison his
5 fuel wing tanks and ordnance." Also underlined
6 is, "He checked his flight path and determined
7 there was nothing to harm, no inhabited areas or
8 buildings." So the pilot, if that's true, having
9 determined there is nothing to avoid, took no
10 avoidance action, did he?

11 GEN. COLE: Well, if there was nothing
12 to avoid when he's looking out the window he
13 doesn't need to.

14 Q. That's my point. So this is not an
15 example of where a pilot took an avoidance action?

16 GEN. COLE: Sir, it is, because he is
17 not avoiding a specific thing, he is checking to
18 make sure there's nothing that he needs to avoid
19 out there. There's six of one and half a dozen of
20 the another.

21 Q. That's the distinction I was looking
22 for, sir. Thank you. This is also an accident
23 that you determined could not happen under the
24 Sevier B conditions; is that right?

25 GEN. COLE: We've said no, it would

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1 not.

2 Q. If I could direct your attention, sir,
3 to the next reference to a report, 16 December
4 1991, you have an underlined portion here. It
5 says, "The aircraft impacted an open field and
6 Captain Rue walked to a nearby house and made a
7 collect telephone call to Shaw Air Force Base."

8 GEN. COLE: That's correct.

9 Q. What do we know about this impact other
10 than it occurred in an open field?

11 GEN. COLE: We know that he made a
12 controlled ejection which meant he ran his
13 procedures, he made sure he wasn't going to hit
14 anything when he ejected.

15 Q. How do you know that, sir?

16 GEN. COLE: He commenced a descending
17 right-hand turn towards an emergency divert
18 airfield. He had a controlled ejection which
19 means he had time and he looked --

20 Q. Now, how do you know he looked?

21 GEN. COLE: Well, his eyes are open and
22 he's looking through the HUD out the front of the
23 airplane.

24 Q. Well, sir, I'm looking for a reference
25 in this Accident Report to where he either looked

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1 or took some measure to avoid something. And do
2 you see any such reference?

3 GEN. COLE: Well, if there's nothing to
4 avoid and if he looks and sees nothing in front of
5 his aircraft and it hits in an uninhabited area,
6 that is a success.

7 Q. Again, sir, is there any reference in
8 this report to this pilot avoiding anything on the
9 ground?

10 GEN. COLE: Lower 41 decided to
11 initiate a controlled ejection in accordance with
12 -1 emergency procedures.

13 JUDGE FARRAR: Where are you reading
14 from?

15 GEN. COLE: Page 4, paragraph 2. "He
16 had sufficient time after making the decision to
17 eject, lower 41 confirmed the seat was armed and
18 assumed the proper body position and pulled the
19 ejection handle. He landed in some trees and came
20 to rest about two feet off the ground."

21 Q. So what in that would specifically
22 refer to the pilot's locating or avoiding a
23 specific site?

24 GEN. COLE: Well, having flown in that
25 area, there are a fair amount of houses and farm

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1 houses in the region of Florence, Alabama.

2 Q. Sir, that's not my question. I need
3 you to be responsive. My question is whether
4 there's something in the Accident Report that
5 indicates specifically that the pilot tried to
6 avoid a ground site?

7 GEN. COLE: Well, there's a clue in the
8 descending right-hand turn. The fact that the
9 aircraft impacted in an open field. The fact that
10 he's looking out the front end of the airport
11 through the HUD tells me he saw nothing there that
12 he necessarily needed to avoid. If he had open
13 area, that's another success story.

14 Q. So it's your interpretation there was
15 nothing there he needed to avoid?

16 GEN. COLE: We do not know that because
17 very often in the process of an accident
18 investigation unless they get a debrief from the
19 pilot that he actually did do a new maneuver, the
20 pilot may or may not say that, he may not even
21 think of saying that in the debriefing. So what
22 you're alluding to here, sir, is not necessarily
23 so.

24 Q. So it's your testimony that we cannot
25 tell from this report whether or not there was

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1 anything to avoid?

2 GEN. COLE: You cannot be 100 percent
3 certain, but the fact that it impacted a open
4 field is a clue. When he was making a turn, he
5 was getting radar vectors that he was clear.

6 Q. So it would be the fact that the
7 aircraft impacted an open field that you think is
8 significant in this report?

9 GEN. COLE: I do, sir.

10 Q. There is no more specific reference to
11 avoidance than that?

12 GEN. COLE: In this particular AIB I
13 cannot see a more specific incidence than that
14 unless my colleagues have found one that I
15 haven't.

16 Q. This is a report that you have
17 characterized on Exhibit X as not being one that
18 could occur in Sevier B conditions; is that right?

19 GEN. COLE: That's correct. But let me
20 review once again the controlled ejection
21 procedure in the -1, and one of the items is
22 direct the aircraft away from populated areas.
23 And because he did a controlled ejection, which
24 that is cited in there, he obviously steered the
25 aircraft away from populated areas as part of the

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1 procedure.

2 Q. I understand the procedure, General.
3 Thank you for your thoughts on that. If I might
4 direct your attention to the next Accident Report
5 referred to --

6 JUDGE FARRAR: Wait a minute, Mr.
7 Soper. General, you just said he obviously
8 directed. Would it be better to say you're
9 drawing the inference that he directed?

10 GEN. COLE: That's a better statement,
11 sir, because it was specifically cited as a
12 controlled bailout procedure in the -1, that's one
13 of the steps you do.

