

1 CHAIRMAN FARRAR: All right. We're back
2 on the record for the afternoon session.

3 Whereupon,

4 STEVE VIGEANT

5 was recalled as a witness by counsel for Private Fuel
6 Storage, LLC, and, having been previously duly sworn,
7 was examined and testified further as follows:

8 CHAIRMAN FARRAR: Mr. Soper has indicated
9 he would prefer to start his cross examination with
10 Mr. Vigeant, whom we have just gotten on the phone.

11 You're there, sir?

12 THE WITNESS: Yes, I am.

13 CHAIRMAN FARRAR: You can consider
14 yourself still under oath.

15 THE WITNESS: Okay.

16 CHAIRMAN FARRAR: And you will be cross-
17 examined first by Jim Soper from the Utah Attorney
18 General's Office and then by Catherine Marco from the
19 NRC staff.

20 THE WITNESS: Okay.

21 CHAIRMAN FARRAR: So go ahead, Mr. Soper.

22 MR. SOPER: Is that the order we wanted to
23 do it in?

24 MS. MARCO: It doesn't matter.

25 CHAIRMAN FARRAR: No. I did that because

1 it was going to be your turn with these people since
2 you had passed.

3 MS. MARCO: But only for these people did
4 I pass.

5 CHAIRMAN FARRAR: Right.

6 MR. SOPER: That's fine if staff would
7 like to go first, Your Honor. Is that what you were
8 going to suggest?

9 CHAIRMAN FARRAR: That's our usual order.
10 Ms. Marco, are you ready? We could do it the other
11 way since as of 30 seconds ago you didn't know this
12 was the next phase in the --

13 MS. MARCO: I don't have a whole lot
14 though.

15 CHAIRMAN FARRAR: Well, go ahead and take
16 your time, and if you think of something later, we'll
17 come back and give you another shot at it.

18 MS. MARCO: Okay.

19 CROSS EXAMINATION

20 BY MS. MARCO:

21 Q These are questions about PFS Exhibit 245.
22 Do you still have that in front of you?

23 A Yes.

24 Q Okay. Does this analysis treat all of the
25 clouds as if they are opaque?

1 A Yes. This analysis is being based on 2001
2 data. It treats all of the clouds as opaque

3 Q So in reality, a portion of these clouds
4 would be transparent; is that correct?

5 A Some of them may be. That's correct.

6 Q What is the ground level at Salt Lake
7 City International Airport?

8 A Let me see if I can get that for you. I
9 believe it's -- Salt Lake City International is
10 approximately 4,200 feet above sea level.

11 Q And is that similar to Michael Army Air
12 Field?

13 A Michael is about 4,350 feet above sea
14 level.

15 Q So there's about a 150 foot difference?

16 A That's correct.

17 Q Does that affect your analysis at all
18 regarding the level of the clouds?

19 A No, no. I don't see how that would affect
20 it. You know, it's pretty similar elevation, and the
21 cloud information is above ground level at the point
22 of observation.

23 Q When you're looking at the sky, is there
24 a standard radius of sky in terms of miles away from
25 the observer that is used to define the sky for

1 determining how many eighths of it are covered by
2 clouds?

3 A The observer, when it is by observer, it
4 is done basically over the entire celestial dome that
5 can be seen from the ground.

6 Q And was it done by observer with respect
7 to PFS Exhibit 245?

8 A That exhibit, that's based on the Salt
9 Lake City data. So that would be using automated
10 sensors, and that's pretty much a vertical pointing
11 device.

12 Q And what -- is it used by automated
13 sensors at Michael Army Air Field?

14 A No, I don't believe so.

15 MS. MARCO: I don't have any other
16 questions.

17 CHAIRMAN FARRAR: Thank you, Ms. Marco.

18 Mr. Soper.

19 MR. SOPER: Thank you, Your Honor.

20 FURTHER CROSS EXAMINATION

21 BY MR. SOPER:

22 Q Mr. Vigeant, am I saying your name
23 correctly?

24 A Vigeant.

25 Q Vigeant. Thank you.

1 I believe you testified that 2.5 percent
2 of the time there was ground fog in the Salt Lake City
3 area; is that right?

4 A That 2.5 percent was at Michael Army Air
5 Field.

6 Q Okay. So that would tend to be more
7 accurate than anything at Salt Lake City for our
8 purposes, would it not?

9 A I would agree with that, that Michael Army
10 Air Field is more representative.

11 Q And does that figure appear anywhere in
12 PFS Exhibit 245?

13 A No, it does not.

14 Q Is there any reason you excluded that?

15 A No, no particular reason. It would be the
16 exhibit was meant to provide examples of cloud
17 layering. So ground fog was not considered, not an
18 issue.

19 Q The 2.5 percent, does that refer to the
20 number of observations where there is the ground fog,
21 2.5 percent of the observations?

22 A Two, point, five percent of the
23 observations. That's correct.

24 Q That's 2.5 percent of all observations?

25 A That's correct.

1 Q So that would mean that essentially there
2 is ground cover at 2.5 percent of the time -- excuse
3 me -- ground fog?

4 A It says there is ground fog 2.5 percent of
5 the time.

6 Q And that would mean there would be 9.125
7 full days of ground fog if you did it on the number of
8 days. Have you run that particular calculation?

9 A No, I haven't.

10 Q And I think you told us that the ground
11 fog generally didn't last all day, that it would burn
12 off at some time during the morning.

13 A Yeah, I said, yeah, that is typical
14 behavior for ground fog.

15 Q That, however, does not reduce the 2.5
16 percent in any way. It's still 2.5 percent. You're
17 just talking about it appears to be more common in the
18 morning; is that correct?

19 A Yes, that's right. That does not affect
20 the 2.5. It's just the counting the numbers of
21 observations of ground fog throughout the year.

22 Q Do you have any information on what the
23 distribution is? Do we see ground fog, a little bit
24 of it every day?

25 A I don't have the distribution by day. The

1 information I have is basically the overall number,
2 not by time of day. _

3 Q So if those 9.125 days of ground fog were
4 spread out at two hours a day, that would be over 109
5 days that had two hours of ground fog. Is that a
6 possibility?

7 A I suppose that's possible.

8 Q Would you know any reason why it wouldn't
9 be correct? _

10 A -- add to that is that the ground fog
11 would probably tend to be more frequent or be a
12 function of season. Therefore, you may have more
13 ground fog, say, during the wintertime and less during
14 the summertime.

15 Q And remember you can't see through the
16 ground fog; isn't that right?

17 A True. The ground fog is -- that's
18 correct. And by seeing through ground fog, that's
19 relative to the observer on the ground. That's
20 correct.

21 Q And would you also agree that, talking
22 about clouds now, that clouds are generally dense
23 enough so that you cannot see through them?

24 A I don't know how to characterize
25 generally. Obviously some of the clouds are opaque

1 . and some of the clouds are transparent. I don't know
2 what the precise breakdown is.

3 Q Would you say that statement is incorrect?
4 Clouds are generally dense enough so that you cannot
5 see through them?

6 A I guess that would depend on how you would
7 define "generally."

8 MR. SOPER: Colonel Fly, do you have a
9 view on that? Clouds are generally dense enough that
10 you cannot see through them. True or false?

