

1 MR. GAUKLER: Okay. I see it now.

2 Thank you very much.

3 Q. (By Mr. Soper) Do you see that,
4 General Jefferson?

5 GEN. JEFFERSON: Yes, I do.

6 Q. And that would be your testimony; is
7 that right?

8 GEN. JEFFERSON: That's correct.

9 Q. A periodic future deployment means
10 that the F-16s from Hill would temporarily leave
11 Hill and then return? Is that what that means?

12 GEN. JEFFERSON: Yes.

13 Q. So they would not permanently leave
14 under that scenario?

15 GEN. JEFFERSON: No. That's a
16 deployment.

17 Q. I didn't hear your answer, sir.

18 GEN. JEFFERSON: I'm sorry. That's a
19 deployment, and they do come back after that.

20 Q. I see. How many F-16s were involved
21 in Afghanistan on the war on terrorism?

22 GEN. JEFFERSON: I don't know the
23 answer to that.

24 Q. Well, would it surprise you to learn
25 that there were none?

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1 GEN. JEFFERSON: I think so, because I
2 think I've seen them on TV, but I don't -- I
3 don't have a source for that.

4 Q. I see. So as far as you know, none
5 came from Hill?

6 GEN. JEFFERSON: No. As far as I
7 know, none came from Hill.

8 Q. And do you know of any other reason why
9 there might be less flights in Skull Valley in the
10 future other than the reason that I quoted from
11 your testimony there?

12 GEN. JEFFERSON: No.

13 Q. The number of future sorties are
14 issues of national policy, are they not, and
15 forestructure and budgets?

16 GEN. JEFFERSON: That's correct.

17 Q. And not even the commanders at Hill
18 would know the future sortie numbers, would they?

19 GEN. JEFFERSON: They're not in their
20 control, no. They would know for a year or so,
21 but that's it.

22 Q. And you certainly don't know either?

23 GEN. JEFFERSON: I do not.

24 Q. Is there any statistical reason why
25 you averaged the sortie numbers from 1999 and 2000

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1 and used that as the number for future sorties?

2 GEN. JEFFERSON: The reason that it's
3 not statistical, it's because of our analysis of
4 what's going on that make this -- that it would
5 make sense to give a conservative look.

6 Q. I see. And what was the sortie rate
7 in 2001?

8 GEN. JEFFERSON: I don't know.

9 Q. I see. So do you think it's
10 conservative to use a number less than the number
11 of sorties that we've already experienced for the
12 next 20 years?

13 GEN. JEFFERSON: I think FY 2000 was
14 abnormally high. That's why I did that. But I do
15 not know what two -- '02, '01 is.

16 Q. And why do you assume it's increased
17 for the last three years, and why would you say
18 it's abnormally high in 2000?

19 GEN. JEFFERSON: Because looking at the
20 number of aircraft -- we did an adjustment, by
21 the way, for the extra aircraft that were going
22 to be assigned or had been assigned there.

23 Looking at what they can deliver in
24 the way of sorties per aircraft, we thought that
25 that was a maximum.

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1 Q. I see. So that was just based on your
2 judgment?

3 GEN. JEFFERSON: That was in the press,
4 yes.

5 Q. It was in the press?

6 GEN. JEFFERSON: The wing commander
7 said that.

8 Q. And what exactly did the wing commander
9 say?

10 GEN. JEFFERSON: He said that we are --
11 words to the effect that we are pushing to the
12 limit and we're the highest sortie rate of any
13 F-16 wing in the air force.

14 Q. He didn't mention that he expected a
15 decrease, though, did he?

16 GEN. JEFFERSON: No, but we know you
17 can't sustain it.

18 Q. How do you know that, sir?

19 GEN. JEFFERSON: Because it's a wear
20 and tear on the airplanes and it takes parts and
21 people to do that.

22 Q. Well, you just told me a minute ago
23 that those are matters of national policy that
24 you wouldn't know.

25 GEN. JEFFERSON: That's practical wing

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1 operation.

2 Q. So this is just your estimate that
3 they would go down?

4 GEN. JEFFERSON: Yes.

5 MR. SOPER: Did you get the answer?

6 THE REPORTER: Yes.

7 GEN. JEFFERSON: Yes.

8 Q. I also noticed that you didn't use any
9 of the sortie numbers for Sevier D. You left
10 those out entirely; is that right?

11 GEN. JEFFERSON: Yes. That's explained
12 on the next page.

13 Q. And what is the explanation for leaving
14 out Sevier D?

15 GEN. JEFFERSON: Essentially -- it was
16 pointed out the other day -- Sevier B is a very
17 large area.

18 MR. SILBERG: I'm sorry, Sevier B --

19 Q. (By Mr. Soper) B or D?

20 GEN. JEFFERSON: B. It looks like
21 they're both -- they're one. One overlays the
22 other.

23 But they're huge areas. The Sevier B
24 count that we get from the air force includes
25 flights in the total area, not just the Skull

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1 Valley area. We -- and we know there are
2 flights that come in from the south that fly
3 through that area. Test dimensions and things
4 like that would not be in the Skull Valley count.
5 As an offset to that, we assume that the -- the
6 delta count would be about the same, so we
7 continue to use the B rate.

8 Q. What you've set forth below on page 4
9 there in the footnote is what the Hill Air Force
10 Base has responded. It says, Sevier D military
11 operations are not broken out by aircraft type,
12 but the majority of operations for each year would
13 have been F-16 aircraft. No records are kept for
14 Skull Valley transitions as a subset of the
15 Sevier B and D MOA usage.

16 So we don't know that there are no --
17 nothing the air force has indicated says that the
18 Sevier D flights are not F-16s for Skull Valley?

19 GEN. JEFFERSON: No, I didn't mean to
20 imply that. Sevier D, they probably are F-16s.
21 What I'm saying is that the full count is an
22 overcount because of the flights that are flying
23 in the South and aren't in Skull Valley, and we're
24 only interested in Skull Valley.

25 Q. But you don't know whether or not the

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1 Sevier D flights that are listed here are in Skull
2 Valley are not from what the air force has told
3 you?

4 GEN. JEFFERSON: That's correct.

5 Q. So do you think it's conservative just
6 to assume that they are not?

7 GEN. JEFFERSON: I think that's
8 reasonable.

9 Q. My question, sir, was --

10 GEN. JEFFERSON: Conservative? Yeah,
11 you would be more conservative to use them.

12 Q. You would, wouldn't you?

13 And then, of course, in any event, the
14 2000 numbers need to be increased by 17.4 percent
15 to account for the addition of new aircraft, new
16 F-16s that have since been added to Hill, and you
17 acknowledge that, I take it?

18 GEN. JEFFERSON: Yes, and we did that.

19 Q. You also -- General Jefferson, you also
20 had to determine the crash rate to be used in
21 the formula that we discussed earlier, a value for
22 C; is that right?

23 GEN. JEFFERSON: That's correct.

24 Q. And you used the crash history
25 published by the air force to develop that crash

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1 rate --

2 JUDGE FARRAR: Mr. Soper, are you off
3 numbers of flights now?

4 MR. SOPER: Yes, sir.

5 JUDGE FARRAR: Tell me -- and we did a
6 little bit of this tutorial on the map, but one
7 flight doesn't go over Skull Valley twice?

8 COL. FLY: Yes, Your Honor. They
9 generally enter through the north -- the F-16s
10 generally enter through the north, transit down
11 through the rest of the Sevier B, then they'll
12 turn toward the west and then up north. And
13 then as they exit, they will exit from typically
14 the northeast corner, is the general type of
15 exit.

16 JUDGE FARRAR: So you're only flying to
17 the south through Sevier B and D?

18 COL. FLY: Yes. To be clear, Your
19 Honor, there is no restriction about transiting
20 from the south to the north, but as a practical
21 matter, that is not done by the F-16s at Hill.

22 JUDGE FARRAR: Go ahead, Mr. Soper.

23 MR. SOPER: Thank you, Your Honor.

24 I'm now handing to Michelle, I
25 believe -- hopefully seven copies of a document

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1 to be marked bearing the title "F-16 Crash
2 History."

3 JUDGE FARRAR: And we want this marked
4 as --

5 MR. SOPER: As State's Exhibit 15- --

6 JUDGE FARRAR: 4?

7 MR. SOPER: -- -4. Is that right?

8 154, yes.

9 (STATE EXHIBIT-154 WAS MARKED.)

10 JUDGE FARRAR: Okay. Those have been
11 marked for identification as State 154.

12 Go ahead, Mr. Soper.

13 MR. SOPER: Thank you, Your Honor.

14 Q. General Jefferson, do you have before
15 you what's been marked as Exhibit 154?

16 GEN. JEFFERSON: Yes, I do.

17 Q. And it bears the title "F-16 Crash
18 History"; is that right?

19 GEN. JEFFERSON: Yes, it does.

20 Q. I would represent to you, sir, that
21 this is the same as the exhibit that's been
22 previously -- or, excuse me, previously been
23 offered -- or not offered yet, previously been
24 received by you as one of the State's exhibits
25 to prefiled testimony, with the exception of FY

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1 '01 data has been added there, which we didn't
2 have at the time. And it is the Class A mishap
3 rate for F-16s, the entire history of the aircraft
4 through fiscal year 2001.

5 Do you recognize this chart, sir?

6 GEN. JEFFERSON: Yes, I do.

7 Q. And do you see any irregularities on
8 here, to the best of your knowledge?

9 MR. GAULKER: Objection, vague and
10 ambiguous. What do you mean by irregularity?

11 MR. SOPER: Well, it's pretty simple.
12 It's just got the year and accident rate.

13 JUDGE FARRAR: But do you mean
14 irregularities, that it's different from what he
15 might recall, or irregularities, that it's
16 constructed wrong, or --

17 MR. SOPER: Yes. I guess any of those.
18 I just wondered of any exception to it being
19 accurate.

20 MR. SILBERG: Could we give the
21 witnesses a chance to look at that before they
22 say yea or ney?

23 MR. TURK: May we go off the record?

24 JUDGE FARRAR: Yes, off the record.

25 (A discussion was held off the record.)

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1 JUDGE FARRAR: Back on the record.

2 The state has indicated that State 154
3 is the same as prefiled Exhibit 52, except for the
4 addition of the last data point, and the State has
5 handed us, just for information, an F-16 history
6 chart which has the actual numbers from which I
7 understand, Ms. Nakahara, that the graph was
8 derived?

9 MS. NAKAHARA: Yes.

10 JUDGE FARRAR: Thank you.

11 MR. GAUKLER: Your Honor, that would be
12 part of the exhibit, then?

13 MR. BARNETT: Is the table also part of
14 the exhibit?

15 MR. SOPER: It's suggested we attach
16 the table as part of the exhibit, Your Honor. I
17 have no objection.

18 JUDGE FARRAR: Right. Let's have this,
19 then, be a two-page State 154, and let's give the
20 court reporter three before we forget to do that.

21 (A discussion was held off the record.)

22 JUDGE FARRAR: Okay. The witnesses
23 have had time to look at the document. And we've
24 attached it, so now State 154 is a two-page
25 document.

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1 Go ahead, Mr. Soper.

2 MR. SOPER: Thank you, Your Honor.

3 Q. General Jefferson, you have now
4 Exhibit 154 before you, sir?

5 GEN. JEFFERSON: Yes, I do.

6 Q. And have you had a chance to compare
7 that graph with the actual air force data that is
8 derived from that's attached as the second page?

9 GEN. JEFFERSON: Yes, I have.

10 Q. And is it accurate, sir?

11 GEN. JEFFERSON: Yes, it is.

12 Q. For selecting a crash rate to be used
13 in your formula, you used the experience -- the
14 crash rate experience from fiscal year 1989 to
15 1998, a ten-year period; is that true, sir?

16 GEN. JEFFERSON: That's correct.

17 Q. It -- now, just by looking at '89 to
18 '98 with the naked eye here, it's no secret you've
19 selected the lowest ten-year average period over
20 the whole history of the F-16. Isn't that true,
21 sir?

22 GEN. JEFFERSON: That's a
23 mischaracterization. We picked the most recent
24 data that we had, the most recent ten-year period
25 we had at the time.

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1 Q. I see. But for having all the data,
2 you would have used some other period, then?

3 GEN. JEFFERSON: No. We -- we selected
4 ten years as a proper rate to use because of
5 recency of the data, as well as being a long
6 enough average to not be unduly influenced by
7 one year's experience.

8 Q. I see. Well, to not be unduly
9 influenced by one year's experience you'd want to
10 have as many years as possible, would you not?

11 GEN. JEFFERSON: Except for the fact
12 that when you're looking at accidents that
13 happened 30 years ago, the question is are they
14 relevant to what would be experienced on Skull
15 Valley?

16 Q. I see. Now, at the time you did your
17 testimony here, 1999 crash data was available,
18 was it not?

19 GEN. JEFFERSON: Yes.

20 Q. But you didn't use it?

21 GEN. JEFFERSON: No.

22 Q. Year '01 crash data was available, was
23 it not?

24 GEN. JEFFERSON: '00 and '01 have most
25 recently been available, yes.

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1 Q. I see. With the issuing of those
2 numbers, do you think it would be good to revise
3 your crash rate and use the more recent data?

4 GEN. JEFFERSON: We looked at that,
5 and seeing that there was no trend or perceptible
6 change in that, we decided to leave it alone and
7 not go through a total revision of the document.

8 Q. It was too much work?

9 GEN. JEFFERSON: Well, it was
10 confusing.

11 Q. I see. For this proceeding, you
12 mean?

13 GEN. JEFFERSON: No, for the people
14 that have to read the document, prepare it.

15 Q. I see. There doesn't seem to be any
16 question that there was a higher crash rate at
17 the beginning of the service life of this
18 aircraft. Back for a period of ten years or so,
19 the crash rate was elevated; is that right?

20 GEN. JEFFERSON: That's a crash rate
21 per hundred thousand hours. The really high
22 spikes are based on a hundred hours, 160 hours,
23 something like that, so they really are not very
24 representative.

25 Q. Well, what difference does it make --

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1 my question, sir, is the crash rates were higher
2 -- if you measure in a hundred thousand miles or
3 -- or flight hours or any other measure, the fact
4 is that the crash rates were higher in initial
5 years; isn't that true?

6 GEN. JEFFERSON: Yes, the rates were
7 higher.

8 Q. In fact, isn't that true of every
9 single fighter aircraft that the air force has
10 ever had?

11 GEN. JEFFERSON: You see the same
12 phenomenon, yes.

13 Q. In fact, Figure 2 that's attached to
14 your aircraft report -- Your Honor, might I hand
15 this out just for convenience of everyone? It's a
16 document already in evidence.

17 JUDGE FARRAR: All right. Just the
18 same as that other one we did where you don't
19 want it introduced or marked --

20 MR. SOPER: This is already in
21 evidence, and it's just for the convenience of
22 the participants here.

23 JUDGE FARRAR: What's it from?

24 MR. SOPER: This would be Figure 2 from
25 the aircraft crash report which is Exhibit N, as

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1 in Nancy.

2 JUDGE FARRAR: Okay.

3 Q. (By Mr. Soper) Do you have Figure 2
4 before you, General?

5 GEN. JEFFERSON: Yes, I do.

6 Q. And that would show -- this is from
7 your own crash report, is it not?

8 GEN. JEFFERSON: That's correct.

9 Q. And as you've shown here, for the F-86,
10 the F-100, the F-105, the A-7 and the F-16, each
11 aircraft has experienced a higher incident of
12 mishap during the initial years of operation;
13 isn't that right?

14 GEN. JEFFERSON: Than in its later
15 years, yes.

16 Q. And, in fact, this graph is
17 exaggerated in that regard -- let me take that
18 back. This graph -- what's the opposite of
19 exaggerates?

20 MR. TURK: Understates.

21 Q. (By Mr. Soper) Understates. Thank
22 you.

23 This graph understates that phenomena,
24 does it not, because you have not included the
25 first hundred thousand hours of operation for

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1 these aircraft? Isn't that true?

2 GEN. JEFFERSON: Yes. That's not on
3 here.

4 Q. So, for example, you would have left
5 off the first ten years of operation of the F-16;
6 isn't that true?

7 GEN. JEFFERSON: Left off up until --

8 Q. It looks like five years. Excuse me.

9 GEN. JEFFERSON: -- '82, yes.

10 Q. '82 was your first data point there?

11 GEN. JEFFERSON: First data point, yes.

12 Q. So you leave out years '75 through '71,
13 and you start -- or '81 and start with '82; is
14 that right?

15 GEN. JEFFERSON: Yes.

16 Q. And, of course, you're aware, are you
17 not, that the F-16 is approximately 27 years into
18 its service life ?

19 GEN. JEFFERSON: As a model, yes.

20 Q. And that it's likely to be replaced
21 during the next 20 years?

22 GEN. JEFFERSON: Yes.

23 Q. And that the aircraft that replaces it
24 is likely to experience, just as every other
25 fighter has, a high start-up rate. Isn't that

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1 right?