14 JUDGE FARRAR: Mr. Soper, just to help
15 the record, you've been referring as you go
16 through these reports to them by their date. We
17 identified them as Joint Exhibits 1 through 15.
18 The first four you've just done are Joint Exhibits
19 1 through 4. Would you be good enough when you
20 use the date, also use the Exhibit No. for us?

21 MR. SOPER: Very well, your Honor,
22 thank you.

23 MR. SILBERG: Excuse me, I think I may
24 have misheard. There was a question and I'm not
25 sure we got an answer to the question by Mr. Soper

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1 as to whether this accident was one that could
2 happen in Skull Valley.

3 MR. SOPER: No, that wasn't the
4 question. It was whether it would occurred under
5 Sevier B conditions as indicated on Exhibit X.

6 MR. SILBERG: Was that question
7 answered Mr. Soper?

8 Q. (By Mr. Soper) General Cole?

9 JUDGE FARRAR: I thought so.

10 Q. Just to make it clear, you've indicated
11 that it would not happen under Sevier B
12 conditions; wasn't that correct?

13 GEN. COLE: That's accurate.

14 JUDGE FARRAR: Mr. Soper, give us one
15 minute here.

16 (The Board conferred off the record.)

17 JUDGE FARRAR: Go ahead, Mr. Soper.

18 MR. SOPER: Thank you, your Honor.

19 Q. (By Mr. Soper) General Cole, sir, if I
20 could direct your attention continuing on this
21 same document to the Aircraft Report of 31 May
22 '92, which is also described in the joint Exhibit
23 No. 5, I see that the underlined portion here
24 reads: "After turning the aircraft toward an
25 uninhabited area, the pilot ejected safely and the

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1 aircraft crashed and was destroyed." Is there any
2 reference in the Accident Report, General, as to
3 what, if anything, the pilot was avoiding in this
4 particular case?

5 GEN. COLE: There are two citations,
6 sir. The first one is a Summary of Facts, which
7 is the quote there, "After turning the aircraft
8 towards an uninhabited area." The second one is
9 on page 2, paragraph 4, where he made the decision
10 to abandon the aircraft over an unpopulated area.
11 So that tells me there were populated areas or
12 inhabited areas and he made an act of conscious
13 addressal and chose an uninhabited area.

14 Q. The Accident Report, sir, does it make
15 any reference to what the inhabited area was that
16 the pilot was trying to avoid?

17 GEN. COLE: It does not.

18 Q. It might have been a city?

19 GEN. COLE: It might have been a small
20 town, it might have been a city, it might have
21 been a small group of buildings.

22 Q. We just don't know, do we?

23 GEN. COLE: We don't know. But the
24 fact that it's consciously addressed in the
25 official report, the Accident Investigation

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1 Report, tells me it was a matter of consideration
2 for the pilot.

3 Q. So he at least turned the aircraft
4 towards an uninhabited area?

5 GEN. COLE: That's correct, sir.

6 Q. How did you characterize this accident?
7 Take that back. You, if I understand,
8 characterized this as an accident that could not
9 happen in Sevier B conditions; is that true?

10 GEN. COLE: Let me check my list. It
11 was no for Sevier B, that is correct.

12 Q. Thank you, General. Directing your
13 attention to the next accident that occurred on 18
14 September 1992, also described in the joint
15 Exhibit No. 6, the underlined portion says,
16 "Turned the aircraft to a northerly heading toward
17 the published controlled bailout area to minimize
18 ground impact damages or injuries. The pilot
19 pointed the aircraft to a low populated -- low
20 populated area and ejected." And this seems to
21 say that the pilot pointed the aircraft towards a
22 populated area, although low populated.

23 GEN. COLE: Well, two good decisions
24 here, sir. First the fact that there was a
25 published controlled bailout area nearby which

1 bases set those up in areas in low to none
2 population density so you could fly the airplane
3 there, control it and get out. And secondly, if
4 says it again, that he pointed the aircraft toward
5 a low populated area and ejected.

6 Q. And it turns out that the pilot in this
7 case hit a house; isn't that correct?

8 GEN. COLE: Give me a moment, please.
9 It says, "The aircraft impacted in a wooded marshy
10 area approximately some miles northwest of Duluth
11 Airport at 1001 hours and was destroyed. A single
12 fireball -- a single explosion and fireball
13 occurred with little or no residual fire present."

14 JUDGE FARRAR: General, where are you
15 reading from there?

16 GEN. COLE: I'm sorry, your Honor, I
17 apologize. I was on page 5, paragraph (e).

18 Q. I see on page 2 of (5) that there was
19 at least superficial damage to a nearby house. Do
20 you see that, sir?

21 GEN. COLE: Page 2, paragraph 2?

22 Q. Paragraph 5, last sentence.

23 GEN. COLE: Superficial damage to a
24 nearby house, that's correct. Page 2, paragraph
25 5.

1 Q. Thank you. And is there any indication
2 as to what the site was or the object was that the
3 pilot was trying to avoid? Any specific reference
4 to that?

5 GEN. COLE: I can find no other
6 citation. He turned the aircraft first to the
7 controlled bailout area, which was a good move,
8 good procedure. Then he pointed the aircraft to a
9 low populated area and ejected. We don't know how
10 many houses, how many groupings of houses.
11 Superficial damage to one house with no reported
12 deaths or injuries is probably a pretty good
13 outcome.