11 COL. FLY: I would say that's
12 conditionally true, yes.

13 MR. SOPER: Colonel Fly, would you also
14 say that even though there's not enough cloud cover to
15 constitute a ceiling, a cloud could be positioned to
16 preclude visual contact with the PFS site at a
17 particular moment?

18 COL. FLY: Yes, I think we demonstrated
19 that quite clearly in the situation awareness and
20 cloud cover demonstration.

21 MR. SOPER: This is all I have for Mr.
22 Vigeant.

23 CHAIRMAN FARRAR: Mr. Barnett, do you have
24 any redirect?

25 MR. BARNETT: Your Honor, I do.

REDIRECT EXAMINATION

BY MR. BARNETT:

1
2
3 Q Mr. Vigeant, do you have the exhibit in
4 front of you, 245?

5 A Yes.

6 Q Do you see the entry for December 15th,
7 2001 at 2100?

8 A Yes, I do.

9 Q What does that say?

10 A It says VV001, which would be vertical
11 visibility of 100 feet.

12 Q And what sort of phenomenon would cause
13 that reading to occur or to be entered into the
14 charter at that time?

15 A It's usually associated with fog, in other
16 words, looking up how far you can see vertically
17 through the fog.

18 Q So if there was ground fog that was
19 obscuring the visibility from the ground, it would be
20 in this chart, would it not? It would be like one of
21 these VV entries?

22 A Well, for this particular data set, yes,
23 there would be a VV.

24 Q And also with respect to ground fog, could
25 you have ground fog at the same time you had cloud

1 cover?

2 A That's possible.

3 Q Do you have a sense of whether it's likely
4 that you would have ground fog at the same time you
5 would have cloud cover?

6 A It would just be a general sense.
7 Oftentimes fog is caused by radiational cooling, which
8 occurs when the sky is otherwise clear. So from a
9 general, typical point of view, ground fog is kind of
10 oftentimes or typically the result of this radiational
11 cooling phenomenon where cold air drains into valleys
12 and causes the fog.

13 And as I said, the radiational cooling
14 being the result of not having cloud during the
15 nighttime.

16 MR. BARNETT: Your Honor, that's all I
17 have.

18 MR. SOPER: I have a follow-up.

19 CHAIRMAN FARRAR: Go ahead.

20 MR. SOPER: I didn't mean to interrupt
21 you, Your Honor.

22 CHAIRMAN FARRAR: No, I was just going to
23 say that we had no questions. So go right ahead.

24 RECROSS EXAMINATION

25 BY MR. SOPER:

1 Q Mr. Vigeant, the 2.5 percent ground fog
2 figure came from Michael Army Air Field? That's where
3 it was collected?

4 A That's correct.

5 Q And so that would be more accurate than
6 the figures shown on 245 for Skull Valley?

7 A I would say that, yeah, Michael Army Air
8 Field is more representative of Skull Valley.

9 Q So whether or not there's any indications
10 of ground fog that would add up to 2.5 percent on
11 Exhibit 2.45, nevertheless 2.5 percent ground fog is
12 the accurate figure we ought to be considering for
13 Skull Valley; isn't that right?

14 A Yes, I think the 2.5 is the most
15 representative figure for Skull Valley.

16 MR. SOPER: That's all I have.

17 CHAIRMAN FARRAR: Ms. Marco, have you
18 thought of anything else since we surprised you a few
19 minutes ago?

20 FURTHER RE-CROSS EXAMINATION

21 BY MS. MARCO:

22 Q What is the typical height of ground fog?

23 A It's quite a variable. It could be tens
24 of feet or it could be hundreds of feet. It depends
25 a lot on the degree of cooling that takes place and

1 the amount of moisture available. Obviously in the
2 one case that was brought up previously we talked
3 about vertical visibility of 100 feet just as an
4 example, but it is a variable.

5 MS. MARCO: I don't have any other
6 questions.

7 CHAIRMAN FARRAR: All right. Then I think
8 that wraps it up for Mr. Vigeant.

9 Mr. Barnett, do we need him? Do you need
10 him to stand by on the phone as an advisor to you?

11 MR. BARNETT: No, no. He doesn't need to
12 stand by.

13 CHAIRMAN FARRAR: All right. Mr. Vigeant,
14 unless your counsel calls you on the phone again --
15 well, whether or not he does, we thank you for your
16 testimony, again, and you're excused.

17 THE WITNESS: You're welcome.

18 CHAIRMAN FARRAR: Okay.

19 (The witness was excused.)

20 MS. GIBBONS: All right. Then at this
21 point, Mr. Soper, you would go ahead with the cross
22 examination of the panel.

23 MR. SOPER: Thank you, Your Honor.

24 I just might note for the record that
25 reference to the panel as the military panel is not to

1 the exclusion of the state's witness, who is also a
2 military witness in that sense, and they're all
3 retired military witnesses.

4 CHAIRMAN FARRAR: Right. I was doing it
5 as a shorthand rather than say their name and their
6 titles.

7 MR. SOPER: And I knew, Your Honor, but
8 just for the reviewer down the road.

9 CHAIRMAN FARRAR: Oh.

10 MR. SOPER: Not being able to discern if
11 there is a difference there.

12 Whereupon,

13 COL. FLY, GEN. JEFFERSON, and GEN. COLE
14 resumed as witnesses called by counsel for Private
15 Fuel Storage, LLC and, having been previously duly
16 sworn, were examined and testified further as follows:

17 CROSS EXAMINATION

18 MR. SOPER: Colonel Fly, sir, I believe
19 you testified that even when you can't see the ground
20 when you're flying an F-16, you have some situational
21 awareness which might allow you to know where a site
22 is on the ground and steer away from it just from
23 previous familiarity with the area; is that correct?

24 COL. FLY: Yes.

25 MR. SOPER: And I take it, sir, you've

1 ' flown through Skull Valley a number of times yourself.

2 COL. FLY: Not recently, but yes.

3 MR. SOPER: So you'd have some familiarity
4 with sites that are in Skull Valley that have been
5 there --

6 COL. FLY: Yes.

7 MR. SOPER: -- for a number of years?

8 COL. FLY: None the size of the proposed
9 PFS site, and again, given that I haven't flown there
10 for over four years, it would be fairly dated.

11 MR. SOPER: Well, can you tell us
12 generally where the Tekoi Rocket Test Facility is in
13 relationship to some landmark?

14 COL. FLY: I would be happy to refer to
15 the appropriate air space regulations and try to find
16 it for you.

17 MR. SOPER: Well, I'm just wondering if
18 you have some general recollection of where that might
19 be if the ground were covered.

20 COL. FLY: And the point I'm trying to
21 make is that I haven't flown there for over four
22 years, and we weren't anticipating lines of questions
23 about the specific facilities other than the proposed
24 PFSF.

25 MR. SOPER: Do you happen to know if

1 that's a large site that's similar in size to the PFS
2 facility?

3 COL. FLY: I'll be happy to look it up.

4 MR. SOPER: Well, that wasn't my question.
5 Do you happen to know if it's a large site?

6 COL. FLY: The answer is no.

7 MR. SOPER: Do you have any general
8 recollection of where the Goshute Indian village is in
9 Skull Valley?

10 COL. FLY: It's in the same general area,
11 I believe.

12 MR. SOPER: I see you're referring to a
13 map there that General Cole's pointing to. I
14 understand that you can look it up on a map. My
15 question is if you had some recollection before you
16 looked at the map. Now --

17 COL. FLY: It's not marked on the map
18 anyway.

19 MR. SOPER: Did you have an answer, sir?

20 COL. FLY: No, I don't.

21 MR. SOPER: So referring to Exhibit 100
22 and 100(a), you've made some modifications to 100
23 resulting in 100(a); is that correct?