2 GEN. JEFFERSON: Yes, but --

3 JUDGE FARRAR: Wait. A high start-up
4 accident rate?

5 MR. SOPER: Yes, for a hundred
6 thousand hours.

7 GEN. JEFFERSON: Yes, although as you
8 notice from this, they are declining over the
9 years and -- well, go ahead.

10 Q. (By Mr. Soper) Well, I think that's
11 what high start-up means is high in the initial
12 years and declines in the later years. That's my
13 point.

14 GEN. JEFFERSON: Yeah, but the peak --
15 the peak of the succeeding aircraft is lower than
16 the one before.

17 Q. But the phenomena still exists, does it
18 not?

19 GEN. JEFFERSON: Yes.

20 Q. And you'd expect it with a new
21 aircraft?

22 GEN. JEFFERSON: Yes.

23 Q. And by selecting the lowest years
24 during the F-16 crash history, you would not
25 account for any start-up rate of the new

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1 aircraft, replacement aircraft, would you?

2 GEN. JEFFERSON: The new aircraft is
3 probably going to be the F-35, which has been
4 designed with about 30 years of more computer
5 experience than we had when we designed the
6 F-8 -- F-16. I -- I would expect the accident
7 rate to be much lower, actually.

8 Q. And most of the mishaps are caused by
9 pilot errors, are they not?

10 MR. SILBERG: Excuse me.

11 Clarification. Are you talking about most
12 mishaps during start-up, hundred thousand hours,
13 or over the life of the plane or --

14 MR. SOPER: Well, let's ask General
15 Cole.

16 Q. As chief of safety, General, would you
17 find that the majority of Class A mishaps are due
18 to pilot error?

19 GEN. COLE: Generally speaking, there's
20 a human factors causal element in something over
21 half, but it depends on what the primary causal
22 element is. For example, generally speaking,
23 roughly half of the F-16 Class As are engine
24 failures simply because with a single engine, if
25 it stops, the airplane's going to stop flying,

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1 where with an F-15, if you lose one of two
2 engines, you can fly home on the other one.

3 Overall, in the macro sense, in the
4 aviation safety business, military as well as
5 civilian, human factors causal accidents are
6 related as something around two-thirds to
7 three-quarters, not necessarily primary, but
8 causal.

9 MR. SOPER: I see. So --

10 JUDGE FARRAR: Were you going to
11 continue with General Cole or back to Gen. --

12 MR. SOPER: I probably would ask
13 General Cole another question.

14 JUDGE FARRAR: Go ahead.

15 Q. (By Mr. Soper) General Cole, with
16 that in mind, then, in your experience as chief
17 of safety, would you expect that whatever
18 replacement aircraft is selected for the F-16
19 that it will start out in its initial year of
20 service at the lowest crash rate that it will ever
21 experience in its entire history?

22 GEN. COLE: Sir, you're asking that a
23 bit backwards I believe, but I'll answer the
24 question. I think it will start out at a lower
25 initial rate than its predecessors, F-16s, A-7s,

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1 F-100s, F-105s. It would be unlikely that it
2 would start out at its very lowest in its
3 lifetime. I would add, however, that with the
4 improved design, as General Jefferson pointed out
5 first, secondly, improved reliability of engines,
6 third, improved technology design, fourth, great
7 improvements in pilot selection, pilot training,
8 human factors training, you're going to drive
9 that knee of the risk curve done further than
10 we've ever been able to do it.

11 Q. I see. So you'd expect that this
12 will be -- what aircraft are we talking about,
13 sir, in your opinion, that will be the
14 replacement aircraft that's going to be this
15 marvelous one?

16 GEN. COLE: In a forestructure sense,
17 probably the F-35.

18 Q. And what is that known as?

19 GEN. COLE: You mean the nickname
20 or -- it's the Joint Strike Fighter, is what it
21 was known as before we got the designation F-35.

22 Q. I see. And when do you expect that
23 that will come on line?

24 GEN. COLE: Well, the air force buy,
25 as it stands now, is for 1,763. And I would ask

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1 my colleagues, you know, to follow me if they've
2 got a better date, but the marine corps is
3 getting them first. I believe the air force is
4 going to be getting the first, initial cadre in
5 2010. And I don't know the rate of acquisition
6 as far as how many airplanes per year. There's
7 a motion on the table right now to cut the
8 production by 400 aircraft, so I would hesitate
9 to guess the rate of acquisition after 2010.

10 Q. And you have no idea -- there's been
11 no studies or estimates of the expected crash rate
12 per hundred thousand miles or hundred thousand
13 hours or anything else, has there?

14 GEN. COLE: None that I know of at this
15 point in its development.

16 Q. I see. So your selection of the
17 lowest ten-year crash rate history of the F-16 as
18 representative of an aircraft yet to be delivered
19 and yet tested, that has no statistics, is
20 entirely based on just your subjective opinion,
21 is it not?

22 GEN. COLE: Well, and the F-16 issue,
23 I've got to add that it's based on the tests of
24 reality, relevancy and recency. And if you look
25 at the ten-year crash rate or the lifetime crash

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1 rate for the F-16, it's 4.38. The ten-year is
2 3.54. The five-year is 5.05. And so we felt a
3 ten-year period for that aircraft when we
4 started this made a real representative
5 assessment of how the airplane was doing.

6 Q. The lowest ten-year period in its
7 history is the most representative? That's your
8 testimony?

9 GEN. COLE: No, sir. When we started
10 working this, we took a look back, and we debated
11 intensely amongst us, will we use three years?
12 Too narrow. Five? Perhaps not so narrow. Ten
13 looks good.

14 JUDGE FARRAR: Mr. Soper, if you're
15 ready to move on to something else, Ms. Reporter,
16 I'd like to go back to General Jefferson's last
17 answer which ended with the words "much lower,"
18 but I'm not sure either the question or the
19 answer indicated much lower than what. I'd just
20 like to clarify that, if you'll read that back.

21 (The question was read as follows:

22 "GEN. JEFFERSON: The new aircraft is
23 probably going to be the F-35, which has been
24 designed with about 30 years of more computer
25 experience than when had when we designed the

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1 F-8 -- F-16. I -- I would expect the
2 accident rate to be much lower, actually.")

3 JUDGE FARRAR: Meaning the starting
4 accident rate of the new aircraft would be much
5 lower than the starting accident rate of the
6 F-16?

7 GEN. JEFFERSON: Yes, sir.

8 And, incidentally, it's only
9 conjecture that the F-35 is coming to Hill. We
10 don't know that.

11 Q. (By Mr. Soper) So not only do you not
12 know the accident rate, you don't know the
13 aircraft that you're estimating for?

14 GEN. JEFFERSON: It had to be one of
15 two, and I know it's not going to be one or the
16 other, but I'm not -- you know, I don't make the
17 basing plans.

18 Q. So this is basically just a -- it's a
19 pure subjective estimate you've used here, is it
20 not?

21 GEN. JEFFERSON: Based on the
22 possibilities.

23 MR. SOPER: Thank you.

24 I'm now offering another exhibit to be
25 marked -- let me offer State's 154.

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1 JUDGE LAM: Mr. Soper, are you done
2 with the crash rate?

3 MR. SOPER: Yes, sir.

4 JUDGE LAM: Before you move forward,
5 let me ask General Jefferson a question.

6 General, I understand that the 1999
7 data was available but not used and perhaps so
8 was the 2000 data. The question is what happened
9 to your crash rate if you were to include them?

10 GEN. JEFFERSON: I was just looking for
11 that. In fact, I've run that through when we
12 last got the '01 data to take a look at what's
13 happening with the ten-year rate. My
14 recollection is that that ten-year rate is lower
15 than the one in '98, but I hesitate to put that
16 up because I don't have it in here in front of
17 me.

18 MR. GAUKLER: Question and Answer 61 in
19 your prefiled testimony discusses that.

20 GEN. JEFFERSON: Question what?

21 MR. GAUKLER: 61.

22 MR. SILBERG: Page 27.

23 MR. GAUKLER: Page 27.

24 (A discussion was held off the record.)

25 GEN. JEFFERSON: Yes, sir, I've found

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1 it.

2 And that is correct. Let me make sure
3 that this is the right data.

4 Yeah, this is Class A mishap, which is
5 the same as what the State has in their chart.
6 The ten-year rate in '98 was 3.54 for a hundred
7 thousand hours. It went up in '99, dropped in
8 '00, and then for '01 it's 3.53, which is just
9 slightly below the '98 rate for a hundred thousand
10 hours.

11 JUDGE LAM: I see. I see.

12 GEN. JEFFERSON: So I guess our thought
13 is if these things are relatively stable, there's
14 no point in going back and redoing the documents
15 all over. We've just been -- throughout the
16 process of this several years, we've kept track
17 of it.

18 JUDGE LAM: Well, General, since you
19 mentioned the word stability of the data, on what
20 basis would you anticipate the crash rate would
21 not increase when the aircraft is aging?

22 GEN. JEFFERSON: We did some extensive
23 studies on that on other aircraft, single-engine
24 aircraft and one two-engine aircraft that have
25 been phased out in the recent -- the most recent

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1 ones that have been phased out, and we did not
2 see that phenomenon. We also looked at the
3 F-16A, which is the earliest model of the F-16.
4 And, again, it's not totally phased out, but we
5 do not see a rise in rates for that aircraft.

6 JUDGE LAM: So you do have operational
7 data to support that claim?

8 GEN. JEFFERSON: That's correct.

9 JUDGE LAM: Thank you, General.

10 MR. GAUKLER: I'd just like to state
11 for the record that's set forth in the prefiled
12 testimony, Question and Answer 62 through 68,
13 pages 28 through 31.

14 JUDGE LAM: Thank you.

15 JUDGE FARRAR: General Cole, do you
16 want --

17 GEN. COLE: Your Honor, may I add
18 something to further answer Judge Lam's question?

19 The maintenance of the aircraft is
20 getting significantly better with computer
21 assessments, also with highly qualified
22 maintenance people to check impending failures.

23 And there's a relatively new program
24 called FOQA, Flight Operations Quality Assurance,
25 and what you do is you can actually harvest data

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1 from the flight data recorders to detect stressful
2 phases of flight. You've got similar programs
3 that can harvest engine data so you can actually
4 predict engine failures and change the engine
5 before it fails. And we're making great stride
6 in that business now, militarily and in the
7 civilian world, and I'm confident that's going to
8 beat the curve flat. We're watching it very
9 closely as aircraft age.

10 Thank you, sir.

11 JUDGE FARRAR: You just talked about
12 better maintenance. To what extent does this
13 depend on your continued ability to recruit good
14 qualified people? And somewhere in the back of
15 my mind is that you're -- the other branches of
16 the military are having trouble doing that.

17 GEN. COLE: Yes, sir. Two issues
18 there. The first one is in the nation, not just
19 in the armed forces, there is a developing
20 shortage of highly skilled and very experienced
21 maintenance personnel. I'm bringing Brian
22 Finnigan, who's the president of the Professional
23 Aviation Maintenance Association, to talk to the
24 airline vice presidents at their council meeting
25 two months from now on that very subject, how do

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1 you grow them, recruit them, retrain them.

2 The United States Air Force, Navy,
3 Marine Corps and Army are in direct competition
4 with the civilian sector for that market.
5 Everybody's focusing on it. My professional and
6 personal opinion is that we're going to have to
7 make it a lot more attractive to be a maintenance
8 professional, and the airlines and the armed
9 forces are working on that right now.

10 JUDGE FARRAR: But you're limited --
11 you can make it more attractive in some respects,
12 but your pay rates are limited by what congress
13 does.

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

15 JUDGE FARRAR: Then in thinking about
16 Judge Lam's question and your response, I'm not
17 sure I'm comforted that things will get better
18 for these aircraft.

19 GEN. COLE: May I add an additional
20 information bit, sir?

21 We went through a rather serious pilot
22 shortage in the air force some years ago, in fact,
23 while I was still on active duty. Everyone took
24 that very seriously, and pilots were actually
25 given a pilot bonus to sign basically an

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1 agreement to stay in for a given number of years.
2 I was well past that age point, but for the
3 youngsters that was very attractive and kept a
4 lot of them in. I would anticipate that there
5 will be a similar program for the maintenance
6 professionals.

7 JUDGE FARRAR: Does Secretary Rumsfeld
8 have the discretion to put bonuses in like that,
9 or is that only what congress can do?

10 GEN. COLE: We're getting in a field
11 that certainly isn't my strong one. But the air
12 force gets a budget, and there's a personnel
13 budget and an operations and maintenance budget.
14 You can move money around within some limits.
15 Quite frankly, when the congress becomes aware of
16 the maintenance shortage, I am confident that it
17 will be addressed at a higher level. The air
18 force has some flexibility to deal with it,
19 though, within the current budget levels.

20 JUDGE FARRAR: Off the record.

21 (A discussion was held off the record.)

22 JUDGE FARRAR: Back on the record.

23 Mr. Silberg, ask that question.

24 MR. SILBERG: Are the maintenance
25 people that we're talking about government

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1 employees, military government employees, civilian
2 or contractor personnel, and does that have an
3 impact on what we've been discussing on pay
4 raise?

5 GEN. COLE: It does. There's a greater
6 tendency to hire contract maintenance. When I
7 was wing commander of the 89th, I had a lot more
8 blue suit maintenance than the wing commander of
9 the 89th at Andrews Air Force Base does right now.
10 It's much easier and, in many ways, less expensive
11 to hire specialists on contracts and keep them
12 there and don't deploy them, don't move them
13 every three or four years. So there's more
14 contracting out of maintenance. It's already been
15 done at the some of the undergraduate pilot
16 training bases.

17 JUDGE FARRAR: And that, you're not
18 limited by congressionally set pay raise, you're
19 limited by budget --

20 GEN. COLE: Budget and contracts, yes,
21 sir.

22 JUDGE FARRAR: -- and contracts but not
23 by the pay raise?

24 GEN. COLE: Yes, sir.

25 MR. SOPER: May I just offer -- or let

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1 me ask a question. Let me put it that way.

2 Q. General Cole, for the aircraft at
3 Hill, those are all deployable aircraft, are they
4 not ?

5 GEN. COLE: Yes, they are.

6 Q. So this would not involve other
7 maintenance people other than military, would it?

8 GEN. COLE: Clarify that, please, sir.
9 Maintenance people other than military?

10 Q. Yes.

11 GEN. COLE: Normally civilian
12 maintenance people do not deploy. Is that the
13 question?

14 Q. Civil maintenance people are not
15 allowed to maintain deployable aircraft, are
16 they?

17 GEN. COLE: I don't know the answer to
18 that question, but I don't know why they wouldn't
19 be.

20 Q. I thought it was air force regulation.

21 GEN. COLE: Unless it's changed -- I've
22 had civilian maintenance people working for me.

23 Q. On deployable aircraft?

24 GEN. COLE: Well, the 89th airplanes
25 deployed periodically all over the world. We

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1 didn't deploy as a unit, if that's what you're
2 asking.

3 I need some clarity on that one, sir.

4 Q. Well, I don't know what the 89th is.

5 GEN. COLE: I'm sorry. It's the wing
6 that flies the president, Air Force One,
7 congressmen.

8 MR. SOPER: I think your answer's
9 sufficient, unless it raises any questions for
10 Your Honors.

11 JUDGE FARRAR: No.

12 MR. SOPER: May I proceed, Your Honor?

13 (A discussion was held off the
14 record.)

15 JUDGE FARRAR: Let's take just a moment
16 and let the reporters switch.

17 (A recess was taken.)

18 JUDGE FARRAR: We are going on the
19 record with a new court reporter. General Cole?

20 GEN. COLE: Yes, your Honor. If I
21 might, could I offer a clarification on Exhibit
22 154 that Mr. Soper put out? Did you say 154? I
23 didn't want to interrupt but the caveat says first
24 100,000 miles. Why are those not counted?

25 MR. GAUKLER: Hours.

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1 GEN. COLE: Hours, excuse me. And
2 Judge Lam asked if I wanted to command an army.

3 The reason -- this chart came from the
4 chief of safety's office. And the reason they
5 started after the first 100,000 hours, if you look
6 at the F-16 history Mr. Soper provided, there are
7 actually no destroyed aircraft for the first four
8 years and it takes you four years to get above
9 100,000 hours. So your rate is 100,000 hours,
10 your mishap rate. So that's when they start
11 putting it on the charts and that's why they put
12 100,000 hours there. So we just took it just that
13 way and didn't try to back it up for the low
14 number of airplanes, low number of flying hours to
15 produce the spikes.