14 Q. The outcome may be good, General, but
15 we don't know what, if anything, specifically the
16 pilot was trying to avoid from this?

17 GEN. COLE: From this we do not. But
18 the fact that in the Accident Investigation Report
19 it said, "The pilot pointed the aircraft to a low
20 populated area and ejected," tells me there was a
21 more populated area than the one he impacted.

22 Q. Well, that may tell you that, sir, but
23 my question is, the report doesn't make any
24 specific reference to a ground site that the pilot
25 was trying to avoid. That was my question, sir.

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1 GEN. COLE: It does not make any
2 specific entry --

3 Q. That's the answer I was looking for.
4 And again, sir, this is an accident that you've
5 characterized as not able to occur in Sevier B
6 conditions; isn't that right?

7 MR. GAUKLER: Objection, I don't think
8 that's a correct characterization.

9 JUDGE FARRAR: General, is it?

10 GEN. COLE: I'm checking the list right
11 now. It is no for Sevier B flight conditions.

12 Q. Thank you. If we might move on,
13 General, to the following accident of 2 February
14 1994, also found more fully in the Joint Exhibit
15 No. 7. The underlined portion, which I assume is
16 for our -- to emphasize the important parts reads,
17 "Directed the aircraft toward an uninhabited
18 wooded area and safely ejected."

19 GEN. COLE: That's correct. May I
20 refer you to page 2 of the Accident Investigation
21 Report, paragraph (d)? The last sentence where it
22 states, "After six unsuccessful attempts at
23 restart, the pilot directed the aircraft towards a
24 small ridgeline and ejected approximately 1800
25 feet above ground level. The aircraft crashed in

1 an uninhabited wooded area south of Newport,
2 Tennessee".

3 Q. How high was this aircraft when it
4 experienced the problems?

5 GEN. COLE: "As he leveled off at
6 approximately 13,000 feet he felt and heard what
7 he thought to be a loud explosion." That's on
8 page 2, paragraph 2, middle of the paragraph.

9 Q. Thank you. 13,000 feet, is that AGL?

10 GEN. COLE: It doesn't say.

11 Q. And is there any more specific
12 reference to any object that the pilot was trying
13 to avoid in this particular case?

14 GEN. COLE: This is once more a matter
15 of conscious addressal. He directed the aircraft
16 towards an uninhabited wooded area and ejected.
17 And in a controlled bailout position it says you
18 turn from inhabited areas.

19 Q. We don't know from this report whether
20 he was trying to avoid a city or whether or not
21 there was anything at all to avoid, but we do know
22 that he pointed the aircraft towards an
23 uninhabited wooded area. Is that a correct
24 assessment?

25 GEN. COLE: The fact that it's cited in

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1 here tells me he pointed it away from something.
2 We just don't know what it is.

3 Q. I see. And this is an accident that's
4 been characterized by you, sir, as one that would
5 not occur in Sevier B conditions. Is that true?

6 GEN. COLE: Just a moment, sir. It
7 does not occur in Sevier B.

8 Q. Directing your attention to the next
9 accident, general, 20 January 1996.

10 JUDGE FARRAR: Hold it, Mr. Soper.
11 General Cole, when you're responding to a question
12 and are quoting from the report, would you try to
13 be sure to give us the page and the paragraph?
14 That will help not only us, but the many reviewers
15 to come.

16 GEN. COLE: Yes, your Honor.

17 JUDGE FARRAR: Go ahead, Mr. Soper.

18 MR. SOPER: Thank you, your Honor.

19 Q. (By Mr. Soper) General Cole, if I
20 could have you look at 20 January '96, also found
21 more fully in Joint Exhibit No. 8.

22 GEN. COLE: Excuse me. 20 January '96?

23 Q. Yes. Isn't that the next one following
24 the one we just discussed?

25 GEN. COLE: I have it. Thank you.

1 Q. The underlined portions read: "The
2 mishap pilot directed the aircraft away from
3 inhabited areas and ejected. He testified that he
4 delayed ejection to below recommended altitude to
5 insure collateral damage was minimized."

6 GEN. COLE: Can you give me the
7 citation and page where you're reading, sir?

8 Q. I'm reading from the QQQ, the summary?

9 GEN. COLE: I apologize. Page 3.

10 Q. And it's the underlined portions that
11 are part of that.

12 GEN. COLE: Got it.

13 Q. Part of that document that's been
14 marked. Do you find where I'm referring to,
15 General?

16 GEN. COLE: I do.

17 Q. I would ask you the same question,
18 General. It doesn't seem to me that the report
19 mentions any specific site or area on the ground
20 that was trying to be avoided by the pilot. Is
21 that true? Do you see some reference to a
22 specific site the pilot was trying to avoid?

23 GEN. COLE: One moment, sir. I can't
24 find a specific reference to that.

25 Q. I'm sorry, General? You couldn't find

1 a specific reference to any object he was trying
2 to avoid?

3 GEN. COLE: I cannot.

4 Q. Thank you, sir. It appears to me,
5 General, that this accident, the event that
6 initiated the accident occurred at 31,000 feet; is
7 that right?