24 GEN. JEFFERSON: That's correct.

25 MR. SOPER: And how did the new

1 modifications come to your attention?

2 GEN. JEFFERSON: My original thought to
3 take a look at them was when you asked the question at
4 the previous session about whether all of this was
5 verbatim, and I noticed that the word "apartment" was
6 in Colonel Cosby's, and that was my recollection it
7 was not in the report. So I went back and looked at
8 all of them just to make sure here we're at.

9 MR. SOPER: Okay. I had noticed in number
10 six you had previously reported that there was no
11 damage reported, and subsequently you noticed that
12 there was a -- the aircraft hit a house and destroyed
13 it.

14 GEN. JEFFERSON: That's correct.

15 MR. SOPER: You picked that up from
16 reading a second time?

17 GEN. JEFFERSON: Yes. As I mentioned
18 earlier, that was in the summary section of the
19 report, and I missed it when I looked at the or we
20 missed it when we looked at the body of the report.

21 MR. SOPER: Now, when you prepared the
22 first Exhibit 100, was that a joint effort on the
23 three of you that are testifying here today?

24 GEN. JEFFERSON: Yes, it is.

25 MR. SOPER: Who did the actual preparation

1 of the first document?

2 GEN. JEFFERSON: I prepared the chart.

3 MR. SOPER: And then subsequently did you
4 have the other two panel members review the chart?

5 GEN. JEFFERSON: We went through and
6 looked at the reports. After I had -- before it was
7 submitted as 100, no, there was no time for that.
8 That was done very quickly at the previous meeting.

9 MR. SOPER: So 100 was strictly prepared
10 by you and the entries were determined by you; is that
11 right?

12 GEN. JEFFERSON: I used information that
13 General Cole and Colonel Fly had given me, as well as
14 my own.

15 MR. SOPER: Explain what you mean by used
16 information they gave you.

17 GEN. JEFFERSON: They looked at some of
18 the reports; I looked at some of the reports. We all
19 put -- you know, put it together.

20 MR. SOPER: But you put this document
21 together, Exhibit 100, right?

22 GEN. JEFFERSON: Yes.

23 MR. SOPER: And after it was completed, is
24 it your testimony that Colonel Fly and General Cole
25 did not review 100 after it was done?

1 " GEN. JEFFERSON: That's correct, not
2 before it was presented. It wasn't time for it.

3 MR. SOPER: But you're saying as of the
4 time when 100(a) was introduced this morning that all
5 three of you have now reviewed this; is that right?

6 GEN. JEFFERSON: That's correct.

7 MR. SOPER: Would that be your testimony,
8 Colonel Fly?

9 COL. FLY: I've reviewed all of the
10 accident reports, and I've also looked at this. I
11 didn't necessarily scrub it completely to the detail
12 and the General Jefferson did.

13 MR. SOPER: So would this be your
14 testimony, that the representations are true that were
15 made or not?

16 COL. FLY: Yes, I believe this to be a
17 correct representation of what happened in the
18 accident reports.

19 MR. SOPER: General Cole?

20 GEN. COLE: That's correct.

21 MR. SOPER: This would be your testimony,
22 that these are accurate and true?

23 GEN. COLE: That's correct.

24 MR. SOPER: And Colonel or -- excuse me --
25 General Jefferson, I take it no doubt since you

1 produced this that that would also be your testimony?

2 GEN. JEFFERSON: That's correct.

3 MR. SOPER: General Jefferson, a pilot
4 ejecting in Skull Valley would do so at a minimum of
5 2,000 feet; is that right?

6 GEN. JEFFERSON: Ideally, yes.

7 MR. SOPER: Well, we wouldn't want a pilot
8 to go any lower than 2,000 feet, would we?

9 GEN. JEFFERSON: No, we would not.

10 MR. SOPER: And, in fact, I think you
11 testified earlier today that ejecting lower than that
12 increases the risk of injury or death to a pilot?

13 GEN. JEFFERSON: That's correct. That's
14 why it's emphasized.

15 MR. SOPER: And that being the minimum, I
16 guess we could anticipate the pilot might eject at
17 some altitude in advance of the bare minimum; be some
18 sort of a range there?

19 GEN. JEFFERSON: There could, yes.

20 MR. SOPER: Would you say a common range
21 would be 2,000 to maybe 3,000, somewhere in there?

22 GEN. JEFFERSON: I don't know. What I saw
23 in the accident reports, most of the pilots went down
24 to 2,000 or just below it, you know, if they were in
25 that kind of a situation, looking for the most time to

1 ' start the engine or judge where they were going to
2 hit.

3 MR. SOPER: At that distance of 2,000 feet
4 above ground level, how far would the aircraft be from
5 the site where it would impact?

6 GEN. JEFFERSON: I think it's about three
7 miles, but that's a vague recollection.

8 MR. SOPER: Colonel Fly, do you know?

9 COL. FLY: That would be about right. The
10 rule of thumb we used to do was 5,000 was seven miles
11 of fly distance.

12 MR. SOPER: Seven nautical miles?

13 COL. FLY: Yes.

14 MR. SOPER: Okay. So that would be a
15 little over eight statute miles?

16 COL. FLY: I think a little less than
17 eight, but I could do the math very quickly.

18 MR. SOPER: Would you?

19 COL. FLY: That's a pretty straightforward
20 calculation.

21 (Pause in proceedings.)

22 COL. FLY: Very quickly, using a
23 conversion factor of 1.15 nautical -- statute miles
24 per nautical mile, I came up with an 8.05.

25 MR. SOPER: So a little over eight miles

1 glide distance for an altitude of 5,000 feet?

2 COL. FLY: Correct.

3 MR. SOPER: Okay. Now, if you would do
4 the math for 2,000 feet, can you do that for me?

5 COL. FLY: Sure.

6 (Pause in proceedings.)

7 COL. FLY: Three, point, two, two.

8 MR. SOPER: So, General Jefferson, do you
9 agree then, sir, that at 2,000 feet, the minimum
10 ejection altitude of a pilot would be 3.22 statute
11 miles from the impact site?

12 GEN. JEFFERSON: Yes.

13 MR. SOPER: Now, when you prepared Exhibit
14 100 or 100(a), General, in how many of the crashes did
15 the pilot maneuver after ejecting or -- excuse me --
16 prior to ejecting at 2,000 feet or higher and avoid a
17 particular ground structure?

18 GEN. JEFFERSON: I don't know the answer.
19 I haven't tabulated that.

20 MR. SOPER: Can you point to one single
21 accident where the pilot ejected at 2,000 feet or
22 greater and maneuvered to avoid a structure on the
23 ground?

24 GEN. JEFFERSON: I don't -- I don't see
25 that in my notes. I'd have to look at the reports.

1 MR. SOPER: Do you know that there is such
2 an accident?

3 GEN. JEFFERSON: I don't know either way.

4 MR. SOPER: If I could direct your
5 attention, sir, to entry number one, by the way, can
6 you tell me what the altitude was at the time the
7 pilot ejected in injury number one? That's the
8 accident of 26 December '89.