16 JUDGE FARRAR: Okay. Thank you. Mr.
17 Soper, you had an exhibit, I think.

18 MR. SOPER: Yes, I did. I submitted to
19 have marked a graph bearing the title Class A
20 Crash Rate. F95-FY01.

21 JUDGE FARRAR: And you want that marked
22 as?

23 MR. SOPER: That would be 155.

24 (STATES'S EXHIBIT-155 WAS MARKED.)

25 (Discussion off the record.)

1 JUDGE FARRAR: Back on the record.
2 General, it was pointed out while we were off the
3 record that the comment you just made which you
4 said had to do with State Exhibit 154 really had
5 to do with Figure 2 from crash report Exhibit N
6 which was just handed out, which was handed out as
7 a courtesy, not as a separate exhibit. Is that
8 right?

9 GEN. COLE: Yes, sir.

10 JUDGE FARRAR: And that's the document
11 entitled Comparative Single Engine Fighter Attack
12 and so forth. As long as we are looking at that
13 exhibit --

14 MR. SILBERG: You mean Figure 2?

15 JUDGE FARRAR: Figure 2. Thank you.
16 The graph starts at 80 but you really only started
17 at 82; is that right? And so the colored-in area
18 between 80 and 82 doesn't really exist?

19 GEN. COLE: That would be correct.
20 Yes, sir.

21 JUDGE FARRAR: You just drew a line
22 from 0 to 80, starting at 80 up to 82 and so --

23 GEN. COLE: Up until you get to 100,000
24 hours.

25 JUDGE FARRAR: The triangular area

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1 between 80 and 82 doesn't really exist?

2 GEN. JEFFERSON: No, sir. I looked at
3 that after we took a close look at this. The Air
4 Force, when they drew this, did the 82 rate, put
5 the 82 rate on there. The 80 and 81 are not
6 correct. I think it's just chartmanship of
7 whoever put this together.

8 JUDGE FARRAR: Okay.

9 MR. GAUKLER: General Cole, who
10 prepared the chart?

11 GEN. COLE: This came from chief of
12 safety of the Air Force office.

13 JUDGE FARRAR: Which was not you at the
14 time?

15 GEN. COLE: No, sir. It was my
16 successor but he graciously provided it.

17 MR. SOPER: I'd like the record to note
18 that there's an error in that chart. Just
19 kidding. I'm sorry, your Honor.

20 MR. SILBERG: I object to chartmanship.

21 JUDGE FARRAR: Mr. Soper, even at the
22 rate we are going, how much longer do you
23 anticipate your cross?

24 MR. SOPER: Excuse me. I can finish, I
25 think, this panel here before five o'clock.

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1 JUDGE FARRAR: Oh, good. Mr. Gaukler,
2 given what has happened so far, how long do you
3 anticipate your redirect taking?

4 MR. GAUKLER: I would guess two to
5 three hours.

6 MR. SILBERG: One possibility might be
7 to go, if you have any questions for Mr. Vigeant,
8 and we finish that up today. And then we can have
9 tonight to get the redirect organized and do that
10 first thing in the morning. I don't know if that
11 is consistent with what you'd like to do or not,
12 but it's a thought.

13 JUDGE FARRAR: Your choice.

14 MR. SOPER: We would like to finish
15 with this panel before we go to another witness,
16 your Honor. I think that makes sense in the flow
17 of the proceeding.

18 JUDGE FARRAR: That's fine. And how
19 about the staff?

20 MS. MARCO: We have just a very little
21 piece.

22 MR. TURK: Of recross.

23 JUDGE FARRAR: Of recross.

24 MR. TURK: In matters that were brought
25 up in the State's cross.

1 MR. SILBERG: Judge Farrar, we did put
2 all four witnesses on as a panel. And certainly
3 Mr. Soper can cross-examine in whatever order he
4 wants.

5 JUDGE FARRAR: But their prefiled
6 testimony was not as a panel. It was a
7 three-person panel and then a separate person.

8 MR. SILBERG: Right. But the
9 testimonies are interrelated and that's why we put
10 them on at the same time. It's just a way of
11 doing more this afternoon.

12 JUDGE FARRAR: Mr. Vigeant, do you have
13 anywhere to be tomorrow?

14 MR. VIGEANT: No, your Honor. Not now.

15 JUDGE FARRAR: I'll make no comment on
16 the state of your life, then. Then let's let Mr.
17 Soper do it the way he wants on his cross.

18 All right, Mr. Soper, go ahead.

19 MR. SOPER: Thank you, your Honor. I
20 have submitted to be marked Exhibit 155.

21 JUDGE FARRAR: That's been done.

22 MR. SOPER: And that's been done.

23 Q. (By Mr. Soper) And General Jefferson,
24 sir, do you have Exhibit 155 in front of you?

25 GEN. JEFFERSON: Yes, I do.

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1 Q. I think Judge Lam raised the issue of
2 the years that have passed since you considered
3 them. This particular chart represents the crash
4 rate per 100,000 hours for the Class A mishaps of
5 the F-16. Just represented are the years of '95
6 through '01.

7 MR. SILBERG: Could we just get a
8 clarification as to where this chart comes from?
9 I don't think it is ours.

10 MR. SOPER: It's not yours. We made it
11 up. It is just for the testimony.

12 JUDGE FARRAR: In other words, this
13 Class A crash rate chart is something you did
14 based on the data that is in evidence?

15 MR. SOPER: Yes, sir.

16 JUDGE FARRAR: Okay.

17 Q. (By Mr. Soper) I would offer, General
18 Jefferson, that this is simply the years '95
19 through '01, included, platted on a graph with the
20 trend line fitted to it. And I'd ask if you had
21 considered that this is an increasing trend and
22 you are aware of that in selecting only the ten-
23 year period of '89 through '98?

24 JUDGE FARRAR: Wait. That's too
25 compound a question.

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1 MR. SOPER: It is kind of convoluted.

2 JUDGE FARRAR: Not convoluted, but
3 compound. Let me ask one question first, ask it
4 of you, Mr. Soper. The seven dots connected by a
5 jagged line are the data points from the history
6 of the F-16 that we have before us. Is that
7 right?

8 MR. SOPER: Yes, your Honor.

9 JUDGE FARRAR: The linear trend line is
10 something you put on there by some sort of
11 statistical analysis, and that's the best fit trend
12 line?

13 MR. SOPER: Yes, sir.

14 JUDGE FARRAR: That's supposed to
15 represent that?

16 MR. SOPER: Yes, sir.

17 JUDGE FARRAR: Who did that?

18 MR. SOPER: That would be
19 Dr. Resnikoff.

20 JUDGE FARRAR: If any question arises
21 whether this is, in fact, the right mathematical
22 best fit trend line, we can ask him when he
23 appears?

24 MR. SOPER: Yes, your Honor.

25 JUDGE FARRAR: Then with that

1 predicate, reask a simpler question.

2 MR. SOPER: I will. Thank you, your
3 honor.

4 Q. (By Mr. Soper) My question, General,
5 is did you -- let me start again. Did you
6 consider the increasing trend that's displayed for
7 years '95 through '01 when you selected the ten-
8 year crash rate you used in your formula?

9 MR. GAUKLER: Your Honor, that's an
10 impossible question since the ten-year crash rate
11 was selected in 1999, I believe.

12 MR. SOPER: It makes it an easy
13 question, actually.

14 JUDGE FARRAR: Mr. Gaukler is right.
15 It is still kind of a compound question. Whatever
16 the answer is, I'm not sure what that answer would
17 mean.

18 MR. SOPER: Let me start again.

19 JUDGE FARRAR: Start maybe more simply
20 and get him to agree what this is and then -- let
21 me ask first, does this trend line look like a
22 decent mathematical fit to you?

23 GEN. JEFFERSON: It does to me, sir.
24 But I haven't done one.

25 MR. SILBERG: For the six years that

1 are chosen.

2 GEN. JEFFERSON: I can hold it up and
3 look at it.

4 MR. FARRAR: With that predicate, Mr.
5 Soper, go ahead.

6 Q. (By Mr. Soper) Considering that this
7 appears to be the trend line for the recent years
8 of the F-16, wouldn't it, sir, be conservative to
9 consider this in that the crash rates are
10 increasing for the F-16 in the selection of your
11 years?

12 GEN. JEFFERSON: The selection of these
13 six years is going to give a rising trend line.
14 We used ten years because we think that is a more
15 stable figure. If you actually went from '98 to
16 '01 I would guess that you have a level trend
17 line, to use that to update what we had before.

18 Q. But wouldn't it be more conservative,
19 sir, given the fact that there is a trend going
20 up, to include these years into your crash rate?

21 GEN. JEFFERSON: No. I don't believe
22 there's a trend.

23 Q. You don't believe there's a trend?

24 GEN. JEFFERSON: No.

25 Q. Not even for these six years?

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1 GEN. JEFFERSON: Yes. But I think
2 that's a misleading selection of years.

3 Q. The last six years are misleading? Is
4 that your testimony?

5 GEN. JEFFERSON: The last three years
6 give you a different answer. A ten year gave us a
7 level.

8 JUDGE FARRAR: What was your ten year
9 number?

10 GEN. JEFFERSON: From '98, the ten year
11 number was 3.54 Class A mishaps per 100,000 hours.
12 The FY01 figure was 3.53. Slightly lower.

13 MR. LAM: And did you just say, General
14 Jefferson, if you were to select '98 to 2001, the
15 trend would be level because --

16 GEN. JEFFERSON: That's an eyeball, but
17 it looks that way to me.

18 JUDGE FARRAR: It would be level but it
19 would be higher than your 3.53?

20 GEN. JEFFERSON: Yes. But it would be
21 a three-year rate.

22 JUDGE FARRAR: Right.

23 MR. GAUKLER: You get a better
24 pictorial look of the whole picture over time
25 looking at Exhibit 154, which shows the chart over

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1 time.

2 Q. I have no more questions on this
3 exhibit. I would move its admission, Number 155.

4 JUDGE FARRAR: Any objection?

5 MR. GAUKLER: We would rather have
6 Dr. Resnikoff put it on when he gets on the stand.
7 He can support it.

8 JUDGE FARRAR: Ms. Marco?

9 MS. MARCO: No objection.

10 JUDGE FARRAR: Let's defer action on
11 the motion because, while with General Jefferson
12 we may like this as an eyeball deal, it would be
13 better if whoever prepared it could attest that
14 that is a mathematically correct line. So we will
15 let Dr. Resnikoff, when he comes in, we can ask
16 him one or two questions and then if he gives the
17 right answers, have it admitted.

18 MR. SOPER: Would I need to offer it as
19 part of the State's prefiled, in that event, your
20 Honor?

21 JUDGE FARRAR: No.

22 MR. SOPER: May I proceed, then?

23 JUDGE FARRAR: Certainly.

24 MR. SOPER: Thank you.

25 Q. (By Mr. Soper) General Jefferson, in

1 calculating the impact of F-16s that fly through
2 Skull Valley, the impact to the proposed site, you
3 had to determine the width of the flight path for
4 the F-16s. Is that right?

5 GEN. JEFFERSON: That's correct.

6 Q. You are familiar with the cross section
7 of Skull Valley that is contained in your crash
8 report, Exhibit N; is that correct? For
9 convenience, let me offer everyone a copy.

10 I thought it would be convenient. Just
11 for reference, this is part of the crash report,
12 Exhibit N?

13 JUDGE FARRAR: Let me make sure we got
14 all of that on the record. You have just given us
15 the graph entitled Severe B MOA. And this is for
16 a reference. It is from what previous exhibit?

17 MR. SILBERG: It is applicant's Exhibit
18 N.

19 JUDGE FARRAR: Crash report?

20 MR. SILBERG: Figure 1 in Exhibit N.

21 Q. Colonel Jefferson, do you have Figure 1
22 in front of you?

23 GEN. JEFFERSON: Yes, I do.

24 Q. And you are familiar with this?

25 GEN. JEFFERSON: I constructed it.

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1 Q. Very nice. And it represents Severe B
2 MOA. Is that right?

3 GEN. JEFFERSON: At the latitude of the
4 site.

5 Q. And Severe B MOA is where 95 percent of
6 the Skull Valley flights occur; is that right?

7 GEN. JEFFERSON: Yes.

8 Q. And Severe B is shown here as 12 miles
9 wide?

10 GEN. JEFFERSON: That's correct.

11 Q. And you say that most F-16s fly between
12 3000 and 4000 feet AGL. Is that correct?

13 GEN. JEFFERSON: Yes. That was the
14 information we were given by Hill.

15 Q. You say by Hill. Who gave you that
16 information?

17 GEN. JEFFERSON: General Cole got that.

18 GEN. COLE: May I, sir?

19 Q. Yes.

20 GEN. COLE: On a conference call from
21 the chief of safety for the Air Force's office
22 with the Hill Air Force Base staff, on 20
23 November, we were given 3000 to 4000 by Larry
24 Thompson and Jeff Harold, the chief of safety and
25 his successor. I visited Hill Air Force Base on

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1 15 December, '98 at a round table with Colonel
2 Oholundt, vice commander at the time, and his
3 staff and discussed a variety of issues. And that
4 3000 to 4000 was given to me again. And also that
5 the eastern side of the valley is where they
6 normally fly.

7 Q. What exactly did they say with respect
8 to flying or the flight path of F-16s?

9 GEN. COLE: Generally they fly on the
10 eastern side of the valley, fully understanding
11 that because it is a MOA you can fly anywhere in
12 it you wish. That came up on the conference call
13 on 20 November, 1998. It also came up at the
14 discussion on 15 December, 1998 when I visited
15 Hill. I had a telephone conversation with Colonel
16 Oholundt in July of 1999, and he reiterated that
17 you could fly anywhere in the valley you wish but
18 that, quote, the eastern side of the valley is the
19 predominant route of choice.

20 Q. The eastern side is the predominant
21 route of choice?

22 GEN. COLE: Yes, sir.

23 Q. Those were his exact words?

24 GEN. COLE: Yes, sir.

25 Q. So the eastern side was not described

1 more specifically than that?

2 GEN. COLE: No.

3 Q. I see. So your interpretation that it
4 is approximately five miles from the PFS site is
5 your interpretation of that conversation?

6 GEN. COLE: That's a good number simply
7 because approximately five miles east was
8 mentioned, I think on the conference call on 20th
9 of November.

10 Q. But you are not certain of the five
11 miles?

12 GEN. COLE: It was mentioned either at
13 the conference call or when I was at Hill. I
14 can't specifically recall which time.

15 Q. It was five miles east of the PFS site?
16 Is that right?

17 JUDGE FARRAR: Mr. Soper, before you go
18 on, I'm not sure we understand what this graph,
19 what this figure depicts. And rather than not be
20 able to understand the questions and answers --

21 MR. SOPER: Let me flesh that out for
22 you.

23 GEN. COLE: Would you like me to answer
24 the question first?

25 JUDGE FARRAR: No. Who created this?

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1 GEN. JEFFERSON: I did.

2 JUDGE FARRAR: General Jefferson.

3 Okay. The vertical scale is height above --

4 GEN. JEFFERSON: It is MSL, but it
5 starts at the floor of the valley, which is at
6 4500 feet.

7 JUDGE FARRAR: Okay.

8 GEN. JEFFERSON: And it goes up to the
9 top of the Severe B MOA which is at 9500 MSL.

10 JUDGE FARRAR: And then the horizontal
11 scale --

12 GEN. JEFFERSON: Plotted where the PFSF
13 would be, two miles to the west of that is the
14 edge.

15 JUDGE FARRAR: At the exact --

16 GEN. JEFFERSON: At the latitude.

17 JUDGE FARRAR: -- the exact latitude.

18 We are not looking at the whole length of the
19 Severe MOA. We are looking at it right where
20 the --

21 GEN. JEFFERSON: What I did was where
22 the site is going to be --

23 MR. SILBERG: Speak up for the
24 reporter, please.

25 GEN. JEFFERSON: I looked at where the

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1 site was going to be. I drew a line across at the
2 latitude. Not perpendicular to the route of
3 flight, but actually at the latitude. And then I
4 took calipers and went across and measured the
5 altitude lines.

6 JUDGE FARRAR: And so the site happens
7 to be toward the western --

8 GEN. JEFFERSON: The site is over here.

9 JUDGE FARRAR: Okay. So the left and
10 right hand, the minus two --

11 MR. GAUKLER: I would suggest the
12 bigger chart might be more useful.

13 JUDGE FARRAR: We are doing fine.

14 MR. GAUKLER: Okay.

15 JUDGE FARRAR: So the minus 2 on the
16 bottom of the graph is two miles west of the site,
17 which is the -- in other words, it happens that
18 the boundary of the Severe B MOA is two miles west
19 of the site?