8 GEN. COLE: I believe it was 13,000
9 feet. No, I'm sorry, disregard. That was the
10 previous one. Just a moment.

11 Q. I suggest it's page 2 in the second
12 paragraph, sir.

13 GEN. COLE: Thank you. There it is,
14 Loma 21 flight climbed to 210.

15 Q. So this particular pilot would have had
16 a lot of time being at that altitude, would he
17 not?

18 GEN. COLE: He would have.

19 Q. And that's approximately six times
20 higher than pilots fly in Skull Valley; isn't that
21 right?

22 GEN. COLE: That's approximately
23 correct.

24 Q. And you've characterized this as an
25 accident that could not happen in Skull Valley and

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1 nor under Sevier B conditions; isn't that correct?

2 GEN. COLE: Wouldn't happen in Sevier B
3 and not in Skull Valley.

4 Q. Thank you. If I could direct your
5 attention to 11 July 1996, which is the Joint
6 Exhibit No. 10. It's found at the bottom of page
7 3 of what's been marked as QQQ. I was waiting for
8 you to locate that, General. Should I just go
9 ahead?

10 GEN. COLE: Yes, I have it.

11 Q. Thank you. The underlined portion here
12 says that, "He chose not to accomplish the first
13 step, external stores jettisoned because he was
14 approaching a populated area at the time and felt
15 he could delay dropping his wing fuel tanks until
16 over a more suitable area."

17 GEN. COLE: Correct.

18 Q. In fact, what happened in this crash,
19 sir, was that he did hit a residential area?

20 GEN. COLE: That's correct.

21 Q. And a four-year-old boy was killed;
22 isn't that right?

23 GEN. COLE: Right.

24 Q. So wouldn't we say this was an
25 unsuccessful attempt to avoid something?

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1 GEN. COLE: He made a series of
2 decisions to avoid other populated areas and was
3 maneuvering to get out over the water when lost
4 the aircraft. This one simply did not work out.

5 Q. Wasn't this just a case of poor
6 judgment? He should have gone out over the water
7 to start with, shouldn't he?

8 GEN. COLE: That would have been a
9 better choice.

10 Q. And this is characterized as an event
11 that could not happen under Sevier B conditions in
12 your Exhibit X, too?

13 GEN. COLE: That's correct.

14 Q. If I can direct your attention, sir, to
15 the accident of 21 November '96 described in Joint
16 Exhibit 11.

17 GEN. COLE: All right.

18 Q. Go right to the underlined portion
19 here. "Upon receiving a directional heading from
20 the Tulsa Radar Facility to an unpopulated area,
21 the mishap pilot turned to this heading and
22 prepared for ejection." Then underlined is, "The
23 aircraft impacted a field." Now, I'm aware that
24 he apparently received a directional heading, but
25 we don't know whether or not there was some object

1 he was trying to avoid here, do we?

2 GEN. COLE: May I read paragraph 2,
3 page 3, first sentence.

4 Q. Please.

5 GEN. COLE: "After receiving a vector
6 of 220 degrees from Kansas City Center, Ozark 3
7 turned to this clear area and prepared for
8 ejection."

9 Q. Okay, thank you. Do we know if he was
10 trying to avoid a particular ground site from this
11 accident report, sir?

12 GEN. COLE: In this instance, sir, he
13 was taking a vector from Kansas City Center
14 towards a clear area, meaning they were helping
15 him do that.

16 Q. So would that mean that he was not able
17 to see the ground himself? Is that what that
18 suggests to you?

19 GEN. COLE: Not necessarily. You take
20 whatever help you can get in a situation like
21 that.

22 Q. In fact, in this accident what
23 happened, there was damage to buildings in the
24 amount of \$96,000; isn't that true? That's in the
25 first paragraph I believe of the full accident

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1 report, sir.

2 GEN. COLE: I was back in the summary.

3 Thank you.

4 Q. It's in the last portion of the first
5 paragraph.

6 GEN. COLE: I see the local TV station
7 and on-scene local newspapers also present.

8 Acting public affairs director answers queries.

9 Perhaps the articles are in the tabs.

10 Q. What I have on Joint Exhibit 11, sir,
11 in the first paragraph, third to the last
12 sentence, "Estimated private property damage was
13 \$96,433." Do you see that, sir?

14 MR. GAUKLER: You're talking about the
15 first paragraph at the very top of the page; is
16 that right?

17 MR. SOPER: Yes.

18 MR. GAUKLER: The very first paragraph
19 on the top of the first page.

20 GEN. COLE: Oh. Under the authority
21 statement. I see that, yes.

22 Q. And in this particular case the pilot
23 wasn't able to see the ground at all, was he,
24 because there was an overcast layer at 2,100 feet?
25 Looking at the weather, paragraph 18 on page 6.

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1 GEN. COLE: That appears to be so.

2 Q. And this is an accident that you've
3 characterized as one that could not occur in Skull
4 Valley nor under Sevier B conditions; is that
5 true?

6 GEN. COLE: No in Sevier B, yes in
7 Skull Valley.

8 Q. Continuing, General, if we look at 15
9 December 98, before we do that, your Honor, am I
10 doing okay here? I don't want to make the
11 reporter tired or anything. May we continue?

12 JUDGE FARRAR: You're doing fine and
13 she didn't get tired Monday so this is child's
14 play for her.

15 MR. SOPER: Okay. Good. I see I only
16 have four more if everyone will bear with me.

17 JUDGE FARRAR: Keep going.

18 Q. (By Mr. Soper) General, concerning the
19 15 December '98 accident, more fully described in
20 Joint Exhibit No. 12, I see the underlined portion
21 reads: "Ejection became his primary
22 consideration. He made initial turns to avoid
23 populated areas before jettisoning his fuel
24 tanks." And then at the bottom -- well, let me
25 continue. "Although the report does not mention

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1 any further maneuvering by the pilot, he did
2 attempt two starts and airplane impacted in open
3 level uninhabited terrain." Do you see that
4 portion sir?