9 GEN. JEFFERSON: I'll look it up.

10 It says he intentionally delayed ejection
11 below minimums to further avoid populated areas in
12 flight path and ejected at 1,400 feet MSL. I don't
13 know what the local altitude was.

14 MR. SOPER: All right. So it would be
15 less than 1,400 feet above ground level?

16 GEN. JEFFERSON: That's correct.

17 MR. SOPER: And why was it the pilot had
18 to delay his ejection below 2,000 to avoid the
19 populated area?

20 (Pause in proceedings.)

21 GEN. JEFFERSON: He was in, on the next
22 page, let's see -- there's a conjecture. Within
23 moments of landing he was met by Korean civilians;
24 that he was in a -- probably a farming area.

25 MR. SOPER: And why wouldn't he be able to

1 . avoid a farm from 2,000 feet?

2 GEN. JEFFERSON: There were probably more
3 than one.

4 MR. SOPER: And so that being the case,
5 you would have to go below 2,000 feet to do that
6 avoidance?

7 GEN. JEFFERSON: If you wanted to be
8 really careful about it, I would say so. You know,
9 it's hard to tell what the density was there.

10 MR. SOPER: At any rate, the pilot in this
11 case believed he could not successfully avoid what he
12 was attempting to avoid at 2,000 feet; isn't that
13 true?

14 GEN. JEFFERSON: In the Korean
15 countryside, yes.

16 MR. SOPER: And what was the -- it says he
17 intentionally delayed ejection below the minimums
18 recommended in the flight manual to further avoid
19 populated areas in this flight path. Any indication
20 of what the populated areas were that he was trying to
21 avoid?

22 MR. GAUKLER: General Jefferson, do you
23 see where he's quoting from?

24 GEN. JEFFERSON: I see where the quote is.
25 I haven't found a -- other than that reference to

1 . civilians meeting him right away, I haven't seen any
2 further definition of that.

3 MR. SOPER: So we don't know what it is
4 that the pilot was trying to avoid in this first case?

5 GEN. JEFFERSON: Populated sites.

6 MR. SOPER: Populated areas. And we don't
7 know how big it might have been?

8 GEN. JEFFERSON: I don't.

9 MR. SOPER: I notice in number six, sir,
10 six in your Exhibit PFS 100(a), this is the one where
11 you've added that the house was destroyed.

12 CHAIRMAN FARRAR: Mr. Soper, that's
13 January 13th, '92?

14 MR. SOPER: Yes, Your Honor.

15 I see that the report states that the
16 pilot attempted to point the aircraft away from
17 population centers. Would that be a correct quote
18 from the report, sir?

19 MR. GAUKLER: Show him where you're
20 pointing from, Mr. Soper.

21 MR. SOPER: Number six on Exhibit 100 or
22 100(a), either one.

23 GEN. JEFFERSON: Yes, that's on page 3.

24 MR. SOPER: So in this case the pilot
25 attempted to point the aircraft away from population

1 . centers. Nevertheless the aircraft hit and destroyed
2 a house; is that right?

3 GEN. JEFFERSON: This was at Wichita, and
4 he turned away from the city, turned east away from
5 the city, but there was still a suburban area around
6 the base there.

7 MR. SOPER: So the answer to my question
8 would be even though he attempted to point the
9 aircraft away from population centers, he was not
10 successful in avoiding a house; isn't that right?

11 GEN. JEFFERSON: That's obviously correct.
12 He turned away from a very large, dense area to a more
13 sparsely populated area, but he unfortunately hit a
14 house.

15 MR. SOPER: I see. So even turning toward
16 the sparsely populated area, while it might be a
17 better choice, does not guarantee that the pilot is
18 not going to hit something; isn't that true?

19 GEN. JEFFERSON: If there's something
20 there and he's avoided the major obstacle, but he
21 could possibly hit something there, yes.

22 MR. SOPER: And what altitude did the
23 pilot eject at in number six?

24 GEN. JEFFERSON: Six to 700 feet, just
25 right after takeoff.

1 MR. SOPER: All right. Can you read me
2 where it has the ejection altitude?

3 GEN. JEFFERSON: On page 3 again, it
4 actually looks like a little below. They climbed to
5 six or 700 feet. Air speed was decaying through 130
6 knots. Angle of attack was increasing. The aircraft
7 then began to descend. Realized he was going to have
8 to eject. So he attempted to point it away from a
9 population center and ejected.

10 MR. SOPER: And I direct your attention to
11 page 3 at the bottom under ejection seat. Would you
12 read that first sentence, please?

13 GEN. JEFFERSON: Oh, yes. Okay. Ejection
14 occurred at approximately 1116:50 Central Standard
15 Time at less than 500 feet.

16 MR. SOPER: So the pilot was at less than
17 500 feet when he ejected in this situation, but
18 nevertheless hit a house, right?

19 GEN. JEFFERSON: Yes, he was less than 500
20 feet; attempted to avoid houses even at that altitude,
21 but he did hit one.

22 MR. SOPER: Now, in the total group of
23 aircraft reports, mishap reports, there was a report
24 of December 19, 1991, that I don't see mentioned
25 anywhere in your material. Are you familiar with that

1 report?

2 GEN. JEFFERSON: I'll look it up.

3 MR. BARNETT: When you say "mentioned"
4 in --

5 GEN. JEFFERSON: 19 December '91?

6 MR. SOPER: 19 December 1991, yes.

7 MR. BARNETT: When you say "mentioned" in
8 the material, what material are you referring to?

9 MR. SOPER: I don't see any reference to
10 it in anything other than it was produced

11 GEN. JEFFERSON: Yes, I have that report.

12 MR. SOPER: Is that included in the 121
13 total destroyed aircraft reports that you considered?

14 (The panel conferred.)

15 MR. SOPER: I'm sorry. Colonel Fly, do
16 you want to answer that?

17 COL. FLY: Well, I can tell you this is an
18 airplane that mysteriously disappeared. We don't know
19 what happened to it. We're checking right now to see
20 if it was -- it's not in Tab H. I know that, but
21 whether it's in the -- it's one we got from the Air
22 Force.

23 MR. SOPER: When you say "mysteriously
24 disappeared," you mean it was --

25 COL. FLY: Took off and never was heard

1 of. That's the only one like that.

2 MR. SOPER: And how did you treat that?
3 Did you treat that as a --

4 COL. FLY: Removed it from the database of
5 Tab H.

6 MR. SOPER: So couldn't you assume that
7 maybe it was destroyed?

8 COL. FLY: Could be, probably was, but we
9 have no idea about the flight parameters or anything
10 like that, and it wasn't on takeoff.

11 MR. SOPER: So you just elected not to
12 consider it?

13 COL. FLY: We had no way to consider it.

14 MR. SOPER: Now, could I direct your
15 attention, sir, to entry number eight?

16 CHAIRMAN FARRAR: Mr. Soper, that's
17 December 17th, '92?

18 MR. SOPER: Yes, sir.

19 GEN. JEFFERSON: I have it.

20 MR. SOPER: Now, you say in number eight,
21 "Turn toward air field and then turn to avoid hunting
22 lodge before ejecting; is that right?

23 GEN. JEFFERSON: Yes.

24 MR. SOPER: Could I direct your attention,
25 General, to the mishap report

1 GEN. JEFFERSON: Okay.

2 MR. SOPER: Ask you to read the second to
3 last sentence in the first paragraph on that page.

4 GEN. JEFFERSON: "The still burning
5 aircraft turned about 72 degrees further right, rolled
6 beyond inverted and impacted at approximately 25
7 degrees nose low.