20 GEN. JEFFERSON: That's correct.

21 JUDGE FARRAR: And it happens that the
22 eastern boundary of the MOA is 10 miles east of
23 the site?

24 GEN. JEFFERSON: That's correct.

25 MR. LAM: So you are looking exactly

1 north?

2 GEN. JEFFERSON: Looking, north.
3 Opposite direction of flight, but looking north
4 because that's the way I look at maps.

5 JUDGE FARRAR: Now we understand how it
6 was constructed. But visually what does the black
7 area --

8 GEN. JEFFERSON: The black area is
9 ground, terrain, mountainside. You can't fly in
10 that.

11 COL. FLY: Not for very long.

12 JUDGE FARRAR: I knew that.

13 GEN. JEFFERSON: And the line above
14 that, above the black line, in Severe B there is a
15 restriction by the Air Force that you cannot fly
16 lower than 1000 feet above the terrain. So that
17 bounds the flyable air space.

18 JUDGE FARRAR: So the flyable air space
19 is the white area --

20 GEN. JEFFERSON: Above the --

21 JUDGE FARRAR: Above the 1000.

22 GEN. JEFFERSON: Above the 1000 foot
23 line.

24 MR. LAM: So what you are saying is if
25 I'm flying exactly eight miles east of the site,

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1 the ground level is 8000 feet. So I better fly
2 8000 plus another 1000 feet.

3 GEN. JEFFERSON: That's correct.

4 MR. LAM: Thank you.

5 JUDGE FARRAR: But I can't go above
6 9500.

7 GEN. JEFFERSON: Not and stay in Severe
8 B. If you did, you would be in Severe D.

9 JUDGE FARRAR: I got it. Thank you. I
10 don't know what the last question was, so you may
11 want to reask it.

12 MR. SOPER: I'm not sure I remember.

13 JUDGE FARRAR: General Cole remembers
14 it.

15 GEN. COLE: The question you asked, and
16 correct me if I'm wrong, was that five miles to
17 the east; five miles to the east of what? I
18 believe it was on the 20 November conference call.
19 I believe the individual who stated that was
20 Colonel Larry Thompson, who was the chief of
21 safety of the 388th at the time. And the
22 discussion was around the PFS site. So I believe
23 he was talking about five miles west of the site.
24 But it was a notion, an approximate distance. It
25 wasn't a firm thing.

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1 MR. GAUKLER: You said west.

2 GEN. COLE: West.

3 MR. GAUKLER: You meant east, right?

4 GEN. COLE: I meant east.

5 Q. And Colonel Thompson had some notion of
6 where the PFS site was going to be located?

7 GEN. COLE: The entire staff did, yes,
8 sir.

9 Q. Where did they get that notion? Do you
10 know? From a map?

11 GEN. COLE: Well, I hadn't visited them
12 at the time on 20 November, so I had no idea what
13 briefings they received or how much they knew.
14 But when I arrived at Hill on 15 December everyone
15 was acutely aware of where the site was proposed
16 and a fair amount of the issues around it.

17 Q. But you are not sure if their
18 understanding of where it was was accurate? You
19 didn't give them the understanding?

20 GEN. COLE: I did not. Although when I
21 visited Hill on 15 December, the vice commander
22 and I sat down with calipers and measured the
23 distance on the map. So they knew where it was.

24 Q. What distance did you measure?

25 GEN. COLE: We were measuring a

1 distance from Michael Army Airfield to the
2 proposed site.

3 Q. So at the time that somebody suggested
4 that the predominant route of flight was five
5 miles east of the PFS site, is that or does that
6 characterize your testimony?

7 GEN. COLE: Not quite. It was in the
8 July, '99 conversation with Colonel Oholundt when
9 he said the predominant route of flight. In the
10 telephone conversation and then in the visit out
11 to Hill he said, "We fly about five miles east,
12 3000 to 5000 feet AGL normally."

13 Q. Okay. So we don't have any idea what
14 percentage of flights fly there, or exactly what
15 formations?

16 GEN. COLE: No.

17 Q. Or anything else from that
18 conversation.

19 GEN. COLE: No.

20 Q. Let me ask General Jefferson, since he
21 prepared this chart, a couple more questions. The
22 scale on the right that begins with 4500 feet and
23 goes to 9500 feet, that is MSL? Is that right?
24 Mean Sea Level?

25 GEN. JEFFERSON: That's correct. And

1 that is greatly exaggerated compared to the
2 horizontal scale.

3 Q. I see. And 4500 feet MSL would equate
4 to approximately zero AGL?

5 GEN. JEFFERSON: That's the floor in
6 the valley, yes. The floor in that area.

7 Q. Now, it is also true, is it not, that
8 there is, at least informally, pilots will
9 establish a buffer zone on the western edge of the
10 MOA, which is restricted air space? Is that
11 right, General?

12 GEN. JEFFERSON: There's no requirement
13 for that.

14 Q. In practice, the pilots will not fly
15 right up to the restricted air space; they will
16 leave a buffer of a mile or two? Is that right?

17 GEN. JEFFERSON: In practice they fly,
18 as best we can tell, five miles east. But for the
19 analysis that the NRC staff wanted us to do, they
20 wanted us to make an even distribution across this
21 area. So you'd have to assume they went to the
22 edge.

23 Q. I'm having a hard time getting a
24 straight answer from you, General. You say in
25 here, "Our assessment does not explicitly account

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1 for the fact that pilots now maintain a two-mile
2 buffer zone on the western edge." And I realize
3 that was stricken from your testimony.

4 GEN. JEFFERSON: That was stricken.

5 Q. But you said it was on the basis that
6 it was not a formal buffer. You had some
7 information before that there was --

8 GEN. JEFFERSON: Yes. That's correct.
9 I had some information from the Staff, which
10 evidently was not correct. And so I took that
11 back out again.

12 Q. The NRC staff told you there's a two-
13 mile buffer?

14 GEN. JEFFERSON: They said they heard
15 that from Hill.

16 Q. Colonel Horstman says there's -- pilots
17 will maintain a one-mile buffer. Do you have any
18 reason to dispute that?

19 GEN. JEFFERSON: I don't know that that
20 is correct.

21 Q. My question, sir, is do you have any
22 reason to dispute that?

23 GEN. JEFFERSON: Neither one way or the
24 other, no.

25 JUDGE FARRAR: What is the restricted

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1 area to the west? Why is it restricted?

2 GEN. JEFFERSON: That's the restricted
3 area 6402 B. As you may remember, the restricted
4 areas are towards the center and they go up to
5 5800 feet and essentially take all the air space.

6 JUDGE FARRAR: But what goes on there
7 that it is restricted?

8 GEN. JEFFERSON: A restricted area for
9 military pilots, any pilot, is a place you just
10 don't go because there's very serious sanctions if
11 you trespass in there.

12 JUDGE FARRAR: But there must be
13 something going on there --

14 GEN. JEFFERSON: Oh, that's -- excuse
15 me. Yes. That's the area where you'll do your
16 combat training, bomb drops, that kind of thing.
17 Colonel Fly?

18 COL. FLY: I'd like to --

19 JUDGE FARRAR: Wait. Would some of
20 these pilots from Hill be allowed in there -- is
21 that where they would do some of their maneuvers?

22 GEN. JEFFERSON: That's exactly right.
23 But they can't go in there without clearance and
24 without control knowing where they are, because
25 they might interfere with something else going on.

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1 JUDGE FARRAR: Okay. That's fine.

2 COL. FLY: Just to clarify, there are
3 no ranges to drop bombs in that area. I don't
4 believe the southern one, the 6402 Bravo, I don't
5 think I was ever given that as air space to use.

6 JUDGE FARRAR: Thanks.

7 COL. FLY: The restricted areas in the
8 center of the southern UTTR and the northern UTTR
9 are where the real aggressive training takes
10 place.

11 JUDGE FARRAR: And I'm trying to
12 recall. And Mr. Soper, I'm sorry for interrupting
13 your train here.

14 MR. SOPER: That's all right.

15 JUDGE FARRAR: What I seem to recall
16 either from the tutorial or from an hour or two
17 ago, is they leave Hill, come south through Skull
18 Valley, and they can't go into the restricted area
19 then. So then they come down and they make a
20 U-turn and then they go into the restricted area
21 to do whatever they are doing that day.

22 GEN. COLE: Yes, sir.

23 JUDGE FARRAR: Okay. While Mr. Soper
24 is thinking about his next move, this may be a
25 dumb question but I'd rather ask it now. How did

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1 Interstate 80 get built, in light of the
2 restrictions?

3 COL. FLY: Actually, your Honor. If
4 you look at it, Interstate 80, there's no active
5 areas directly over Interstate 80.

6 JUDGE FARRAR: But there's active areas
7 north of it and active areas south of it.

8 COL. FLY: Yes, there is.

9 JUDGE FARRAR: So somehow all the
10 government agencies got together and said, "We
11 want to build this road and here is how we will do
12 it."

13 COL. FLY: That predates my knowledge
14 by quite a bit, your Honor. I don't know.
15 Actually, they bring the airliners down through
16 there. The airliners will come in from high
17 altitude on the western side. And I'll define
18 that, if I can remember what I used to pick them
19 up on the radar, in the high twenties, mid
20 thirties. In that general area. And they start
21 to pick up a descent and they will fly down the
22 corridor in a descent, positioning themselves for
23 Salt Lake City.

24 MR. LAM: Tell me which airline,
25 Colonel?

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1 COL. FLY: Lieutenant Horstman will be
2 in a better position. He is a 737 pilot for
3 Southwest Airlines, so they will probably be in a
4 much better position to answer that.

5 MR. SILBERG: Judge Farrar, in terms of
6 the timing, that corridor was established a little
7 bit before either the UTTR or I-80. The Union
8 Pacific out there in the 1880s, built a railroad.

9 MR. BARNETT: 1860s.

10 MR. SILBERG: In the 1860s built a
11 railroad.

12 JUDGE FARRAR: And I-80 follows the
13 railroad exactly?

14 MR. SILBERG: At that location,
15 parallels.

16 JUDGE FARRAR: Mr. Soper, I just wanted
17 to clarify that so I had a mental image of how all
18 these areas tie together.

19 MR. SOPER: Thank you, your Honor.
20 Could we pause for five minutes, your Honor?

21 JUDGE FARRAR: Yes, certainly. Anyone
22 need more than that?

23 MR. GAUKLER: I'd like to go to the
24 restroom, your Honor.

25 MR. SILBERG: How long are we going?

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1 MR. KLINE: Long. It's going to be a
2 long night.

3 JUDGE FARRAR: I'm beginning to get
4 nervous, not quite as nervous as I was Monday
5 night, but nervous about us finishing. And not
6 because of anyone's fault. I mean, we are moving
7 at a good speed but it is taking a long time. So
8 I would like to not be quitting at 5:30 but push
9 on to 6:00 or 6:30 or something that's a good
10 stopping point. And I just don't want to lose
11 time that we can't make up.

12 MR. SILBERG: Again, I defer to the two
13 critical parties, the reporter and the witnesses.

14 JUDGE FARRAR: Let's come back at five
15 o'clock, Mr. Soper. That will give you twice as
16 much time to get organized. Let everybody else
17 take a break and then we will push forward.

18 MR. SOPER: Thank you, your Honor.

19 (Discussion off the record.)

20 JUDGE FARRAR: Back on the record,
21 while everyone is getting settled. It turns out
22 we have guards available until 6:30, one of whom
23 can wait a little while longer. So let's shoot,
24 Mr. Soper, if you are still going with cross
25 examination --

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1 MR. SOPER: I am, your Honor.

2 JUDGE FARRAR: Once we get to 6:30,
3 pick a point after that that's a good break point
4 and we will quit for the evening.

5 MR. SOPER: Thank you, your Honor. I
6 have submitted an exhibit to be marked. It is --

7 MR. SILBERG: I don't believe we have
8 received anything. Oh, this is the marked-up
9 figure?

10 MR. SOPER: It is similar to the Figure
11 1 exhibit that we were looking at. And it's been
12 overlaid with some material. At the top it bears
13 the statement, "3000 to 4000 Feet Above Ground Sea
14 Level Cross-Section".

15 JUDGE FARRAR: And you want this marked
16 as --

17 MR. SOPER: As State's Exhibit 156.

18 JUDGE FARRAR: We will have the
19 reporter do that.

20 MR. SILBERG: You said "above ground
21 sea.level". I think it says "above ground level".

22 MR. SOPER: I said that?

23 MR. SILBERG: Yes.

24 MR. SOPER: I meant to read it right
25 off here.

1 JUDGE FARRAR: "Above ground level."

2 MR. SOPER: "Above ground level cross
3 section." Thank you.

4 (STATE'S EXHIBIT-156 WAS MARKED.)

5 Q. We have had that done. Before you
6 start your questioning, Mr. Soper, Mr. Silberg,
7 your witnesses, after they finish, whenever that
8 is, are they going home or staying to consult with
9 you during the rest of the week?

10 MR. SILBERG: I believe they will be
11 here.

12 JUDGE FARRAR: Okay.

13 MR. SILBERG: I hope they will be.

14 JUDGE FARRAR: So if we had to ask them
15 something later.

16 MR. SILBERG: They will be here.

17 JUDGE FARRAR: They will be here.

18 Don't leave town. If you do have to leave, let us
19 know because in case we think of something we need
20 to ask you, we would ask it before you leave. So
21 let us know, if you would do that.

22 GEN. JEFFERSON: Your Honor, I'm
23 planning to be here until Sunday.

24 GEN. COLE: Same here. Sunday, sir.

25 JUDGE FARRAR: Okay, thanks. Go ahead,

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1 Mr. Soper.

2 MR. SOPER: Thank you, your Honor.

3 Q. (By Mr. Soper) Colonel Jefferson, you
4 have before you what's been marked -- General.
5 I'm sorry, sir. You have what's been marked as
6 State's Exhibit 156; is that right?

7 GEN. JEFFERSON: Yes, sir.

8 Q. I would offer, General, that this is
9 the Figure 1 chart that you testified that you
10 prepared previously. And added to that is a
11 shaded area that purports to be a space between
12 3000 feet above ground level and 4000 feet above
13 ground level. Actually, this, as you can see,
14 wasn't computer generated. But does it appear to
15 be a reasonable representation of the space
16 between 3000 and 4000 feet AGL?

17 GEN. JEFFERSON: As far as it goes. Of
18 course it doesn't go all the way to the western
19 edge there.

20 Q. Okay. This was based on your prefiled
21 testimony that said there was a two-mile buffer,
22 so that's why I have stopped there. Assuming
23 there's a two-mile buffer, which I understand you
24 have withdrawn, it would appear as the shaded
25 area; is that right, sir?

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1 GEN. JEFFERSON: If you made that
2 assumption. But it has been withdrawn.

3 Q. Okay. May I just ask Colonel Fly
4 quickly, before we proceed with this, a question?
5 Colonel Fly, I think you previously stated that
6 predominantly F-16 pilots fly down the center to
7 the middle of Skull Valley? Is that right?

8 COL. FLY: I don't recall making that.
9 Can you point me to that?

10 Q. Let me read from your deposition and
11 you can tell me whether you have this
12 recollection.

13 "Have you flown to the eastern
14 side of Skull Valley?"

15 "Yes."

16 "Have you flown down the western side
17 of Skull Valley?"

18 "Yeah. But, you know, with the
19 exception of -- I would fudge over to make sure I
20 wasn't going through the restricted areas depicted
21 on the map, 6402 A and B I think they are, the
22 numbers. 6406 B and 6402 B. I'm sorry.
23 Predominantly most guys would figure the middle to
24 the eastern side because of that restricted air
25 space off to the west."

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1 Does that make sense?

2 COL. FLY: In my rather jumbled jargon,
3 I guess it did at the time.

4 Q. That's how we sound after we are
5 transcribed. It doesn't always come out like you
6 think. But by "fudging over" so you don't go to
7 the restricted air space, I take it you would
8 leave some sort of a buffer zone there?

9 COL. FLY: Typically. And actually,
10 when you start talking about Skull Valley, what I
11 would do is I would orient myself to the flight
12 path to point toward the narrow neck down by
13 Dugway, the south, toward the south of the end of
14 Skull Valley, and do all the stuff I would have to
15 do while I was heading that general direction.

16 Q. Colonel Horstman in his testimony says
17 that the typical buffer would be about a mile.
18 Would you agree with that?