5 GEN. COLE: I don't have that portion
6 yet. Just a minute.

7 Q. That's on page 5 at the top of the
8 page. Again we're at QQQ. It's the summary of
9 the accident.

10 GEN. COLE: Summary of the accident,
11 right. I see that.

12 Q. Again, it says he made initial turns to
13 avoid populated areas before jettisoning his fuel
14 tanks. Is there any further indication in the
15 accident report of exactly what the ground site
16 was that the pilot would be trying to avoid?

17 GEN. COLE: The fact that he made
18 initial turns says there was some ground site in
19 populated areas.

20 Q. It might have been a city? It might
21 have been a city; isn't that true, sir?

22 GEN. COLE: It might have been a town,
23 it might have been a city.

24 Q. Again, now these reports are ones that
25 we haven't reviewed before and they're not within

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1 your Exhibit X; isn't that correct?

2 GEN. COLE: That is correct.

3 Q. Let me go to the following one which is
4 7 January 1999, Joint Exhibit 13. The underlined
5 portion reads: "To turn left towards the
6 relatively unpopulated," it says R, I assume
7 that's a misprint. "northwest of loop. The pilot
8 also waited for a few seconds to jettison the
9 stores because he wanted to find an unpopulated
10 area." Do we have any indication from the
11 Accident Report, sir, what, if any, specific
12 ground site this pilot might have been trying to
13 avoid?

14 GEN. COLE: A moment, please.

15 MR. TURK: May I ask for a
16 clarification? Are we still on No. 12 or did you
17 move to 13?

18 MR. SOPER: It's 13. Did I not say
19 that?

20 JUDGE FARRAR: I think you did, but --

21 GEN. COLE: Page 4, paragraph 2,
22 two-thirds of the way down. "Pilot initiated a
23 momentary right turn, but he was quickly advised
24 and assisted by the control stick technician who
25 turned left towards a relatively unpopulated area

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1 northwest of Luke. The MP waited a few seconds to
2 jettison the stores because he wanted to find an
3 unpopulated area."

4 Q. So it was the populated area of Luke
5 that he was trying to avoid; is that right?

6 GEN. COLE: It doesn't exactly say
7 that.

8 Q. And so we're not really sure what it
9 was he was trying to avoid, would that be right?

10 GEN. COLE: It was something because he
11 initiated a momentary right turn, but was quickly
12 advised and assisted on the stick to turn left
13 towards the relatively unpopulated area northwest
14 of Luke.

15 Q. That was actually on advice from the
16 back seater, not the pilot, wasn't that right?

17 GEN. COLE: That appears to be so, yes.

18 Q. And it turns out this aircraft did, in
19 fact, impact a farm, a car and hit a golf course;
20 isn't that true?

21 GEN. COLE: In fact, at approximately
22 page 5, "100 feet south of Peoria Avenue, some of
23 the wreckage scattered across Peoria Road. Some
24 of the wreckage knocked down power lines -- power
25 poles and power lines. Although the wreckage

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1 impacted on private property near a house, no
2 structures, people or animals were actually hit."
3 That's page 5, paragraph 6, two-thirds of the way
4 down.

5 Q. I'm reading on page 2, paragraph (b)
6 towards the top. It says, "Portions of the
7 external tanks hit a civilian Ford pickup truck on
8 a public highway."

9 GEN. COLE: I have it. This is page 2,
10 paragraph (b). "The main crash site is located on
11 The Justice Brothers farm two miles north of Luke.
12 Additional wreckage was spread on the property
13 belonging to Fairway Farms. Portions of the
14 external tank hit a civilian Ford pickup truck on
15 a public highway."

16 Q. Then go on, sir.

17 GEN. COLE: "The driver suffered cuts
18 and bruises to his head and may be suffering
19 cervical vertigo. To date no civil claims have
20 been presented. The damage to the Air Force
21 property was \$22,776,000, which is the price of
22 the airplane.

23 Q. Thank you, sir. The accident, going
24 on, the accident of 12 July 1999, Joint Exhibit
25 13, underlined portion --

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1 JUDGE FARRAR: That's 14, Mr. Soper, I
2 think.

3 MR. SOPER: Sorry. I have two 13s
4 here. Thank you, your Honor.

5 Q. (By Mr. Soper) Joint Exhibit 14. The
6 underlined portion is, "The mishap pilot turned
7 the mishap aircraft towards an uninhabited area in
8 preparation for ejection."

9 GEN. COLE: That's correct. Please
10 note page 1, paragraph 2, second to the last
11 sentence. "The pilot turned the aircraft towards
12 an uninhabited area at 5,500 feet mean sea level.
13 Accomplished pre-ejection procedures. Zoomed the
14 aircraft to gain altitude and initiated a
15 successful ejection with only minor injury."

16 Q. And does the accident report make
17 reference to what ground site, if any, the pilot
18 was -- or if there was any avoidance efforts on
19 the pilot?

20 GEN. COLE: Page 3, last paragraph,
21 about four sentences from the bottom. "The MP
22 turned the aircraft towards an uninhabited area in
23 preparation for ejection." The logic here is that
24 he was turning from an inhabited area. I see no
25 further instances or indications.