8 MR. SOPER: And at the time the pilot
9 bailed out, ejected, the aircraft was not in control.
10 In fact it turned almost a 90 degree turn after
11 ejecting; isn't that true?

12 GEN. JEFFERSON: Yes, once he left the
13 aircraft, it was no longer in control. It's not clear
14 whether he was turning right at the time and it just
15 continued with that or whether it turned after that.

16 MR. SOPER: Well, it says the still
17 burning aircraft turned about 72 degrees further
18 right, well beyond inverted. What does "well beyond
19 inverted" mean?

20 GEN. JEFFERSON: Turned upside down.

21 MR. SOPER: Turned upside down and
22 impacted approximately 25 degrees nose low. What does
23 that mean?

24 GEN. JEFFERSON: That means it started
25 like that and rolled in like that.

1 MR. SOPER: So this aircraft did not glide
2 down as we would anticipate in turning away from a
3 particular object; isn't that true?

4 GEN. JEFFERSON: Well, he did point away
5 from the hunting lodge, and he -- and it didn't hit
6 the lodge. I guess you could say that.

7 MR. SOPER: You could say that, but my
8 question was, sir, this aircraft did not glide
9 straight ahead like we envisioned when we aim it away
10 from --

11 GEN. JEFFERSON: No.

12 MR. SOPER: -- a certain structure.

13 Thank you.

14 Might I have just a moment, Your Honor, to
15 confer?

16 (Pause in proceedings.)

17 MR. SOPER: General Jefferson, if I could
18 direct your attention back to the first entry of 26
19 December '89, and do you have that mishap report handy
20 there, sir?

21 GEN. JEFFERSON: Yes, I do.

22 MR. SOPER: Could you turn to page 5 of
23 that report?

24 GEN. JEFFERSON: Okay.

25 MR. SOPER: And read us the third full

1 . paragraph. It's only three lines long.

2 GEN. JEFFERSON: "Five property owners
3 received damage pursuant to U.S. Forces-Korea
4 Regulation 526-11. Installation payments were made to
5 all property owners under the Status of Forces
6 Agreement. the Korean District Compensation Committee
7 has taken this claim and is adjudicating it. The
8 property owners are listed in Tab P-2-1."

9 MR. SOPER: And then will you read us what
10 you put down under damage?

11 GEN. JEFFERSON: "Impacted trees. Landed
12 in a rice paddy. Tanks landed in an unpopulated area.
13 No injuries or damage."

14 MR. SOPER: I guess that's not quite
15 right, is it?

16 GEN. JEFFERSON: (Pause.)

17 MR. SOPER: Well, you just read us that
18 five property owners received damage. So I'll let
19 that be your answer.

20 GEN. JEFFERSON: Well, Paragraph C(4)(c)
21 says, "Aircraft crashed into a rice paddy
22 approximately 500 feet from the nearest house, and
23 there were no injuries to civilians or Republic of
24 Korea nationals."

25 MR. SOPER: But the no damage is not

1 . correct, is it sir?

2 GEN. JEFFERSON: Not entirely. That's
3 correct. It hit a rice paddy.

4 MR. SOPER: I believe that's all I have
5 for this panel to answer, Your Honor.

6 (Pause in proceedings; Judges confer.)

7 CHAIRMAN FARRAR: Just a quick
8 clarification. You asked about the one flight. You
9 said inverted meant upside down, but it said "beyond
10 inverted," I think. I take it it went upside down and
11 kept going a little farther. Is that what that means?

12 GEN. JEFFERSON: It went beyond that, but
13 I think Colonel Fly would be the expert on what
14 happened there.

15 COL. FLY: With no more specific
16 information than what's in there, Your Honor, I would
17 think inverted -- this is typically inverted. If it
18 rolled beyond inverted, I would envision it rolling
19 something more than tail sticking straight down.

20 CHAIRMAN FARRAR: Okay. Thank you.

21 JUDGE LAM: General Jefferson, we have on
22 our record all of the 129 events, and in PFS Exhibit
23 100 and 100(a), you now have selected 58 events which
24 you deem to be the Skull Valley type of events.

25 GEN. JEFFERSON: That's correct.

1 JUDGE LAM: Let me ask you a hypothetical
2 question. Just in case some of the events you have
3 not labeled Skull Valley event were determined later
4 to be applicable to the Skull Valley event, how would
5 that change your conclusion?

6 GEN. JEFFERSON: It would -- it would only
7 affect it as to whether that particular accident was
8 also able to avoid or not able to avoid. That's all
9 Tab H deals with.

10 JUDGE LAM: So the impact, it's not only
11 by adding the excluded event to the denominator.

12 GEN. JEFFERSON: You would have to know
13 whether to include it in the numerator if it were
14 unable to avoid accident.

15 JUDGE LAM: Thank you.

16 CHAIRMAN FARRAR: Mr. Barnett, are you
17 ready to start your redirect?

18 MR. BARNETT: Yes, Your Honor.

19 REDIRECT EXAMINATION BY MR. BARNETT

20 MR. BARNETT: Colonel Fly, you recall Mr.
21 Soper asking you about whether you knew where the
22 location of the Goshute Village and the Tekoi Rocket
23 Engine Test Facility were in Skull Valley?

24 COLONEL FLY: Yes.

25 MR. BARNETT: If you were flying out of

1 . Hill Air Force Base, would you look at maps of the

2

3 [Transcript continues uninterrupted on the next page.]

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CHAIRMAN FARRAR: Mr. Barnett, are you ready to start your redirect?

MR. BARNETT: Yes, Your Honor.

REDIRECT EXAMINATION BY MR. BARNETT

MR. BARNETT: Colonel Fly, you recall Mr. Soper asking you about whether you knew where the location of the Goshute Village and the Tekoi Rocket Engine Test Facility were in Skull Valley?

COLONEL FLY: Yes.

MR. BARNETT: If you were flying out of Hill Air Force Base, would you look at maps of the

1 area where you were flying?

2 COLONEL FLY: Yes, you generally -- yes.

3 MR. BARNETT: Do you know whether the
4 Defense Department or the Air Force provides
5 information to pilots about the locations of nuclear
6 facilities?

7 COLONEL FLY: Yes, it's listed in the DOD
8 FLIP, Flight Information Publication.

9 MR. BARNETT: And would the PFSF be listed
10 in that facility, or that document, if it were built?

11 COLONEL FLY: Yes, it would be under the
12 section that lists nuclear storage facilities.

13 MR. BARNETT: Do the Air Force
14 instructions on the Utah Test and Training Range
15 provide information as to the location of the
16 laboratories on Dugway Proving Ground?

17 COLONEL FLY: Yes.

18 MR. BARNETT: Would those instructions
19 also provide information on the location of the PFSF,
20 if it were built?

21 COLONEL FLY: I think that's a reasonable
22 assumption.

23 MR. BARNETT: General Jefferson, do you
24 recall Mr. Soper asking you a question about PFS
25 Exhibit 100A and Entry No. 6, line No. 6?