19 COL. FLY: I'm not sure I would care to
20 quantify it because I don't -- it's just not the
21 way I flew in Skull Valley. I would point toward
22 that gap and that's kind of what -- I knew I
23 needed to head that way so I would take care of
24 the ops checks and all the business. And I knew
25 if I was headed to the gap, that buffer was never

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1 really or that restricted air space was never a
2 consideration. I'm not saying that very well.

3 Q. Well, let me read this again.

4 "But you know, with the exception of --
5 I would fudge over to make sure I wasn't going
6 through the restricted areas."

7 Doesn't that mean you would leave some sort of
8 a buffer there? What does "fudge over" mean?

9 COL. FLY: Well, no. I mean, that's
10 correct. I'm saying as a practical matter if you
11 are pointed toward that gap at the southern end of
12 Skull Valley, that builds that fudge or buffer, or
13 whatever you want to call it, into it.

14 Q. All right. The buffer was built in.
15 Would you say that a mile is the approximate width
16 of the built-in buffer?

17 COL. FLY: I'm not sure I'd really want
18 to quantify it because I never sat down and
19 thought of it in those terms. I knew as long as I
20 was heading toward that gap from where I started,
21 it wasn't really a factor. And I never sat down
22 to plot out to say, "Am I a mile away? Two miles
23 away? Or am I two and a half?"

24 Q. So you don't have any recollection of
25 what buffer you would leave there?

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1 COL. FLY: I think I have adequately --
2 I have described my thought processes and that
3 builds in a buffer. I have never sat down to sit
4 down and measure that out.

5 Q. Would you think that one mile would be
6 within the possible range of what that buffer is?

7 MR. GAUKLER: Asked and answered.

8 MR. SOPER: This is cross-examination,
9 so I can ask and answer.

10 MR. SILBERG: Not indefinitely.

11 JUDGE FARRAR: Except he doesn't call
12 it a buffer. If what you are asking is when you
13 head for that gap, do you know how many miles that
14 happened to be and how many miles that happened to
15 put you from the --

16 COL. FLY: Your Honor, may I go to the
17 map just for a very quick --

18 JUDGE FARRAR: Yes.

19 COL. FLY: This is that narrow gap. If
20 you are flying pointed towards that direction --

21 MR. SILBERG: Colonel Fly, could you
22 try to be a little bit more specific verbally,
23 because otherwise the record won't indicate what
24 we are talking about.

25 COL. FLY: I have got the pointer, your

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1 Honor, starting at the northern portion of Skull
2 Valley, at the northern portion of Severe B MOA,
3 and running down through basically the center of
4 the narrow neck of B Dugway. In that general
5 area. The distance -- this would be a typical
6 flight path, if you will, somewhere in here. That
7 distance for this buffer up here, that's
8 notionally a four-mile buffer, nautical miles. So
9 that would be 4.5 statute miles, 4.7, somewhere in
10 there, at that point. As you come down here, the
11 whole area is only about seven miles wide. So you
12 could never have that 4.5 mile buffer.

13 MR. SILBERG: Excuse me. When you say
14 "down here", could you describe that?

15 COL. FLY: To the southern portion of
16 Skull Valley.

17 MR. SILBERG: Below the proposed site.
18 Is that right?

19 COL. FLY: Yes. At the narrow gap of B
20 Dugway Village. The whole area is only about
21 seven nautical miles wide. So there's no way you
22 could have that. It's going to self limit. And
23 depending exactly where I get turned into the area
24 by the air traffic control people, that's going to
25 direct me to some point in this general area. I

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1 honestly never thought of it in terms of how far
2 away am I. I thought of it, if I head to the gap,
3 from where they drop me in at the north, that is
4 going to keep me clear.

5 JUDGE FARRAR: Right. But now, as you
6 are at the map and reconstructing how you did
7 these flights, give us a typical distance you
8 would be from the western edge, the way you just
9 held the pointer. From the western edge. Use
10 your finger and just point to where the site is.

11 COL. FLY: Now we will find it. It is
12 very faintly marked. The tip of my finger, just
13 above and to the left of the "S" in "Severe B".

14 JUDGE FARRAR: Okay. Then at that
15 latitude, for example, when you are coming down,
16 typical flight, how far were you from the site?
17 In other words, the site and the western edge are
18 pretty much the same thing right there.

19 COL. FLY: I believe that distance,
20 your Honor, I believe is about two miles. I'd
21 have to measure that. I think it's about two
22 miles from the proposed site to the border, if you
23 measure it this way. I think the actual closest
24 point tangentially is 1.8, 1.9.

25 JUDGE FARRAR: Okay. That's enough to

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1 serve my purpose of clarifying for the Board's
2 intention. Mr. Soper, start from there with where
3 you are on your cross.

4 MR. GAUKLER: Your Honor, I think he
5 was just describing the distance of the site from
6 the western border, not how far he flew from the
7 western border.

8 JUDGE FARRAR: The way I saw him use
9 that exhibit, he pointed to the site being between
10 the "S" and what looks from here like the western
11 border.

12 MR. GAUKLER: Right. And that's
13 approximately two miles.

14 MR. SILBERG: But that's not the
15 distance he is flying from either the western
16 border or, obviously, the site.

17 MR. TURK: Your Honor, could we ask him
18 to estimate the distance from that flight path he
19 has shown with the pointer to the site while he is
20 up there at the map?

21 JUDGE FARRAR: Yes. I guess my problem
22 is I thought from the way he pointed -- is there a
23 scale of miles at the top?

24 COL. FLY: Your Honor, I have to go to
25 the longitude. Each one is one nautical mile as

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1 you measure on this scale. A little over 6000
2 feet.

3 JUDGE FARRAR: Up there in the blue,
4 show me what is a mile.

5 COL. FLY: In here, your Honor?

6 JUDGE FARRAR: Yes. A mile would be
7 from where to where?

8 COL. FLY: On a vertical axis, from dot
9 to dot or dash to dash is one nautical mile.

10 JUDGE FARRAR: Put your pointer
11 somewhere and move it a mile.

12 COL. FLY: If I go from this cross
13 section up to the first hash mark, that's one
14 nautical mile, two nautical miles.

15 JUDGE FARRAR: Okay. Fine. I got it.

16 COL. FLY: Is this an exact science or
17 what?

18 GEN. JEFFERSON: A little over five
19 miles.

20 COL. FLY: Approximately six statute
21 miles, as we just measured. And your Honor --

22 MR. GAUKLER: Six statute miles from
23 where to where? Be very clear. Six statute
24 miles --

25 COL. FLY: From an estimate of the

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1 flight path, I think is that a fair thing to say,
2 to the border?

3 JUDGE FARRAR: And if any of you --

4 COL. FLY: And your Honor, again,
5 that's --

6 JUDGE FARRAR: I got what I need. The
7 only reason I needed all that was I had an
8 objection that I couldn't rule on because I didn't
9 grasp exactly what we were talking about there.
10 There was an objection about asked and answered
11 and I couldn't put the objection in context
12 without being able to see what we did.

13 Mr. Soper, why don't you, then, I'll
14 give you a chance to restart and I'll be better
15 able to appreciate the asked and answered
16 objection. So start again or start wherever you
17 want to. You get a free pass on this one.

18 MR. SOPER: Thank you.

19 Q. (By Mr. Soper) As I understand it, you
20 generally fly or flew through Skull Valley
21 approximately six miles east of the western edge
22 of the MOA? Is that what we just established?

23 MR. TURK: The west? Oh, I'm sorry.

24 Q. Six miles from the western border of
25 the MOA at the longitude --

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1 MR. SILBERG: At the latitude.

2 Q. At the latitude of PFS.

3 COL. FLY: For what we just measured,
4 which was a representative flight path. And
5 again, to try to be honest, that would move a
6 little east, a little west. I didn't say I'm
7 always entering here.

8 Q. I understand that. So that would mean
9 that if we were to assume a buffer zone of one
10 mile, that was well within that.

11 COL. FLY: I would have been well clear
12 of that, yes.

13 Q. Now, General Jefferson, if I may resume
14 with you, sir. I'm trying to establish what a
15 reasonable buffer zone might be for purposes of
16 looking at this. You have withdrawn your
17 testimony as the two-mile buffer zone. Would a
18 one-mile buffer zone be a reasonable
19 approximation, do you think, based on Colonel
20 Fly's testimony?

21 GEN. JEFFERSON: Actually, if we are
22 going to use 3000 and 4000 feet, I think we ought
23 to use the other part of that equation, which the
24 pilots fly east of the site about five miles.
25 Using one without the other doesn't tell us a lot.

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1 Q. Well, that sort of anticipates what I'm
2 about to ask you. But I'm not sure that's what my
3 questions will be. I'm just wondering right now
4 if you think a mile is a reasonable buffer to use
5 in talking about this.

6 MR. GAUKLER: Asked and answered.

7 JUDGE FARRAR: No. We will allow some
8 leeway here, and counsel and the witness will get
9 through this. Go ahead.

10 Q. There's a question pending. Do you
11 understand it?

12 GEN. JEFFERSON: Whether there's a
13 buffer there or not?

14 Q. Yes.

15 GEN. JEFFERSON: Yes. Under that
16 construct there's a buffer zone.

17 MR. SILBERG: I'm sorry. When you say
18 "there or not", are we talking about this exhibit
19 or are we talking about what actually happens in
20 Skull Valley? I've just gotten very confused and
21 I apologize. Is the question whether pilots
22 observe a one-mile buffer zone, or whether that's
23 a good number to use for pilots to observe? Or is
24 that question as to what representation should we
25 have on this --

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1 Q. Let me ask it this way: When your
2 testimony was in there as to a two-mile buffer
3 zone, what did you mean by that?

4 GEN. JEFFERSON: I meant we were told
5 there was a two-mile area where pilots weren't
6 supposed to fly.

7 Q. Officially, you were under the
8 impression --

9 GEN. JEFFERSON: That was my
10 understanding.

11 Q. Have you ever heard of an official
12 buffer zone before that's not on the map?

13 GEN. JEFFERSON: If it's part of a
14 unit's instructions to their pilots, yes, it would
15 not be printed on the map.

16 Q. If we were to assume -- and, of course,
17 now your basis for withdrawing it, I understand,
18 was that it was an informal buffer zone; is that
19 right?

20 GEN. JEFFERSON: As I understand it --
21 may I look for the source? I don't know where it
22 is.

23 MR. SILBERG: Take your time and find
24 the document.

25 GEN. JEFFERSON: I don't think I have

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1 the document. It's the Hill --

2 MR. SILBERG: Judge Farrar, I think we
3 are looking for the document which is the basis
4 for testimony which has now been withdrawn, so I'm
5 not sure where we are going, but we will find it.

6 Q. Is there a question pending that you
7 have an answer to?

8 GEN. JEFFERSON: I believe the
9 question, if I'm correct, is why did we withdraw
10 the idea of a two-mile buffer zone?

11 Q. Yes.

12 GEN. JEFFERSON: We received a memo
13 from Hill - actually, we got it through NRC
14 staff - responding to questions they had asked
15 Hill and follow-up to a meeting they had there.
16 The question was -- the question, the Salt Lake
17 City Sectional aeronautical chart also indicates
18 that the air space width, as established by the
19 Severe B MOA boundaries, is approximately 12
20 statute miles. However, when we met with you
21 previously we believe you had indicated to us that
22 a buffer zone of about two statute miles was
23 observed with respect to the western boundary of
24 the Severe B MOA, due to the restricted air space
25 adjoining it. And a two statute mile distance was

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1 maintained with respect to the Stansbury Mountains
2 in the east. Given the above, what are the
3 correct widths for Severe B and Severe D?"

4 The answer from Hill is, "The MOA is
5 approximately 12 miles wide. The two-mile buffer
6 you refer to is a self-imposed buffer used in the
7 restricted areas. There are no buffers in the
8 MOAs."

9 Q. So this is a self-imposed buffer of two
10 miles as opposed to --

11 GEN. JEFFERSON: In the restricted
12 area. Not in the MOA. So if you were on the
13 other side of that line in the restricted area,
14 you aren't going to approach that.

15 Q. So I guess we are back to -- what I'm
16 trying to get here, General, is pilots, knowing
17 there's a restricted area, will not fly right up
18 to the edge of the restricted air space, will
19 they?

20 GEN. JEFFERSON: I would doubt that.

21 Q. So they will leave some buffer, or
22 whatever you want, some space between their
23 aircraft and the restricted air space?

24 GEN. JEFFERSON: As a practical matter.

25 Q. As a practical matter. I want, sir,

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1 your best estimate of what that distance is.

2 GEN. JEFFERSON: Well, as we just
3 measured, it's about six miles.

4 Q. The buffer is about six miles?

5 GEN. JEFFERSON: That's where the
6 route, flight was.

7 Q. So do you think most pilots will avoid
8 going within six miles of the --

9 GEN. JEFFERSON: That's where they will
10 naturally be, which is consistent with what we had
11 earlier.

12 Q. Okay. Given that, sir, what would you
13 think the width of the usable air space is at the
14 latitude of PFS in Skull Valley?

15 GEN. JEFFERSON: For purposes of
16 modeling, it's ten miles.

17 Q. Ten miles. Let me show you, if you'd
18 look at 156, sir, and assuming that most flights
19 are between 3000 and 4000 feet as you have
20 suggested; is that correct?

21 GEN. JEFFERSON: That's what we were
22 told. But again, that is with that distance
23 associated with it.

24 Q. And if we assume that there's no buffer
25 for purposes of this conversation, and the shaded

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1 area extended way over to the left of the graph,
2 which would be the western boundary of the
3 restricted air space, it would seem to me, by just
4 eyeballing this, which is not too difficult, it is
5 pretty large numbers, that there would be a
6 maximum of a nine-mile width between 3000 and 4000
7 feet.

8 GEN. JEFFERSON: Yes. If you accept
9 that construct, that's true.

10 Q. And you are also aware, are you not,
11 that F-16s fly in formations through Skull Valley?

12 GEN. JEFFERSON: Yes.

13 Q. And that they typically fly at least
14 two miles apart?

15 GEN. JEFFERSON: One to two miles.

16 Q. Colonel Fly? Do they typically fly two
17 to three miles apart?

18 COL. FLY: No. I think we typically
19 fly one to two out here because of the excellent
20 visibility. People would favor the 9000, 1.5
21 miles to two miles.

22 Q. Do you remember the memo, Colonel Fly,
23 you wrote for the original draft report dated
24 October 21, 1999?

25 COL. FLY: I remember that. And I

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1 can't remember the specific content in it.

2 Q. Let me read to you one sentence.

3 MR. SILBERG: If you could give him a
4 minute so he could find it.

5 COL. FLY: Yes, I think I found it.

6 Q. You see on Page 2 under the heading,
7 "How do F-16s use the air space above Skull
8 Valley?"

9 COL. FLY: Yes, I do.

10 Q. Would you read the next two sentences
11 following that?

12 COL. FLY: Certainly. "F-16s use it
13 primarily as a transition corridor to the south
14 UTTR. Typically F-16s will start a descent into
15 the low altitude arena (below 5000 feet) if that's
16 part of the mission and spread out in a tactical
17 formation which may be two to three miles across
18 and several miles deep. Formations may vary
19 depending on the number of aircraft in the flight,
20 your position, mission objectives, et cetera. In
21 addition, they may accelerate to above 400 knots
22 and perform two 90-degree g-awareness turns."

23 Q. Okay. So your estimate, for purposes
24 of this memo, was two to three nautical miles
25 across; is that right?

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1 COL. FLY: They may be that wide, and
2 if they are flying four ships they may be strung
3 out way far behind each other. Lieutenant Colonel
4 Horstman described a formation where a second
5 trailing element was, I want to say in excess of
6 five miles behind. So the formations do change
7 and it depends are you a two-ship or three-ship,
8 or -- I'm sorry. A four-ship. Because sometimes
9 if you are flying a four-ship, that's four
10 airplanes in one flight.

11 Q. I understand.

12 COL. FLY: I'm sorry. You may have a
13 flight where the distance between number one and
14 number two line abreast could be a mile and a half
15 or two miles. The trailing element may be, say,
16 three miles, four miles in trail, and offset with
17 maybe one of the aircraft in the middle, roughly,
18 of the two leaders that will add an additional
19 mile, if you will, if that's the formation they
20 choose to fly. So that would be a case where they
21 would both be within a mile and a half of each
22 other, but because of the offset box, if they
23 chose to fly that formation, they could pick up to
24 three miles for the total width of all four
25 airplanes.

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1 Q. If they were two to three nautical
2 miles across, what is that in statute miles? Two
3 miles is how many statute miles?