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1 Q. Sir, this in the middle of the state of
2 New Mexico on the eastern border. Isn't it true
3 that this is just a desert area?

4 GEN. COLE: Not unless you were an
5 Indian living there, sir.

6 Q. Well, in any event, we don't have any
7 idea of the specific site that the pilot was
8 trying to avoid, do we, from this accident report?

9 GEN. COLE: I think we know he turned
10 from an uninhabited area.

11 Q. Thank you, sir. If we go on to Joint
12 Exhibit 15, the accident of 31 August 2000.
13 Underlined portion reads, "The mishap pilot made a
14 left-hand turn to get the aircraft over the water
15 to avoid any populated areas. He subsequently
16 caught a glimpse of the area below the clouds and
17 was able to visually orient himself. He then
18 directed one of the other aircraft to clear the
19 area for boats."

20 GEN. COLE: That's correct.

21 Q. So what action did the pilot take to
22 avoid a particular ground site here, sir? I'm not
23 sure I --

24 GEN. COLE: Two actions. He took it
25 out over the water where there would be no

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1 inhabited dwellings. And second, he went the
2 extra measure of getting some help from his
3 wingman to help clear the area. Just a moment.
4 Page 3, last paragraph. "The mission pilot
5 entered a broken cloud deck at approximately 3 to
6 4,000 feet MSL. Shortly thereafter he was able to
7 catch a glimpse of the Absecon Inlet and visually
8 orient himself. The mission pilot directed Snake
9 11 to clear the area of boats at approximately
10 1937 Zulu. The mission pilot tried a secondary
11 engine controlled start. This had no positive
12 effect on engine operation. Atlantic City
13 approach cleared the air space for emergency
14 aircraft. The SOF reminded the MP of a minimum
15 ejection altitude of 2,000 feet AGL. The mission
16 pilot ejected at 1938 Zulu."

17 Q. Does the accident make any reference to
18 a specific ground site that the pilot was trying
19 to avoid?

20 GEN. COLE: Well, only that he was
21 heading towards Atlantic City International
22 Airport. And, obviously, if he was having engine
23 failures and couldn't make that airfield he would
24 try to turn away from that to an uninhabited area.
25 In this case, good decision to go out over the

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1 water and the wingman cleared the area for boats.

2 Q. So it was probably in this case the
3 Atlantic City Airport he was turning away from.
4 Would you suggest that?

5 GEN. COLE: Possibly that or other
6 dwellings in between here or in his flight path.

7 Q. Again, we just can't tell from this
8 report, can we, sir?

9 GEN. COLE: Obviously, he was turning
10 away from something. We can't tell what it was.

11 Q. Thank you.

12 MR. SOPER: I'm not going to cover the
13 other anecdotal evidence here, your Honor. It's
14 experience that we'll argue about in a minute when
15 this is offered, but it's 40 or 50 years old,
16 second and third hand, and I'm not going to drag
17 everybody through details of something so obscure
18 and so remote. But I do have one area of -- that
19 I would like to switch to, provided your Honors
20 don't have any questions at this point of the
21 panel.

22 JUDGE FARRAR: What does clear the area
23 of boats mean?

24 GEN. COLE: It means -- clear is a term
25 in aviation meaning you clear, you look to make

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1 sure it's clear.

2 JUDGE FARRAR: Oh, okay. So he's not
3 trying to tell people to get out of the way?

4 GEN. COLE: He's looking.

5 JUDGE FARRAR: He's telling the
6 distressed pilot that there's nothing there?

7 GEN. COLE: Yes, sir.

8 JUDGE FARRAR: Mr. Soper, were you
9 going to ask why these accidents are categorized
10 this couldn't happen in one of the two areas?

11 MR. SOPER: I wasn't going to do that,
12 your Honor.

13 JUDGE FARRAR: Do you mind if I do?

14 MR. SOPER: Please.

15 JUDGE FARRAR: In these two columns it
16 says It Can't Happen Here and It can't Happen
17 There, Skull Valley and Sevier B. We may have
18 covered this earlier, but why couldn't it happen
19 there?

20 COL. FLY: Your Honor, we identified
21 that in our prefiled and also in our testimony.
22 We'll find the reference for you and in the
23 meantime I'll try to give you a quick verbal, if
24 that's okay. And my colleagues can jump in. Hill
25 told us that predominant traffic through Skull

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1 Valley was in the Sevier B MOA, which is a defined
2 altitude and typical airspeed regime. So when we
3 said Sevier B MOA we tried to pick those accidents
4 that met those specific conditions.

5 JUDGE FARRAR: Let me cut you off in
6 the interest of time and let me tell you where I'm
7 going with this question. Are you trying to
8 suggest that if the accident, if one of these
9 accidents we talked about happened at 12,000 --
10 I'm just using a hypothetical here -- 12,000 feet
11 30 minutes into the flight, that means if that
12 flight had taken off from Hill it wouldn't have
13 happened in Skull Valley because you would transit
14 Skull Valley sooner or lower than that?