1 GENERAL JEFFERSON: Yes. I'm looking for
2 that. Okay.

3 MR. BARNETT: Could you describe what the
4 situation was in that accident?

5 GENERAL JEFFERSON: Certainly. This was
6 an aircraft, an F-16, that had a --

7 CHAIRMAN FARRAR: Wait. What was the date
8 of the accident?

9 MR. BARNETT: It's 13 January 1992.

10 General Jefferson, could you describe the
11 nature of that accident?

12 GENERAL JEFFERSON: Certainly. This was
13 an aircraft, F-16, that had finished its mission. It
14 was coming back. It made a practice approach to the
15 airfield. When it went around, the pilot found that
16 his throttle was not affecting the engine RPM, that it
17 was stuck. He had no control over it. So he elected
18 to come around and try to land. When he did land, he
19 could not shut the engine down on the runway. It
20 continued on down the runway. He thought he would
21 catch the barrier. He lowered his tailhook, tried to
22 catch the barrier, but it missed. He was going fairly
23 fast, so he elected to try to take off again.

24 He got into the air, got up to the 600 or
25 700 feet we talked about earlier, never made it up to

1 2,000 feet, and then when he started losing air speed
2 and altitude, he turned away from the major population
3 area and he ejected.

4 MR. BARNETT: Now, General Jefferson, if
5 a pilot were to eject in Skull Valley in the vicinity
6 of the Private Fuel Storage facility, and say he was
7 trying to avoid the Private Fuel Storage facility,
8 what would be around the facility that he would have
9 to worry about hitting other than the facility itself?

10 GENERAL JEFFERSON: There's really nothing
11 out there. It's desert.

12 MR. BARNETT: General Jefferson, do you
13 recall being asked about the 26 December 1989 accident
14 where the accident report said that property owners
15 received damage?

16 GENERAL JEFFERSON: Yes.

17 MR. BARNETT: If an accident report says
18 that property owners receive damage, could that be
19 damage to land itself?

20 GENERAL JEFFERSON: Yes, I'm sure that's
21 what this was. The farmers that own that rice paddy
22 are entitled to some compensation for damage to it.

23 MR. BARNETT: General Jefferson, earlier
24 this morning Judge Lam asked you a question about
25 evaluating the information in PFS Exhibit 100A with

1 all these accidents and how you might evaluate it
2 statistically. Do you have anything to add to what
3 you said previously about how you might do that?

4 GENERAL JEFFERSON: Yes. On further
5 thought, we had talked about what the proper fraction
6 would be, whether you would have A plus B over A plus
7 B plus C, as we categorized these things. On
8 reflection, the C category, being essentially a
9 category of no information, I think it might be more
10 appropriate to take that out altogether and just have
11 A plus B over A plus B, in looking at this situation.

12 Then there's another thought with it. We
13 had looked at this from trying to build up probability
14 of successful. If we went to the other side and
15 looked at the probability of failure, which is one
16 minus the probability of success, and looked for a
17 case where the pilot hit something and then backed up
18 from that and looked, did he in fact try to miss that
19 or did he just decide not to try, we would find no
20 case of that.

21 MR. BARNETT: Your Honor, that's all I
22 have.

23 (Judges confer.)

24 CHAIRMAN FARRAR: General Jefferson, for
25 example, you dropped Item C, and we got A plus B over

1 A plus B, which long ago became, it was 100 percent in
2 my mind. But you dropped C because it doesn't, it has
3 no information.

4 Have we discussed before whether there's
5 a problem with all these reports, in that if we
6 understood your explanation of them, and if we
7 understand reading them, none of them are created with
8 the purpose in mind of seeing whether the pilots did
9 a good job or can be counted on to avoid features on
10 the ground?

11 I mean, if I understand what we talked
12 about some weeks ago, these are created so the Air
13 Force knows why an accident happened and can make
14 corrections in the future, can evaluate whether the
15 mechanics did a good job, and a whole lot of other
16 things. But have we talked about whether in selecting
17 A and B, and not C, you're trying to do too much with
18 reports which were never intended for this purpose?

19 GENERAL JEFFERSON: I think it is true
20 that the reports were never intended for this. What
21 we are trying to do is pull out whatever information
22 we can find that tells us one way or another.
23 Therefore, if there is no information one way or
24 another, it is not of any use to us.

25 But you're correct, the report was never

1 written to pursue a line of analysis like this.

2 JUDGE LAM: And, furthermore, there was
3 never any explicit guidelines in the report to
4 describe any pilot action either way, isn't it true,
5 General Jefferson?

6 GENERAL JEFFERSON: That's correct. That
7 is not there. It comes in only when there was some
8 question about it or the pilot happened to want to
9 make a record of it or something.

10 JUDGE KLINE: So that any information that
11 you perceive to be there has to be perceived through
12 your inference? That is, it's not there directly?
13 It's that you read it and then make an inference that
14 that's what it could mean?

15 GENERAL JEFFERSON: Except if it's
16 specifically stated, yes, but that is not always the
17 case.

18 JUDGE KLINE: Okay.

19 CHAIRMAN FARRAR: Then they also don't
20 deal with my question of whether turning toward is the
21 same as turning away?

22 GENERAL JEFFERSON: No, we pulled that out
23 simply to indicate that the pilot at that point in the
24 emergency had the situational awareness to know my
25 base is over there and I'm going to go that way. As

1 the situation deteriorated, and he began to realize,
2 I'm not going to get back to that base, then he will
3 focus on a smaller environment.

4 CHAIRMAN FARRAR: Sometimes the report
5 says he did that, and sometimes --

6 GENERAL JEFFERSON: Sometimes it just
7 says --

8 CHAIRMAN FARRAR: Sometimes you drew the
9 inference that it --

10 GENERAL JEFFERSON: Because he didn't hit
11 anything.

12 CHAIRMAN FARRAR: Okay.

13 JUDGE KLINE: If we were proper
14 statisticians and were collecting data, a dataset,
15 pertinent to a particular question, you understand we
16 would be very skeptical about selecting subsets out of
17 that dataset? Whatever dataset you collect, you're
18 sort of stuck with, if you are going to use it for any
19 inferential purpose.

20 Here the thing, you know, it is clear
21 we're stumbling over the issue of selected datasets.
22 Because the problem is, if you look at it, you know,
23 with a skeptical eye, then you say, well, look, we
24 know that there probably are criteria by which you can
25 select data, but it's so easy to just select data that

1 supports what you're looking for.

2 The question is, how does a board
3 distinguish -- I mean we understand you did what you
4 did in good faith. How do we find that in the record,
5 given that we sort of have to know what is in your
6 mind? You know, we examined the question of bias
7 before in the sense of statistical bias, and really
8 the central question is, to distinguish between an
9 objective selection and a selection that favors the
10 case you're trying to present, even unconsciously, and
11 how, in a sense, you can carry a burden of proof on
12 that when the guidelines are obscure.

13 So at least you understand the problem,
14 and I would like you just to comment on that, as to
15 how we get around this or how you suggest we should
16 get around it.

17 GENERAL JEFFERSON: Well, two things, I
18 guess. One is we had never intended to build this as
19 a statistical base.

20 JUDGE KLINE: Yes.

21 GENERAL JEFFERSON: We had already reached
22 the conclusion of 95 percent, based on professional
23 study of our own and knowledge of training, you know,
24 the fact that there's only one site, one thing out
25 there, and the rest of it is desert, that sort of

1 thing. We thought 95 percent even was conservative.