4 COL. FLY: That would be about 2.3.

5 Q. So if there were 2.3 to -- how many?
6 Three is how many statute miles?

7 COL. FLY: 3.4 or 3.5, I believe.

8 Q. So we have a formation that may be 2.3
9 to 3.5 wide. Is that right?

10 COL. FLY: Yes. If that was that type
11 of formation.

12 Q. Okay. I see. And typically, F-16s do
13 fly in formation through Skull Valley, do they
14 not?

15 COL. FLY: Typically, most flights -- I
16 won't say most flights, but that's a basic
17 fighting element is a formation with two elements
18 in it.

19 Q. Thank you. General Jefferson, then,
20 assuming for purposes of this graph, or assuming
21 that there's no buffer zone and that this graph
22 goes all the way over, the shaded area goes all
23 the way over to the left side, and if we had a
24 formation of two aircraft at either edge of the
25 shaded area, that means the two aircraft that

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1 would be in the middle would be less than five
2 miles apart. Isn't that right?

3 MR. GAUKLER: Objection. I didn't
4 understand the question, myself. I don't know if
5 General --

6 Q. Let me ask it again. Do you understand
7 it, General?

8 GEN. JEFFERSON: I think so.

9 Q. Okay.

10 GEN. JEFFERSON: I'm still looking at
11 the chart.

12 Q. Okay.

13 MR. GAUKLER: Could I ask the court
14 reporter to read the question.

15 (Pending question was read back.)

16 GEN. JEFFERSON: And was that based on
17 2.3 miles between aircraft? Is that the
18 presumption?

19 Q. The two miles.

20 MR. GAUKLER: I still find the question
21 unintelligible, myself. I object. I don't
22 understand what the question is. I don't
23 understand what the answer is.

24 JUDGE FARRAR: Can you -- it's a little
25 confusing. State the hypothetical or the

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1 presumption you want him to make first and then
2 ask the question.

3 Q. Let me break it down in pieces.

4 JUDGE FARRAR: Yes.

5 Q. If we extended the shaded area over to
6 the left side, we would then have the shaded area
7 of the air space between 3000 and 4000 feet AGL
8 that lies in this MOA. Is that correct?

9 GEN. JEFFERSON: Correct.

10 Q. And that air space is approximately
11 nine miles wide at its widest point?

12 GEN. JEFFERSON: Ten.

13 MR. GAUKLER: Talking about the area
14 between 3000 and 4000 feet in the shaded area?

15 Q. Yes. This question addresses what is
16 the width of the air space that we are using in
17 the formula. The width of the air space has been
18 testified to be most commonly between 3000 and
19 4000 feet, which we have depicted here. I just
20 want to ask some questions.

21 GEN. JEFFERSON: Yes. If you take --
22 if you were to go from the point where the 3000
23 foot AGL line intersects 9500 feet, which by the
24 way I wouldn't accept, but if you did that and
25 moved two miles in from there and did the same

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1 from the western edge, those two airplanes would
2 be five miles apart.

3 Q. I see. Now, you say you won't accept
4 or wouldn't accept the 3000 foot altitude at the
5 9500 foot level of the MOA. I don't understand
6 your reference there.

7 GEN. JEFFERSON: We have been modeling
8 this as an even distribution of planes across the
9 entire space, not only width-wise but all the
10 flyable space vertically. If we went back to the
11 3000 to 4000, we actually started with that based
12 on our Hill stuff, but we used the five miles to
13 the east of the site at that time. But we were
14 asked to change that to an even distribution.

15 Q. You were asked by whom?

16 GEN. JEFFERSON: The NRC staff.

17 Q. Now, if we took the -- well, I don't
18 know how else to ask this, sir. But it appears to
19 me that there is not a ten mile usable width of
20 the air space in this MOA except at -- no. In
21 this MOA, period.

22 MR. GAUKLER: There's no basis for that
23 question, I don't think, your Honor.

24 MR. SOPER: What is that objection?

25 JUDGE FARRAR: Let's ask it

1 affirmatively. Or let's let the witness
2 explain -- I understand your objection, Mr.
3 Gaukler. But the witness is capable of helping us
4 get through this.

5 GEN. JEFFERSON: I believe I was asked
6 is the usable width of the air space nine miles?
7 Actually, at the top it is eleven miles.

8 JUDGE FARRAR: Okay. It's nine miles
9 between 3000 and 4000 feet.

10 GEN. JEFFERSON: Yes. If you were to
11 construct it that way.

12 JUDGE FARRAR: But it is eleven miles
13 if you --

14 GEN. JEFFERSON: At 9500.

15 JUDGE FARRAR: -- if you use the entire
16 white space above the hatched line there.

17 GEN. JEFFERSON: Yes, sir.

18 JUDGE FARRAR: Okay. Mr. Soper, that
19 having been stated simply, what the graph seems to
20 show, ask your next question, if you would.

21 Q. (By Mr. Soper) Just to follow that up,
22 sir, it is your testimony that the majority of
23 flights fly between 3000 and 4000 feet above
24 ground level in this MOA, is it not?

25 GEN. JEFFERSON: I'll have to recheck.

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1 I don't think we use that anymore.

2 Q. May I direct your attention to Page 14,
3 Answer 38.

4 JUDGE FARRAR: Of?

5 MR. SOPER: This is his testimony,
6 prefiled testimony in this matter, your Honor.

7 MR. GAUKLER: Mr. Soper, could you
8 repeat that reference please?

9 MR. SOPER: Yes, sir. It is Page 14,
10 in answer to Question 38.

11 Q. (By Mr. Soper) And let's do it this
12 way: I'm referring to the third sentence in your
13 answer. I will read it. "The U.S. Air Force has
14 stated that F-16s typically fly in the Severe B
15 MOA between 3000 and 4000 feet above ground
16 level."

17 GEN. JEFFERSON: That reads correctly.

18 Q. And is that your testimony, sir?

19 GEN. JEFFERSON: That's a description
20 of the traffic as we were provided it.

21 Q. And do you, for purposes of calculating
22 the F-16 probability in Skull Valley, accept that
23 that is true?

24 GEN. JEFFERSON: No. That's not what
25 we used.

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1 Q. Well, I'm lost. What did you use?

2 MR. GAUKLER: Your Honor, I think what
3 is happening here is that Mr. Soper is trying to
4 take conflicting assumptions and build them into
5 one thing. Basically they were told two things by
6 Hill Air Force Base: 3000 to 4000 feet,
7 approximately five miles to the east. That's what
8 we were told. When we came to modeling it, it was
9 supposed to be spread out. So, I mean, he is
10 trying to take one assumption from one set of
11 scenario and make it fit another set of scenario.
12 It doesn't fit. I object to this line of
13 questioning.

14 JUDGE FARRAR: Mr. Gaukler, that would
15 have been excellent testimony from the witness but
16 I think that -- and I know what you are saying.
17 But I think what we need is for the witness to say
18 that. In other words, as I read this, and as you
19 just said, they were given one piece of
20 information by the Air Force. So Mr. Soper is
21 correct to say, "Okay, we have that piece of
22 information. But you did something else. Why did
23 you do something else?" I mean that, to me, is a
24 fair question. "Why did you do something else?"
25 Because that is, in fact, how we will reconcile

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1 the inconsistency. And Mr. Soper is giving the
2 witness his opportunity to do that, I think.

3 MR. SOPER: Thank you, your Honor. May
4 I proceed?

5 JUDGE FARRAR: Yes.

6 Q. (By Mr. Soper) I understand, then,
7 that the Air Force has told you that F-16s
8 typically fly between 3000 and 4000 feet AGL. And
9 that's correct. Right?

10 GEN. JEFFERSON: That part of it is
11 correct.

12 Q. I further understand that the NRC staff
13 has told you not to use the facts described by the
14 Air Force in computing the width of the airway?
15 Is that correct?

16 GEN. JEFFERSON: That's correct.

17 Q. Who on the Staff told you that?

18 MR. SILBERG: If you don't know, say
19 you don't know.

20 GEN. JEFFERSON: I don't know. I don't
21 remember that precisely.

22 Q. The obvious question to me, sir, is if
23 the Air Force says the facts are this is where the
24 F-16s fly, why would we not use where they fly
25 actually to determine the width of the air space?

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1 GEN. JEFFERSON: The explanation that
2 was given to me was that that was too restrictive
3 to have them five miles east and at 3000 or 4000
4 feet because they might change their patterns in
5 the future and we should model it to take the
6 whole area into account. So that's what we did.

7 JUDGE FARRAR: General Cole wants to
8 help out on this.

9 GEN. COLE: May I assist, Mr. Soper,
10 since I had the discussions with Colonel Ohlundt?
11 We had some real quality time over this issue.
12 "Typically", is the operative word, they do that.
13 But he was very specific with me, also, that said
14 we can fly anywhere in the valley if we wish,
15 horizontally and vertically. And if you look at
16 this chart, the real operative boundaries of where
17 you can fly, if you trace that 1000 foot AGL line,
18 gives you the operative usable air space if you
19 choose to exercise it that way. And "typically"
20 is the operative word in there.

21 JUDGE FARRAR: Then at the risk of
22 interfering with Mr. Soper, when somebody on the
23 Staff told you to do something different, did that
24 make your analysis more conservative or less
25 conservative? In other words, if the Staff said,

1 "Wait a minute. Forget that 3000 to 4000 feet.
2 These people can go anywhere." Is the result of
3 plugging the numbers into this formula even more
4 conservative from a safety standpoint or less
5 conservative?

6 GEN. JEFFERSON: May I check the
7 documents on that point?

8 JUDGE FARRAR: Sure.

9 GEN. JEFFERSON: I need the original
10 report, and the next one.

11 MR. GAUKLER: Your Honor, I need to get
12 a document.

13 MR. SILBERG: Why don't we take a
14 couple minutes off the record.

15 JUDGE FARRAR: Okay.

16 (Discussion off the record.)

17 JUDGE FARRAR: Mr. Gaukler, you found
18 your document?

19 MR. GAUKLER: Yes. He is looking at
20 it.

21 JUDGE FARRAR: Okay. Then let's get
22 started again.

23 GEN. JEFFERSON: Can I go ahead?

24 JUDGE FARRAR: Go ahead.

25 MR. SOPER: As far as I'm concerned.

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1 GEN. JEFFERSON: The first analysis I
2 did was on the June 30, 1999 submission. We used
3 or I used the model where the F-16s flew down the
4 east side of Skull Valley along the edge of the
5 Stansbury Mountains approximately five statute
6 miles east of the PFSF site and an altitude of
7 3000 to 4000 feet.

8 Looking at that, we believe the only
9 thing that could happen to an F-16 there would be
10 an engine loss. Essentially looking at the glide
11 slopes and the energy lost in turns and that sort
12 of thing, it looked very doubtful that they could
13 even make it to the site from that area. The
14 probability came out to be much less than 1×10^{-7} .

15 The NRC staff, in reviewing that, said
16 that they would prefer that we spread them out.
17 That's a much more conservative way to do it in
18 the sense that it increases the risk to the site.
19 And when I did that, using the even distribution,
20 the risk came out to be, I believe it was -- let
21 me look at it and make sure. I had that. We
22 actually did it with two or in two ways. One was
23 with a NUREG method, and we came out with $.5 \times 10^{-7}$.

24 JUDGE FARRAR: It's less conservative.

25 MR. SILBERG: More conservative.

1 GEN. JEFFERSON: It is a greater risk
2 to the site, whichever way you want to apply
3 "conservative".

4 JUDGE FARRAR: I thought you said the
5 first one was 1×10^{-7} .

6 GEN. JEFFERSON: And the next was --

7 JUDGE FARRAR: And the next was .5?

8 GEN. JEFFERSON: It must have been
9 five. I'm sorry. I must have misspoke.

10 MR. SILBERG: I think he said five.

11 JUDGE FARRAR: I'm sorry, I thought you
12 said .5.

13 GEN. JEFFERSON: I did. I'm sorry. I
14 confused that.

15 MR. SOPER: May I proceed, your Honor?

16 JUDGE FARRAR: Yes, sir.

17 MR. TURK: The answer is five rather
18 than .5? He is still looking for the answer.

19 MR. SOPER: This is not to a question I
20 posed.

21 GEN. JEFFERSON: PFS calculated -- this
22 is from that August, 1999 report. PTS calculated
23 probability by two different methods, both of
24 which show annual average probability of an F-16
25 crash impacting the PFSF of approximately 5×10^{-7} .

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1 Q. (By Mr. Soper) My question, sir, is
2 this: The NRC staff did not tell you to use a
3 width of ten miles. That's what I understood.
4 That's not true, is it?

5 GEN. JEFFERSON: No. We did that when
6 we changed the model. We looked at what the width
7 was and chose ten miles.

8 Q. In fact, the formula calls for the
9 width of the air space used, does it not?

10 GEN. JEFFERSON: Yes, it does.

11 Q. And you chose the ten miles yourselves?

12 GEN. JEFFERSON: Yes, we did. I did.

13 Q. You did. Just looking on here, sir, it
14 looks to me like the only place where there's ten
15 miles of air space in the whole MOA is between
16 9500, or excuse me, 9000 and 9500 feet. That's
17 the only place it's ten miles of width.

18 MR. SILBERG: That's based on your
19 chart?

20 MR. SOPER: No. This is based on
21 Colonel Jefferson's chart.

22 GEN. JEFFERSON: Make sure you are
23 looking at the right scale. Zero is out on the
24 left edge.

25 Q. (By Mr. Soper) I understand. I'm

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1 going up from the number eight. Would that be the
2 ten mile width?

3 GEN. JEFFERSON: That would be a ten
4 mile width.

5 Q. And if we fly a minimum of a 1000 feet?

6 GEN. JEFFERSON: Right.

7 Q. Okay. So it's only above 9000 feet --
8 am I doing that wrong?

9 JUDGE FARRAR: No. You are doing it
10 right.

11 Q. Only above 9000 feet where there would
12 be a ten mile width, it appears. The top 500 feet
13 of the MOA.

14 GEN. JEFFERSON: It would be eleven and
15 a half at the 9500 foot mark.

16 Q. So you would begin having a 10,000 foot
17 width or you would have just a 10,000 foot
18 width --

19 MR. SILBERG: Ten miles?

20 Q. Ten miles, excuse me.

21 MR. TURK: I'm sorry. I don't
22 understand the question.

23 JUDGE FARRAR: Let me ask it. As I
24 look up, number eight is ten miles.

25 GEN. JEFFERSON: Number eight would be

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1 equivalent to a ten mile width.

2 JUDGE FARRAR: Because of the minus
3 two. If I go up from eight to first place eight
4 intersects where the line is at 9000 feet.

5 GEN. JEFFERSON: That's correct. This
6 is a little bit off. But that's what those points
7 are.

8 JUDGE FARRAR: So Mr. Soper's question,
9 the answer to his question is yes; only above 9000
10 feet do you have ten or more miles?

11 GEN. JEFFERSON: Yes. And I took the
12 extra space up to the east and applied that to the
13 space as a way of compensating.

14 Q. (By Mr. Soper) You mean, sir, you are
15 assuming that all the aircraft fly in the top 500
16 feet of the MOA?

17 GEN. JEFFERSON: No, I didn't say that.

18 Q. Okay. Well, tell me what --

19 GEN. JEFFERSON: That mile and a half
20 1000 feet area up to the top right, I essentially
21 moved it over to be -- because they could fly
22 there. Over to the left and included that in the
23 space that was in the ten mile width.

24 Q. I see. But according to Air Force, the
25 facts are that aircraft fly between 3000 and 4000

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1 feet. Isn't that true?

2 MR. SILBERG: Objection. Asked and
3 answered and mischaracterizing testimony. He said
4 "typically fly".

5 Q. Is it true they typically fly
6 between --

7 JUDGE FARRAR: We are taking way too
8 long to get at something that is really simple,
9 but we don't have the really simple -- let me ask
10 the question. If I look at this and you say,
11 "Okay, we will use a ten mile width." At 9000
12 feet it's ten miles wide. At 9500 feet it is
13 eleven miles wide. So if you use ten you have
14 been a little bit conservative for flights between
15 9000 and 9500 feet because it could be from ten to
16 eleven. But anything below 9000 feet, you are not
17 being conservative because it can't be ten miles.