15 COL. FLY: No, your Honor. It would be
16 for Sevier B, it was if at the initiation of
17 whatever the incident was that started the
18 accident process, if the pilot was in flight
19 parameters as the -- the same as those in the
20 Sevier B MOA, that defined air space. For the
21 case of the 12,000 foot engine failure, he doesn't
22 meet that criteria. We clearly recognize that
23 somebody at 12,000 feet could as well have been at
24 5,000 feet and have his engine quit. So we came
25 up with a category that we defined as Skull Valley

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1 type event, meaning could this accident,
2 regardless of the initial parameters, have
3 reasonably happened within Skull Valley. So this
4 engine guy who happened to be five or 8,000 feet
5 above the top of the Sevier B MOA, we would say
6 yes, he would be a Sevier -- I'm sorry, Skull
7 Valley type event because that engine could have
8 just as well quit at 5,000 feet as it did at
9 15,000 feet.

10 JUDGE FARRAR: Well, why can't every
11 one of these just as well have happened in Skull
12 Valley or Sevier B? In other words, if my fan
13 belt breaks on the way to the hotel tonight, it
14 could have broken -- or it didn't break on the way
15 up here tonight, but it could have. Or maybe I'm
16 totally -- maybe I'm not framing my --

17 COL. FLY: I think using your analogy,
18 your Honor, that would fall under the category of
19 a Skull Valley event.

20 MR. GAUKLER: Could you give, your
21 Honor, an example of a event that you would not
22 have categorized as a Skull Valley type of event
23 to draw this distinction?

24 JUDGE FARRAR: I'm having trouble with
25 the distinction. I'll take help from you.

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1 COL. FLY: Your Honor, let's say that
2 they're out in a simulated aerial combat dogfight
3 and there's a misjudgment and they hit each other.

4 JUDGE FARRAR: Right. That couldn't
5 happen in Skull Valley, that I understand.

6 COL. FLY: That would not be a Skull
7 Valley type event.

8 JUDGE FARRAR: But if I'm cruising
9 along minding my business and my engine goes out,
10 it seems to me that could have happened when I
11 left the airfield, it could have happened in the
12 middle of my flight or the end of my flight.

13 COL. FLY: And we would have
14 categorized that as a Skull Valley type event and
15 we would have analyzed that under the category of
16 yes, we recognize that engine could have quit five
17 minutes after takeoff, an hour after takeoff.

18 JUDGE FARRAR: Okay. Maybe it's late
19 in the day, but as you went through and answered
20 Mr. Soper's questions and you said, Aha, you
21 characterized this as couldn't happen, and then
22 General Cole said, that's right, it couldn't
23 happen there, and I looked in vain on most of
24 those for an obvious reason. Now, if it had been
25 they were a midair collision I would say right.

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1 COL. FLY: I would offer, your Honor,
2 that if we went and looked at those accidents and
3 we looked at one column over to Skull Valley type
4 event, that most of those would have yes for Skull
5 Valley type event. He asked about the Sevier B
6 MOA, which is a very tightly defined set of
7 parameters. So it did not fit those criteria, but
8 it fit the larger criteria that we think is the
9 more valid population sample of those accidents
10 that could have happened, reasonably expected to
11 happen within Skull Valley. Whether they fit the
12 tightly defined parameters of the Sevier B MOA or
13 not.

14 JUDGE FARRAR: Okay. What is it about
15 the tightly defined parameters of the Sevier B MOA
16 that says if my engine flames out in ordinary
17 flight it couldn't have happened in Sevier B?
18 Now, we can do that either by examining each one
19 of these in which you put no, or tell me generally
20 like you just convinced me in the midair.

21 COL. FLY: I guess I would offer, your
22 Honor, that if we take this large population
23 sample size that we called Skull Valley type
24 events, that the Sevier B MOA population would be
25 a subset of the larger one in the Skull Valley.

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1 JUDGE FARRAR: Right. But tell me what
2 it is about Sevier B that, just like what you said
3 about midair collisions, what is it about Sevier B
4 that eliminates this?

5 GEN. JEFFERSON: Judge, let me offer,
6 what we did was establish a category to sort these
7 accidents in. One of the things we were looking
8 for, and we didn't really know what we were going
9 to find. One of the things we wanted to look for
10 was is there anything unique about the Skull
11 Valley altitudes and speeds and so forth that
12 might be different than the things like an engine
13 failure at 5,000 feet.

14 MR. GAUKLER: Again, you're talking
15 Sevier B?

16 GEN. JEFFERSON: Excuse me, Sevier B.
17 So we had a category for that. But we recognized
18 that was pretty narrow. So we did have a Skull
19 Valley type event which captured these other
20 things. Now, we also analyzed it from the
21 standpoint of all the aircraft that were in normal
22 flight that seemed appropriate for Skull Valley
23 type area.

24 JUDGE FARRAR: Okay. But I didn't see
25 anything about any of these Accident Reports, and

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1 granted, we went through them awful fast, I didn't
2 see anything about any of them that said the Board
3 of Inquiry, or whatever we call it, concluded that
4 the engine flamed out because he was in some
5 maneuver that only happens in a certain place and
6 which you say wouldn't happen in Sevier B.

7 GEN. JEFFERSON: I'm not sure of that.
8 Which one that is.

9 JUDGE FARRAR: I'm speaking generally
10 now without reference to any of them, Mr. Gaukler.

11 GEN. JEFFERSON: I see.

12 JUDGE FARRAR: You looked like you
13 wanted to --

14 MR. GAUKLER: Just for your future
15 reference, it's addressed in the testimony
16 approximately page 58, 59, starting with question
17 98. It identifies the three categories that he
18 analyzed the accidents under. So in other words,
19 it identifies it.