2 Then we got into a discussion about that,
3 and so we took a look to see, well, what does the data
4 really say. I've tried to lay it out here, and it's
5 been questioned in detail. I've tried to be clear
6 about what we had. We don't have complete data. This
7 is what we have. I guess it's the Board's judgment,
8 then, is that reasonable or not?

9 GENERAL COLE: Could I add one for you,
10 Judge Kline?

11 JUDGE KLINE: General Cole.

12 GENERAL COLE: Yes, sir. Colonel Fly hit
13 on this, and we discussed it earlier. Colonel Fly
14 discussed this, and we had gone over it earlier. But
15 the constant situation on positional awareness of a
16 pilot. I'm going to category C now, where there's
17 nothing in there.

18 You're trained to have a constant moving
19 map display in your head of where you are and where
20 you're going to take that airplane. So eliminating C
21 is probably eliminating some possibilities where, if
22 there was nothing out there to avoid, and an airfield
23 was too far away, that is still a conscious assessment
24 by the pilot, and with the moving map displays says
25 there's nothing here to hit and I can't get to a

1 field; I will just leave, and the accident report is
2 blank on that, absolutely blank.

3 So, as we examine these, you know, you can
4 go back and say, okay, where are there instances,
5 General Jefferson pointed out, where the aircraft did
6 impact something and it's clear that the pilot did not
7 try to avoid?

8 And the third thing that is very important
9 is very often a pilot may have taken action to avoid
10 something, but it may not have shown up in the debrief
11 and didn't make it into the report. I'm not trying to
12 bias the thing one way or another, but it is an
13 imperfect tool to do this with.

14 JUDGE KLINE: That is basically the
15 question I'm asking, is whether the dataset
16 intrinsically contains the information you're looking
17 for. I mean, you might be working with an empty
18 bucket here. You know, there's just no goodies in
19 there.

20 GENERAL JEFFERSON: That's why I thought
21 about approaching it from the other direction.

22 JUDGE KLINE: Just from the standpoint of
23 professional opinion.

24 GENERAL JEFFERSON: Well, that, but also
25 looking at the data: Is there a case in here where

1 something substantial was hit --

2 JUDGE KLINE: Yes, okay.

3 GENERAL JEFFERSON: -- and then backing up
4 and looking, well, did the pilot do anything? You
5 know, there's a couple of cases where a house was hit.

6 JUDGE KLINE: Sure.

7 GENERAL JEFFERSON: But the pilot was
8 obviously trying to avoid a bigger damage.

9 JUDGE KLINE: Right, okay, I understand.

10 JUDGE LAM: So, General Jefferson and
11 General Cole, is it true to say that what you are now
12 testifying is, even with the substantial effort that
13 you have invested in preparing PFS Exhibit 100 and
14 100A, you are still principally relying on your
15 collective professional judgment that the 95 percent
16 success probability for a pilot being able and, in
17 fact, avoiding a land target is based on your
18 collective professional subjective judgment?

19 GENERAL JEFFERSON: When it all boils
20 down, that's correct.

21 GENERAL COLE: May I add one element to
22 that, Judge Lam? That's true, but also the collective
23 professional judgment of about 90 years' worth of
24 doing this business at the table and training a lot of
25 pilots, and having experienced emergencies ourselves,

1 and knowing how pilots behave, and training
2 lieutenants to grow up and live to be lieutenant
3 colonels, you get a feel for the culture and the
4 professional ethics of what they're doing.

5 So we take that and then we look in the
6 reports for documented evidence of it, and we try not
7 to optimistically assume that there's more there than
8 what there is. The professional judgment, in our
9 experience, as with Colonel Horstman, all of us, is a
10 big slice of this.

11 JUDGE LAM: So PFS Exhibit 100 and 100A
12 are intended to support your testimony, but your
13 entire testimony on this matter?

14 GENERAL JEFFERSON: That's correct.

15 CHAIRMAN FARRAR: We talked a moment ago,
16 or you talked with my colleagues, about biasing the
17 data. Is it possible that your opinions on this
18 question are biased -- and I don't use that in a
19 derogatory sense -- are biased by your justifiable
20 belief in the strength of the Air Force and the other
21 military services' training program? In other words,
22 you believe in it, and before you accuse me of not
23 believing in it, I took my rag-tag medical school
24 daughter up to Newport one year and I wouldn't have
25 given you a nickel for all the young doctors and

1 . lawyers the Navy had until six weeks later, when they
2 turned out a mean, lean fighting machine that you
3 would have sent anywhere. So I believe with you in
4 what the military can do in training.

5 But why should we believe that this is the
6 one area where there's no pilot error? If you read
7 these reports, there is pilot error here and there,
8 and we have heard about it in this case. But you are
9 trying to convince us there's no pilot error in
10 avoiding bad things on the ground. They may make
11 errors in a whole lot of other parts of their work,
12 but there's never an error on avoiding bad things on
13 the ground?

14 GENERAL JEFFERSON: I think that would be
15 unreasonable to say that, that there's never a
16 possibility for error. We found no case, as we were
17 talking about before, of not taking action when there
18 was something that would receive substantial damage
19 otherwise, and that supports 100 percent. But we
20 backed off because we know things, you know, there is
21 an error; there is a possibility somebody's not going
22 to do what they are supposed to do or what they are
23 trained to do, that sort of thing. So we backed off
24 to 95 percent.

25 COLONEL FLY: Your Honor, I would also

1 like to just reiterate it is not just our professional
2 opinion. We had three other pilots who are not
3 associated with PFS in any way categorically -- well,
4 I won't categorize it; you heard it as well as I do --
5 they all indicated that, given an opportunity, of
6 course, a pilot would avoid. So it is more than just
7 our professional opinion, I guess is what I'm trying
8 to say.

9 GENERAL COLE: Could I add one item to
10 that, Judge Farrar? And also the discussion we had
11 about the 2,000-foot bailout altitude, you do see
12 pilots that didn't go that extra measure to try to
13 avoid, and, boy, you get into pilot judgment here,
14 will break that 2,000 feet to make the extra effort.
15 If they succeed, they were right. If they don't,
16 well, they may pay a big price for it.

17 CHAIRMAN FARRAR: Ms. Marco, I think you
18 passed a long time ago this morning. Do you have any
19 questions you would want to ask?

20 MS. MARCO: I don't have any.

21 CHAIRMAN FARRAR: Okay. Mr. Soper?

22 MR. SOPER: Nothing further, Your Honor.

23 CHAIRMAN FARRAR: That's it for them?

24 I suppose, Mr. Barnett, you could ask
25 anything you needed to based on our questions.

1 MR. BARNETT: No, Your Honor, I don't have
2 anything further. --

3 CHAIRMAN FARRAR: All right, then are they
4 going to be back for any other testimony?

5 MR. BARNETT: They would be here to listen
6 to the rebuttal of Lieutenant Colonel Horstman.

7 CHAIRMAN FARRAR: Okay, so we may not have
8 seen the last of them.

9 (Laughter.)

10 But I will repeat what I said a few weeks
11 ago, that the Board appreciates your service to
12 helping us reach a correct decision, but, more
13 importantly, a great many people in the room
14 appreciate the service you have given our country. So
15 thank you.

16 GENERAL JEFFERSON: Thank you very much.

17 COLONEL FLY: Thank you.

18 GENERAL COLE: Thank you.

19 (Witnesses excused.)