18 GEN. JEFFERSON: That's correct. And
19 it's actually eleven and a half at the top. But
20 that space, I tried to account for that by just
21 lumping it in with the other, as if it were below
22 the --

23 JUDGE FARRAR: Right. But if I'm
24 flying at 3000 or 4000 feet, I've only got eight
25 miles. At 3000 I've got eight miles. At 4000

1 I've got -- well, at 3000 I've got --

2 MR. LAM: Nine miles.

3 JUDGE FARRAR: At 4000 I've got six
4 miles. I'm sorry, eight miles.

5 GEN. JEFFERSON: At 4000 --

6 JUDGE FARRAR: At 4000 I have eight
7 miles and at 3000 I've got nine miles.

8 GEN. JEFFERSON: At 4000 you'd have ten
9 miles.

10 MR. LAM: No.

11 GEN. JEFFERSON: At 8500 feet MSL, 4000
12 above the ground level? Do I understand that
13 correctly?

14 MR. LAM: At 4000 feet above ground
15 level, you go from minus two, if you look at the
16 lower, horizontal axis, go from minus two and then
17 go to the top of the MOA, that's like maybe seven?
18 Maybe seven.

19 MR. TURK: It might be easier to look
20 at this if we look at 4000 above ground level as
21 essentially being above the 5500 hatch. Then you
22 can easily go over to the left and see where that
23 5500 hatch would hit the vertical axis.

24 MR. LAM: Right.

25 MR. TURK: To me that looks to be six

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1 miles to the east of the site.

2 MR. LAM: Right.

3 JUDGE FARRAR: Right.

4 MR. TURK: But I'm not testifying.

5 JUDGE FARRAR: I guess the question -
6 and Mr. Soper I hate to be doing this instead of
7 you - but I guess the question for the Board comes
8 down to there's no way ten looks to be
9 conservative.

10 MR. GAUKLER: Your Honor, I think he
11 testified before in terms of if he did it one way,
12 the way the Air Force told him was very
13 conservative because he would get less than 10-7,
14 based on what the Air Force told him, two things,
15 which is 3000 to 4000 feet and five miles to the
16 west, he did the modeling on that basis and came
17 up with less than 10-7. And then he was
18 instructed they wanted to spread it out over the
19 area. So by definition you are doing something
20 that was different than what the Air Force told
21 him, and in that sense you were being more
22 conservative with spreading it out.

23 JUDGE FARRAR: I have no problem with
24 that, Mr. Gaukler. When the Staff said do it this
25 way, he said it came out more conservative. But

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1 it came out more conservative only because he used
2 a width of ten miles when, with me looking at it,
3 I'd say better to use a width of eight to nine
4 miles.

5 MR. LAM: Right. Because without
6 addressing what is the bottom line probabilities
7 before we even go that far, let's look at what is
8 the physically permissible space. That is what
9 Mr. Soper is driving at. Do you have that space
10 or do you not have that space? I think this chart
11 is self-evident.

12 MR. SILBERG: I think what the
13 testimony said, the Air Force said they can fly
14 anywhere in that area.

15 JUDGE FARRAR: Right.

16 MR. LAM: Yes.

17 JUDGE FARRAR: That's true. Now I've
18 got Mr. Gaukler testifying, and Mr. Turk
19 testifying, I've got you testifying. I want this
20 General, and here is the witness, and so far I
21 haven't heard anything that is a problem with the
22 Staff saying spread it out. Okay. So General
23 Jefferson says, "Yes, I'm a good soldier, I will
24 spread it out." But he spread it out using ten
25 miles and we are struggling up here with why he

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1 didn't say, "I'll spread it out and use seven or
2 eight miles." And so I want no one else in the
3 room to talk except General Jefferson and answer
4 my question.

5 GEN. JEFFERSON: If you look at it and
6 you take the airplanes that could fly up there in
7 the upper right corner but you don't count them
8 because you have made the airway less than that,
9 to mix them into the rest of the probability,
10 you've got to add them back in somewhere. And
11 that was my, I guess, my eyeball on that.

12 JUDGE FARRAR: But that little tiny --

13 GEN. JEFFERSON: Doesn't compensate
14 enough, I think is what you are saying.

15 JUDGE FARRAR: Right. If I leave that
16 area out, that little tiny what would be a
17 parallelogram if it had one more leg to it, if I
18 leave that out, I've got seven or eight miles.
19 Now, I will allow you to factor that in but that
20 little tiny parallelogram with the missing leg
21 doesn't take the seven or eight up to ten.

22 GEN. JEFFERSON: I understand.

23 JUDGE FARRAR: You understand or do you
24 agree?

25 GEN. JEFFERSON: I agree with you on

1 that.

2 JUDGE FARRAR: Then Mr. Soper's next
3 question is, then how can you justify using ten?

4 GEN. JEFFERSON: Ten was -- you know,
5 historically that's what I used because that's
6 what I thought was proper at that time. If you
7 look at it -- actually, at that time I was doing
8 calculations on glide distance from engine-out
9 aircraft. The ones -- but this is so expanded
10 this way. When you put it out to ten or twelve
11 miles and you have a plane at 1000 feet over here,
12 it's not going to get to the site. It can't. It
13 doesn't have the energy. So a good deal of this
14 stuff that is down in the bottom right-hand corner
15 would be eliminated, actually, from that. And I'm
16 not sure I can track any more of my logic at that
17 point. But anyway, ten miles is what I have been
18 using.

19 JUDGE FARRAR: Mr. Soper, I hope that
20 we got this back in the right direction and now it
21 is back in your hands.

22 MR. SOPER: I think that's been cleared
23 up. Thank you, your Honor.

24 Q. (By Mr. Soper) Colonel Jefferson --
25 General Jefferson. I apologize, sir. I think the

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1 last question had to do with formations.

2 GEN. JEFFERSON: Yes.

3 Q. And we agreed that formations are
4 spaced out two or more miles; is that right?

5 GEN. JEFFERSON: Yes.

6 Q. Typically. So if we had a formation,
7 sir, at the eastern edge of the shaded area here,
8 the next plane to the west would be two miles
9 away, two miles further to the west. Is that
10 correct?

11 GEN. JEFFERSON: Yes.

12 Q. And if we had -- assuming this shaded
13 area went all the way to the western boundary of
14 the MOA, a formation right on the very edge, the
15 other ship in the formation would be two miles
16 east of that; is that correct?

17 GEN. JEFFERSON: Yes.

18 Q. So the two inward aircraft I have
19 described would be only a distance of about --
20 let's see. This is nine miles, I think Judge
21 Farrar observed. And if we take off the four
22 miles that separate the outside from the other
23 aircraft, we would have the two inside aircraft
24 approximately five miles apart. Isn't that true,
25 sir?

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1 GEN. JEFFERSON: That's correct.

2 Q. So because formations fly in this MOA,
3 we would expect the traffic to be concentrated, at
4 least half of it, within a five mile air width.
5 Isn't that right?

6 GEN. JEFFERSON: At least half of it.

7 Q. Okay. Let me move on, General.
8 Your Honor, it may change subjects
9 here.

10 JUDGE FARRAR: Certainly. Keep going.

11 Q. General Jefferson, you also need, do
12 you not, to calculate the impact from flights on
13 the Moser Recovery Route, the number of flights
14 that actually use that route returning to Hill Air
15 Force Base?

16 GEN. JEFFERSON: Yes. That's one of
17 the traffic areas.

18 Q. Okay. I understand you base the
19 traffic on Moser Recovery Route based on certain
20 information you receive from local traffic
21 controllers.

22 GEN. JEFFERSON: It was received from
23 local traffic controllers. I personally did not
24 receive it. General Cole did.

25 Q. General Cole, can you tell me about the

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1 information you received concerning the Moser
2 Recovery Route from anyone?

3 GEN. COLE: Yes, I can. We determined
4 the need to get the number of aircraft that used
5 the Moser Recovery. As you know, it is used only
6 in periods of adverse weather for northern
7 recoveries at night.

8 I called the FAA. They had no
9 information whatsoever, their command center. I
10 sent a FOIA request to Hill Air Force Base and
11 they said they did not have any records of the
12 number of aircraft or the percentage of traffic
13 that used the Moser Recovery.

14 At that point, the date was 6 August,
15 1999. I called the National Air Traffic
16 Controller's office at Salt Lake City Center and
17 asked the question, "Can you give me an estimate
18 of what volume of traffic is at the Moser?" I
19 also called Colonel Ron Oholundt, the vice
20 commander about that same time, the first week in
21 August, I believe. The call to the controller was
22 6 August. I asked Colonel Oholundt, "How often do
23 you use the Moser Recovery?" And he said not very
24 often. And I said, "Well, for the total volume of
25 traffic." And for the year '98 it was 5726

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1 aircraft. And he said, "Well, not very often."
2 And I said, "Well, less than 15 percent?" And he
3 said, "Sure. Less than 15 percent."

4 Then I call the controller on 6 August
5 and I asked him extensively and he said, "Well,
6 actually, very rarely. Less than five percent."
7 That was the best I had to go on at the time. And
8 so we used that number at that point.

9 Subsequently, downstream --

10 MR. SILBERG: Which number; the five
11 percent or the 15 percent?

12 GEN. COLE: Five percent. Less than
13 five percent. And we used that as a conservatism.
14 He said less.

15 Fast forward to March of 2002. The
16 issue re-emerged again. And because of or due to
17 lantern missions, increased night operations
18 increased the use of the Moser Recovery. Again,
19 we had the FOIA request from Hill that said, "We
20 don't have records." We had the 7 September, 2001
21 meeting with the NRC staff and Hill that said
22 there had been no increase in the Moser traffic.

23 So the next step I did was I called the
24 National Air Traffic Controller's office at Salt
25 Lake City Center again and found the same

1 individual, asked him the same question. And I
2 asked it this way - and recall now I have no
3 records from the FAA, no nothing from Hill - and I
4 said, "Do you recall our conversation nearly or
5 over two years ago?" "Yes, I do."

6 And I said, "You told me that the
7 volume of traffic percentage of the total flights
8 to the south UTTR was less than five percent using
9 the Moser Recovery." And he said, "Yes, that's
10 correct. I did." And I said, "Fast forward to
11 today. Is it now more than it was then, or the
12 same as it was then, or less than it was then?"
13 And he said, "Oh, the same or less." He said, "It
14 is significantly less than five percent." And I
15 said, "Thank you very much." And so that's where
16 the five percent number came, with the computation
17 off the 5726 sorties that went to the south UTTR.

18 Q. You called the National Air Traffic
19 Controller's office, is that what you said, to
20 talk to them?

21 GEN. COLE: They have a local office in
22 Salt Lake Center. That's correct.

23 Q. That's the union, isn't it?

24 GEN. COLE: The union representative
25 there. That's correct.

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1 Q. And what was the name of the union
2 representative you spoke with?

3 GEN. COLE: Mr. Doug Scaddon.

4 Q. And the last name, sir?

5 GEN. COLE: Scaddon, S-C-A-D-D-O-N.

6 And I talked to the same individual on both
7 occasions.

8 Q. Had you known Mr. Scaddon before?

9 GEN. COLE: I did not. I knew the
10 name.

11 Q. And what is his position with Air
12 Traffic Controllers?

13 GEN. COLE: Well, he is a controller in
14 Salt Lake City Center. And he also was the NATCA
15 representative in Salt Lake City Center at the
16 time. I don't know if he still is. But he is
17 still there as a controller.

18 Q. Did he tell you what the basis was, the
19 period of time he observed the traffic that he
20 made his estimate on?

21 GEN. COLE: He did not.

22 Q. Was he aware of the total number of
23 flights that returned to Hill Air Force Base?

24 GEN. COLE: This is my belief, in that
25 I don't think that he knew the specific number

1 like 5726. He was making a macro estimate of what
2 he saw as total volume on the scopes.

3 Q. In your testimony you previously
4 stated, "We doubled the estimate."

5 GEN. COLE: That was an error. We did
6 not double the estimate. We did double the
7 estimate -- this part is off the table. But for
8 Victor 257 and Jet 56 I couldn't get good numbers
9 for those, either. So I took what the controllers
10 told me and doubled them. I didn't do that for
11 the Moser because he specifically said less than 5
12 percent.

13 MR. SILBERG: Would you say for the
14 record what those Victor something and Jet
15 something are?

16 GEN. COLE: The Victor 257 is the
17 north/south airway east of the proposed site. Jet
18 56 is the high altitude jet route that goes east
19 to west, to the north. They are the two closest
20 airways.

21 Q. Is it your understanding, General, that
22 the Moser Recovery Route is used for F-16s
23 returning at night?

24 GEN. COLE: In bad weather and when the
25 winds dictate a northern recovery.

1 Q. In other words, if it's just night they
2 wouldn't use it?

3 GEN. COLE: Probably not, because you
4 want to keep the airplanes out of Salt Lake
5 International Airport's traffic flow. And you
6 normally don't land with a tail wind of
7 significance. So if the prevailing winds are from
8 the south, you would land -- you would go north
9 and land to the south.

10 Q. Who told you that they don't use -- did
11 anybody tell you they don't use the Moser Recovery
12 at night if there's not bad weather?

13 GEN. COLE: I don't see -- I would --
14 the winds would determine whether you can land or
15 not. If you have too high of a tail wind
16 component landing to the south, you would have to
17 land to the north. May I finish?

18 Q. Excuse me.

19 GEN. COLE: So you could use it at
20 night if you so chose, if you had winds of
21 sufficient magnitude so you could land to the
22 north. And, of course, you have the conflict
23 problem with Salt Lake International Airport.

24 Q. Just to make sure, you haven't ever
25 flown the Moser Recovery Route, have you, sir?

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1 GEN. COLE: I have not.

2 Q. Colonel Fly, may I ask you, sir, pilots
3 do fly the Moser Recovery Route just because it is
4 nighttime; do they not?

5 COL. FLY: It's a function of the
6 active runways, too. I don't recall ever flying
7 the Moser Recovery myself, other than in a
8 simulator. And I know we came in from the north.

9 Q. And, of course, you left the Air Force
10 before night vision goggle training was
11 implemented; did you not?

12 COL. FLY: Before it was part of the
13 388th. That's correct. Other units in the Air
14 Force, and I don't remember which ones they were,
15 were doing them. Like C130s. Things like that.

16 Q. But you had never flown night vision
17 goggles?

18 COL. FLY: I have never flown NVGs.

19 Q. General Cole, Doug Scaddon does not
20 control the flights that fly the Moser, does he?

21 GEN. COLE: I don't believe he does. I
22 don't know that.

23 Q. Colonel Fly, one more question for you,
24 sir.

25 COL. FLY: Yes.

1 Q. I'm not sure if I understood you. Did
2 you say you were unaware of whether or not F-16
3 pilots used the Moser Recovery just because it was
4 night?

5 COL. FLY: I said it is a function of
6 the active runway, generally.

7 Q. So they may, in fact, use it at night?

8 COL. FLY: They may use it at night.
9 That's correct.

10 Q. And would you say that the more night
11 flights that occur, the more likely the Moser
12 Recovery Route would be used?

13 COL. FLY: Not necessarily. Because
14 you've got other factors such as conflicts with
15 Salt Lake City traffic. When I was here, Salt
16 Lake City really did not like us landing. They
17 much preferred us using the takeoffs and landings
18 toward the south, or not using the Moser Recovery,
19 let me restate that, because of the possible
20 conflicts and how they had to sequence traffic.

21 Q. It seems to make some logical sense
22 that if pilots use Moser at night and the night
23 flights increase, that there is a possibility that
24 flights on the Moser would increase, I take it?

25 COL. FLY: The fact that they are

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1 flying more at night does not necessarily obviate
2 the other conflicts such as with Salt Lake City
3 and those types of things. So I would say they
4 would use the same -- let me think of what I would
5 try to say.

6 GEN. COLE: Sir, one of the major
7 controlling factors is what your prevailing winds
8 are. You don't want to be landing with a heavy
9 tail wind. That's not a good thing to do.

10 COL. FLY: There were limitations on
11 the instrument approaches, also, that had to do
12 with straight-ins and those types of things.

13 Q. Let me go to General Jefferson.

14 JUDGE FARRAR: Is this a different
15 subject?

16 MR. SOPER: One last one on this
17 subject, your Honor.

18 Q. (By Mr. Soper) You're aware of the
19 recent Air Force announcement that one-third of
20 all sortie flights will now be at night; are you
21 not?

22 GEN. JEFFERSON: I saw that. I don't
23 remember it exactly, but I remember something
24 about that, yes.

25 Q. Assuming that's true and that a third

1 of the sorties will now be at night, there
2 certainly is at least a possibility that there
3 will be increased use of the Moser Recovery; is
4 there not?

5 GEN. JEFFERSON: I don't see a
6 necessary connection there.

7 Q. Well, that wasn't my question. It is
8 certainly a possibility that there will be an
9 increase in flights?

10 GEN. JEFFERSON: There would be an
11 increased possibility of night usage of Moser, but
12 not necessarily an overall usage.

13 Q. I see. But Moser is usually used
14 mainly at night; is it not?

15 GEN. JEFFERSON: Not to my knowledge.

16 Q. General Cole?

17 GEN. COLE: To my knowledge, it is.
18 And also a function of what the prevailing winds
19 are that would dictate a northern approach and
20 landing.