20 JUDGE FARRAR: Give me that page again.

21 MR. GAUKLER: It's on question 98 and
22 answer 98 is where I began.

23 JUDGE FARRAR: What page is that?

24 MR. GAUKLER: Page 58. And there they
25 kind of define Skull Valley type of event, Sevier

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1 B MOA, and the different categories that they used
2 in this table that we were looking at, what each
3 of those categories mean. And then the
4 conclusions that they got from analyzing these
5 accidents from three different viewpoints, if you
6 want to take a look at it.

7 JUDGE FARRAR: Okay. I remember this
8 testimony and that's why I'm asking the question.

9 MR. GAUKLER: Okay.

10 JUDGE FARRAR: I'm taking off and my
11 engine has some mechanical problem with it and
12 it's out. Now, you would say that happened on
13 takeoff. And when I'm in Sevier B I'm not taking
14 off. But if that same engine thing had happened
15 three minutes later I would have been in Sevier B.
16 In other words, unless you tell me that that
17 failure was caused, not happened, but was caused
18 by an act, by something that -- was caused by my
19 flight conditions, how can you say it couldn't
20 have happened somewhere else?

21 GEN. JEFFERSON: That's -- we tried to
22 be very careful about sticking to the facts of the
23 accident reports. If it showed that the plane was
24 in the parameters that are associated with Sevier
25 B then we counted that. But if it weren't, if

1 they weren't, we didn't count it there but we did
2 realize that an engine failure is more or less
3 random and so we would take those into account in
4 the Skull Valley type event category.

5 JUDGE FARRAR: But if it's more or less
6 random, how do you exclude it from Sevier B?

7 GEN. JEFFERSON: Because we were trying
8 to be as specific as possible with that category,
9 is there anything unusual about Sevier B accidents
10 that happen in that regime.

11 MR. GAUKLER: If I could just state
12 something, your Honor. I think Sevier B was just
13 a method of investigation where they looked at
14 accidents that met the parameters of Sevier B
15 regardless of whether or not another type of
16 accident could have happened there. And to the
17 extent that accidents could have happened there
18 they put it in the broader category Skull Valley
19 type events.

20 JUDGE FARRAR: Okay. Let me drop this
21 and I'll think about it overnight because maybe
22 I'm the one confused or maybe -- Mr. Soper, go
23 ahead.

24 MR. SOPER: Since you're thinking about
25 it overnight, your Honor, and Mr. Gaukler has had

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1 a little opportunity to testify and argue, let me
2 suggest that these categories are used for
3 computation of different statistics. Sevier B
4 excludes most of these crashes for the reason when
5 you calculate the crashes that the pilot remains
6 in control to be 90 percent, it's because most of
7 them are excluded from Sevier B conditions.
8 Otherwise you would have 50 percent of the planes
9 that are out of control.

10 MR. GAUKLER: That's absolutely not
11 true at all, your Honor.

12 MR. SOPER: Now, I let you have your
13 talk.

14 MR. GAUKLER: Well, you mentioned
15 special operations. It's a blatant
16 misrepresentation.

17 JUDGE FARRAR: Wait, wait, wait. On
18 Monday and Tuesday I complimented all of you for
19 your extraordinary diligence on your written work,
20 I would hate to give you demerits for your oral
21 work. Everyone is getting tired. Lanette, how
22 long does it take you to close up your stuff?

23 THE REPORTER: Ten minutes.

24 JUDGE FARRAR: Then we're about
25 quitting time because we wouldn't want to all make

1 it out of here and have her stuck here working on
2 her transcripts all night. Mr. Soper, do you have
3 anything? We had hoped to finish these witnesses.
4 I sense we're almost there, but I sense from what
5 we just put in our little byplay that just
6 happened we're not finished and we may want to
7 have a few minutes in the morning to -- if we're
8 going to think about what we just said and think
9 about how we can clear up this -- maybe I'm the
10 only one confused so clear me up. But if the
11 witnesses are confused or somebody else is. And
12 Mr. Soper, why don't you try to do that with a few
13 more minutes of cross tomorrow morning?

14 MR. SOPER: That will be very good,
15 your Honor. Thank you.

16 JUDGE FARRAR: Do you have much else
17 left?

18 MR. SOPER: No.

19 JUDGE FARRAR: Are we otherwise
20 finished?

21 MR. SOPER: Yes, with this panel here.

22 JUDGE FARRAR: You were.

23 MR. SOPER: I say that with some
24 hesitation, your Honor. I'm just trying to gather
25 all my thoughts. But yes, I think I'm just about

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1 done with this panel.

2 JUDGE FARRAR: Why don't you gather
3 your thoughts, I'll gather my thoughts and maybe
4 we can finish them in 10 or 15 minutes tomorrow
5 morning.

6 MR. SOPER: Very well.

7 JUDGE FARRAR: Is that all right with
8 everybody? Anything else we need to do tonight
9 other than pack up and get out of here? Do we
10 need to start earlier tomorrow? Or Jack, do we
11 have the capability of starting earlier?

12 (Discussion held off the record.)

13 JUDGE FARRAR: Back on the record.
14 We'll start at 9:00 as planned, but we've got to
15 keep moving here. Thank you all, gentlemen.

16 (Proceedings ended for the day.)
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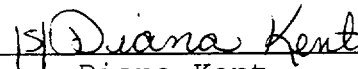
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