21 Q. Thank you. Now I'm ready to address
22 another subject, unless your Honor has --

23 JUDGE FARRAR: I have a question. I
24 thought all this was only wind related. So
25 explain to me why not and whether -- in other

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1 words, I thought you had to land without a tail
2 wind. So when you say "night", do you mean night
3 after dark, or night after Salt Lake City airport
4 closes down?

5 COL. FLY: I believe we are using
6 "night" in the context of after sunset.

7 JUDGE FARRAR: Okay. Then how does
8 night -- if Salt Lake City, if avoiding conflict
9 with Salt Lake City commercial airport is a
10 problem, how does night after sunset as opposed to
11 night after they shut down have anything to do
12 with it?

13 COL. FLY: I'm not sure, General,
14 unless things have changed. Judge, I'm sorry.

15 JUDGE FARRAR: General? I'll take it.
16 I'll take that as a compliment.

17 COL. FLY: I'm not sure that we fly
18 very often that the Salt Lake City airport is not
19 active. We used to routinely have the engines --
20 there was a policy when I was in the air combat
21 command, I don't know that it is still in effect,
22 but all engines would be turned off by midnight.
23 So all flying was done and we landed in time to
24 have the airplanes back in the chocks by midnight.
25 Again, I can't tell you that that's -- it did

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1 create problems during the summer months here
2 because of the long days.

3 JUDGE FARRAR: But why? In other words
4 to the extent -- I think it was General Cole, you
5 said, "We will do it at night." Why would you do
6 it at night rather than -- what's the difference
7 between night and day in terms of this question?

8 GEN. COLE: I believe this, I don't
9 know this. Because the traffic in the Salt Lake
10 City International is an issue, it could be with
11 the prevailing airline schedules that the night
12 hours might be less congested and it might be less
13 objectionable to Salt Lake Center. I don't know
14 that. But I don't know of another reason why
15 night is the time you do that.

16 COL. FLY: There are other
17 considerations that go into this, your Honor.
18 Because of the proximity of the mountains to the
19 south of the runway and the orientation of the
20 runway, you cannot build a precision -- when you
21 come in to do a landing and the weather is not
22 good --

23 JUDGE FARRAR: At Hill?

24 COL. FLY: Any Air Force base. There
25 are two types of approach. They are generally

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1 called nonprecision or precision approaches. As
2 you might expect, a precision approach puts you in
3 a more precise location than a nonprecision. So
4 you can come in under worse weather, lower
5 ceiling, lower visibility conditions on a
6 precision approach than you can with a
7 nonprecision approach.

8 Because of the orientation of the
9 runway, the extended flight line or the approach
10 of the corridor of the Hill runway, when you are
11 coming in from the south, if you were landing to
12 the north, you cannot build an instrument
13 straight-in approach that meets what is called
14 TERPs. Terminal something. Terminal En Route
15 Precisions. TERPs. That's the FAA standards for
16 building approaches and departures.

17 So the only precision approach was
18 toward the north. That was one of the -- when you
19 came in from the north landing toward the south.
20 If the weather is bad enough that you are really
21 concerned about it, that's another factor that may
22 enter into the equation where you might decide to
23 land with a little bit of a tail wind so you could
24 have the precision approach capability if you need
25 it.

1 JUDGE FARRAR: Hold on. Let me
2 interrupt you. So if the weather is bad, I can't
3 or I'm going to -- I can't build this precision
4 approach from the north to Hill. So I will build
5 it from the south to Hill in bad weather?

6 COL. FLY: I think I may have confused
7 you, your Honor. The precision approach
8 capability is landing toward the south. From the
9 north to the south. Not the other way around.

10 JUDGE FARRAR: Okay. But then someone
11 said earlier --

12 COL. FLY: Yes, your Honor.

13 JUDGE FARRAR: -- that you use Moser
14 when the weather is bad. And what I think you are
15 saying is --

16 COL. FLY: It depends on how bad the
17 weather is. It gets very complicated. That's why
18 there's no simple answer. You have conflicts with
19 Salt Lake City. You have how low is the weather,
20 how good is the weather. There are circling
21 approaches. You can come in and shoot a precision
22 approach to the precision runway, and once you've
23 got it in sight maneuver over to the site and come
24 around and land the other way. In fact, for a
25 while that was a standard procedure at Hill Air

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1 Force Base. So it's a fairly complicated
2 question. I think the bottom line answer is that
3 the Hill staff told the NRC staff, in front of my
4 personal experience, that people didn't use the
5 Moser Recovery very often for a variety of
6 different reasons.

7 JUDGE FARRAR: Tell me about prevailing
8 winds out here. Is the prevailing wind usually
9 from the south? Is that --

10 COL. FLY: Well, normally --

11 JUDGE FARRAR: In other words, if the
12 prevailing wind is from the south, then you
13 wouldn't use Moser. You would go --

14 COL. FLY: We typically would land
15 toward the south. So the wind --

16 JUDGE FARRAR: So that must mean
17 that --

18 COL. FLY: And I was trying to find it
19 in the publication journal, your Honor. And I'm
20 not sure that I have it. I believe that there was
21 a specific mention of a tail wind, but I can't
22 find that reference. So I apologize.

23 JUDGE FARRAR: But General Cole kept
24 saying, which comported with my layman's
25 understanding, that the key factor is always wind.

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1 And so if you are landing 95 percent of the time
2 from the north, that tells me that maybe not 95
3 percent of the time but a good majority -- well,
4 let me ask this question: How much of a --

5 GEN. COLE: Tail wind?

6 JUDGE FARRAR: How much of a tail wind
7 can you land with?

8 GEN. COLE: Depends on the airplane.
9 For most airplanes I'd probably say the maximum is
10 a ten knot tail wind. Ten knots is notional.

11 The other issue, too, sir, is a
12 requirement for a precision approach. Military
13 airlift command C-141, a 150 ton jet, they
14 mandated for some time period if you are landing
15 at night you will use a precision approach which,
16 once again, would drive you to the north. I don't
17 know that the fighter community has that rule, but
18 it's a natural pressure.

19 JUDGE FARRAR: Now, when you mention
20 the 10 knot notional tail wind, most of the time
21 the wind here does not exceed that?

22 GEN. COLE: I haven't flown that much
23 in that area. I'd have to defer to Mr. -- Mr.
24 Vigeant may have it. I don't know. I'm speaking
25 as far as notional now for the tendency to land to

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1 the south. And to do it most of the time, all the
2 time, tells me the prevailing winds are from the
3 south to the north.

4 JUDGE FARRAR: Right.

5 GEN. COLE: And the tail wind component
6 is the tricky thing. You don't want to land with
7 a tail wind because it eats up, all the reasons,
8 it eats up runway. It's not a good thing to do.
9 We may have an answer, a more specific answer for
10 you in a minute.

11 MR. SILBERG: Judge Farrar, we may have
12 come to the unusual place in the hearing where we
13 can actually ask Mr. Vigeant to provide some
14 information on wind directions, if you would like.

15 JUDGE FARRAR: Yeah, because --

16 MR. SILBERG: We have some, but not
17 necessarily all.

18 JUDGE FARRAR: Where I live looks at
19 National Airport and it is 50/50. And it seems to
20 go with the time of day. And I'm having trouble
21 with a wind, unless he tells me that the wind is
22 95 percent of the time one way, I'm having trouble
23 here. Mr. Soper, do you mind if Mr. Vigeant helps
24 out here?

25 MR. SOPER: It is whatever your Honor

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1 puts on.

2 JUDGE FARRAR: I have interrupted your
3 case a great deal but this is troubling to us.

4 Q. I think that's very important that you
5 understand what you need to.

6 JUDGE FARRAR: Go ahead, Mr. Vigeant.
7 You have heard it all. You have been here sitting
8 in the back there. You have heard all the
9 questions. Rather than have me reask them, just
10 tell me a little story that helps with this.

11 MR. VIGEANT: Yes, I have, your Honor.
12 Right now I happen to be looking at the climatic
13 brief table. It's the summary table, this happens
14 to be for Dugway proving ground which is Michael
15 Army Airfield. That's what I happen to have handy
16 right now. And this says that prevailing wind
17 direction in degrees is from 170 to 190 which
18 means -- 180 degrees is the prevailing direction
19 at Dugway, which means wind is from the south.
20 That means it is prevailing. There's no
21 percentages ascribed to that. It is just the most
22 frequent wind direction.

23 Now, based on other work I have done on
24 the PFS, my recollection is from the
25 climatological data I have used in the past at

1 Salt Lake City is that the prevailing direction is
2 southeast. And that was a pretty common --

3 JUDGE FARRAR: From the southeast?

4 MF. VIGEANT: From the southeast. So
5 we have basically south or southeast prevailing
6 direction in both Salt Lake City and Dugway.

7 (The Board consults off the record.)

8 MR. SILBERG: Judge Farrar, it is now
9 6:30 and I think we may be reaching the point of
10 diminishing returns. The witnesses have been on
11 the stands for a very long time. I hate to stop
12 if we are making progress, but there's a point
13 where I think people need to --

14 JUDGE FARRAR: Let me just share with
15 you our little discussion here. General Cole, I
16 think you said that your five percent number came
17 from talking to a controller?

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

19 JUDGE FARRAR: And there's hearsay
20 again. Not that it is inadmissible, but it's not
21 of your own knowledge. You investigated and he
22 told you that. So on the one hand we have hearsay
23 at five percent, which may be a perfectly valid
24 number. But until -- it would help us if someone
25 confirmed that number. And Mr. Vigeant has

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1 started us on that way with the prevailing wind.
2 But we still have this concern that, why isn't
3 Moser 50 percent of the time. And you have given
4 some reasons, the three of you, four of you, some
5 reasons why it is not 50. And the more reasons we
6 can have so that we say uh-huh in the physical
7 world, the physical world confirms for us that the
8 five percent hearsay is probably legitimate. In
9 other words, how do we get from our simple-minded
10 50 down close to your five so we can say, Fine.
11 He talked to a controller and he says five and
12 that comports with what is happening
13 climatologically or weather-wise. And so fine,
14 that's a good number. Because I take it from
15 other calculations that have been introduced in
16 the case, if there were huge or if Moser was used
17 50 percent of the time, you'd have a problem
18 getting the risk factor down where you pass the
19 standard.

20 So on that note, we are prepared to
21 take Mr. Silberg's suggestion and quit for the
22 evening. But maybe there's or maybe our
23 questions, maybe you have some follow-up, Mr.
24 Soper, or maybe this is something people can talk
25 about and try to come up with something more over

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1 the next several days. Or maybe the five percent
2 hearsay is the best evidence. And it's reasonable
3 hearsay. The controller probably has no reason to
4 misstate to you. He has no interest in the
5 proceedings, so that's legitimate, so we can just
6 leave it there. But we have been doing a lot of
7 talking the last 20 minutes so, Mr. Soper, in
8 terms of what we have been talking about the last
9 few minutes. And Mr. Silberg's suggestion that we
10 knock off for the evening, what do you think?

11 MR. SOPER: I only had --

12 JUDGE FARRAR: No new subjects.

13 MR. SOPER: I was going to say I only
14 had one exhibit to examine, but it is a new
15 subject.

16 JUDGE FARRAR: And I want to know where
17 are we on this issue.

18 MR. SOPER: I'm ready to leave this
19 subject.

20 JUDGE FARRAR: So our questions don't
21 trigger anything else with you?

22 MR. SOPER: No.

23 JUDGE FARRAR: Mr. Gaukler, we have
24 done a lot of the questioning here. You can see
25 what our concerns are and they may not be huge

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1 but, again, we have to write a decision and we
2 want to make sure we have the best evidence in
3 front of us. Do you have any thoughts?

4 MR. GAUKLER: I think that I will talk
5 to Mr. Vigeant. I will note for the record that
6 there are several pieces of evidence in the record
7 that corroborate that. We have not just the
8 controller but we have Mr. Oholundt telling
9 General Cole it is less than 15 percent, and we
10 have the recent NRC visit to Hill Air Force Base
11 where they said it hasn't increased. The use of
12 Moser Recovery hasn't increased. So we have
13 several complimentary pieces of evidence all
14 coming to the same point. So it's not just the
15 five percent. I want to make that point.

16 JUDGE FARRAR: Mr. Turk, you have all
17 been conferring with your client there. Do you
18 have anything there to offer, not from him
19 directly but from you, that would help us know
20 where this issue is?

21 MR. TURK: Not on this issue at the
22 moment, your Honor. I would like to ask if we can
23 get an estimate of about what time we will be done
24 with these witnesses tomorrow so I can tell the
25 Staff witnesses what they can expect to go on

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1 tomorrow or not.

2 JUDGE FARRAR: How much more cross?

3 MR. SOPER: I expect no more than half
4 an hour.

5 JUDGE FARRAR: Okay. How much direct,
6 redirect?

7 MR. GAUKLER: My best estimate right
8 now is two, three hours. Say two hours, two and a
9 half hours.

10 JUDGE FARRAR: Ms. Marco?

11 MS. MARCO: Very small.

12 JUDGE FARRAR: So we should be finished
13 during the morning with these witnesses.

14 MR. TURK: And that would include the
15 Vigeant testimony?

16 JUDGE FARRAR: Would that include Mr.
17 Vigeant, also?

18 MR. SOPER: Before the redirect?

19 JUDGE FARRAR: No. When you just told
20 me a half hour, that was for these three
21 gentlemen?

22 MR. SOPER: Yes.

23 JUDGE FARRAR: How much for Mr.
24 Vigeant?

25 MR. SOPER: I would expect that amount

1 or less.

2 JUDGE FARRAR: Which would be a half
3 hour or less?

4 MR. SOPER: Yes.

5 JUDGE FARRAR: So Mr. Gaukler that
6 would -- if you had not much redirect --

7 MR. GAUKLER: I assume that would be
8 the case.

9 JUDGE FARRAR: What time do we start
10 tomorrow? 9:00?

11 MR. GAUKLER: 9:00.

12 JUDGE FARRAR: Then none of you get
13 lunch until the four gentlemen are finished.
14 That's easy. So Mr. Turk, your witnesses will be
15 on after lunch.

16 MR. SOPER: Your Honor, housekeeping
17 item before we recess. I forgot, I think, to move
18 the admission of 156. So I would so move that.

19 JUDGE FARRAR: Any objection?

20 MR. GAUKLER: No objection. I would
21 say no objection with the understanding that
22 without the buffer zone that line would go all the
23 way over to the edge of the boundary.

24 JUDGE FARRAR: Right. We have
25 testimony that reflects that. Ms. Marco?

1 MS. MARCO: No objection.

2 MR. TURK: We have one request for
3 clarification, if possible. There are no cross-
4 hatch marks across this graph and I think it would
5 be useful if we had a common set of cross-hatches,
6 vertical and horizontal axes.

7 JUDGE FARRAR: So you would take the
8 numbers on the two axes and draw lines like Ms.
9 Marco has done? Do you want to introduce that?

10 MR. TURK: No. I have done that, but I
11 did it without a ruler, and I wonder if we could
12 ask the State to do that.

13 JUDGE FARRAR: Why don't you all do
14 that and we will allow its admission. But why
15 don't you substitute that for us. Because when we
16 were talking seven miles and nine miles we were
17 eyeballing that and I think Mr. Turk's point is
18 that they would like to be a little more accurate.

19 MR. SOPER: What altitude, Mr. Turk,
20 would you like?

21 JUDGE FARRAR: All of them.

22 MR. TURK: I think it would be a good
23 exhibit if you could draw the cross-hatches at
24 every 500 foot elevation.

25 MR. SOPER: Okay. And each mile, as

1 well?

2 MR. TURK: If you could do each mile
3 that would be great, at least in the area between
4 the six to ten miles east of the site where the
5 testimony has focused in terms of how wide is the
6 width.

7 MR. SOPER: We can do that and offer
8 that as a substitute.

9 JUDGE FARRAR: Let's not admit this one
10 and then you can withdraw this and --

11 MR. SOPER: And offer 156 tomorrow.

12 JUDGE FARRAR: Offer 156-A tomorrow, or
13 Monday.

14 MR. SOPER: All right.

15 JUDGE FARRAR: Gentlemen, thank you.
16 It has been a long day. Again, not as long as I
17 endured on Monday. But you have had to be talking
18 all the time. Thank you very much.

19 (The proceedings were concluded at 6:44 p.m.)

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CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Private Fuel Storage, L.L.C.

Docket Number: 72-22 ISFSI;

ASLBP No. 97-732-02-ISFSI

Location: Salt Lake City, Utah

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



Diana Kent
Official Reporter
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