20 CHAIRMAN FARRAR: All right, okay, that
21 completes the Applicant's rebuttal case?

22 MR. BARNETT: Yes, it does.

23 CHAIRMAN FARRAR: You didn't want to go
24 until tomorrow morning? Is there anything we can
25 accomplish? It's only 10 after 3:00, which we find

1 ourselves in a surprising position since for nine
2 weeks we've been going until six, seven, and eight
3 o'clock at night.

4 MR. SOPER: We would be happy to start
5 with Lieutenant Colonel Horstman now.

6 CHAIRMAN FARRAR: Then why don't we do
7 that?

8 MR. TURK: Should we take a few minutes to
9 set up?

10 CHAIRMAN FARRAR: Well, we just had a
11 fairly substantial break.

12 MR. TURK: That's fine.

13 CHAIRMAN FARRAR: Let's see if we can't
14 get started and see where we get to.

15 (Pause.)

16 MR. SOPER: Our witness went to the men's
17 room, Your Honors. We were just discussing we thought
18 testifying was a high-stress maneuver.

19 (Laughter.)

20 (Pause.)

21 CHAIRMAN FARRAR: Who is doing this for
22 the State?

23 MR. SOPER: I will, Your Honor. Thank
24 you.

25 CHAIRMAN FARRAR: And how long do you

1 think the entire examination will be?

2 MR. SOPER: You know, I was going to
3 estimate about a day, which would be -- I was thinking
4 it would be tomorrow we would start Lieutenant Colonel
5 Horstman, but possibly less.

6 CHAIRMAN FARRAR: Okay.

7 MR. TURK: A day of direct?

8 MR. SOPER: Or possibly less.

9 CHAIRMAN FARRAR: Okay.

10 MR. SOPER: It seems to me the rebuttal of
11 the panel probably took a day or a little longer.

12 CHAIRMAN FARRAR: Yes, it's 3:15 now and
13 we started them first thing this morning, and they had
14 been on in Salt Lake.

15 MR. GAUKLER: It's been approximately a
16 day direct and cross examination.

17 MR. SOPER: I would like to make the
18 observation that the brevity of the panel was due to
19 the short cross examination by present parties.

20 (Laughter.)

21 We'll try to be expeditious.

22 CHAIRMAN FARRAR: He said with unusual
23 modesty.

24 (Laughter.)

25 Yes, in fact, Mr. Soper, we neglected to

1 . commend you for that. We were in the habit last week
2 of handing out plaudits to lawyers who came in under
3 their schedules --

4 MR. SOPER: Thank you, Your Honor.

5 CHAIRMAN FARRAR: -- even though they
6 thought they could trick us by doubling their estimate
7 and then coming in at half, but we were wise to that.

8 (Laughter.)

9 You did do a very good job. Why don't you
10 go ahead?

11 MR. SOPER: Thank you.

12 Good afternoon, Lieutenant Colonel
13 Horstman.

14 LT. COLONEL HORSTMAN: Good afternoon.

15 MR. SOPER: And, Your Honor, I guess do
16 you want to indicate for the record that --

17 CHAIRMAN FARRAR: I'm sorry, yes. Colonel
18 Horstman, you have been here more than once. Consider
19 yourself still under oath, please.

20 LT. COLONEL HORSTMAN: Sure.

21 WHEREUPON,

22 LT. COLONEL HUGH HORSTMAN
23 having been previously duly sworn, resumed the witness
24 stand, was examined and testified as follows:

25 DIRECT EXAMINATION BY MR. SOPER

1 MR. SOPER: If we might, sir, go to the
2 subject that we just left, which is the training a
3 pilot receives. If you would just refresh us, you
4 flew in the United States Air Force for how many
5 years?

6 LT. COLONEL HORSTMAN: Approximately 21
7 years.

8 MR. SOPER: As an F-16 pilot most of that
9 time?

10 LT. COLONEL HORSTMAN: The last seven were
11 the F-16.

12 MR. SOPER: And you were an instructor for
13 the F-16, is that right?

14 LT. COLONEL HORSTMAN: Yes, sir.

15 MR. SOPER: In connection with your F-16
16 flying and instructing experience, did you have
17 occasion to either do training or receive training in
18 connection with the ejection experience?

19 LT. COLONEL HORSTMAN: Yes, sir, actually,
20 it's before the F-16, throughout the entire 21 years.
21 You receive annual egress training, how to escape an
22 aircraft, how to use the ejection system, the
23 procedures, all the safety mechanisms for all
24 aviators. Even if they don't sit in an ejection seat,
25 that applies to many of them as well.

1 With respect to the F-16 and the F-111, we
2 received numerous simulators, required emergency
3 training simulators, as well as the egress training,
4 as well as monthly safety days where you would review
5 other training items for safety. Typically, you would
6 review safety reports, accident reports, to try to
7 avoid the same kind of accidents, which was the
8 purpose of the report, if we can avoid them. And a
9 significant number of the accidents are pilot error,
10 so you review those in an attempt to avoid future
11 accidents of the same type.

12 MR. SOPER: Now, as I understand it, the
13 F-16 has a recording device to actually film what's
14 going on from the pilot's perspective in the F-16?

15 LT. COLONEL HORSTMAN: Yes, sir. The
16 early models of the F-16 had a 30-minute video
17 cassette that they took of the heads-up display. The
18 newer ones have cassettes that will take pictures of
19 your two multi-function displays, TV screens, if you
20 will, with radar and situational awareness devices, as
21 well as a heads-up display. You use those at all
22 training missions.

23 MR. SOPER: Does the video camera
24 installed in an F-16, is that something that runs as
25 a matter of ordinary, everyday practice or is it set

1 up to do a specific training run, or how does that
2 work?

3 LT. COLONEL HORSTMAN: It would depend,
4 again, sir, on which block of airplane and which
5 camera you had installed. In the earlier blocks of
6 the aircraft you had a 30-minute videotape, and if you
7 are flying for, say, an hour, you could only film half
8 of it. So, typically, you would, before the mission
9 on the ground, you would title the tape, say what tail
10 number you're in, and what your name is, what the date
11 is, what the mission is, as a reference point.

12 Then on a typical training mission, if it
13 lasts an hour, you would film the g-warmup. You would
14 film a little bit of radar work leading up to that,
15 and then you would turn the tape off. Then when you
16 entered the working area for air-to-air, air-to-
17 ground, whatever specific mission training you were
18 doing that day, you would turn that tape back on.
19 Everybody would try to do it simultaneous. If there's
20 four airplanes, you want them to basically be queued
21 up. So you would all film the same thing at the same
22 time, so that you could reconstruct the mission
23 afterwards with great accuracy.

24 With the new ones, if you have a two-hour
25 tape and you have an hour-and-a-half mission, one of

1 the common practices now is you have three cassette
2 tapes, one for each device. You turn them all on to
3 title them. You title your tape as before, and then
4 you turn them off, and then just part of takeoff you
5 would turn them on as well. Then when you land, you
6 turn them off.

7 MR. SOPER: So even in an ordinary,
8 routine training mission, an F-16 returning from that
9 mission will have a videotape of at least parts of
10 that mission, if not all of that mission, as just a
11 routine matter?

12 LT. COLONEL HORSTMAN: Yes, sir.

13 MR. SOPER: And does the Air Force use any
14 of those actual video recordings for training
15 purposes?

16 LT. COLONEL HORSTMAN: Yes, sir. At the
17 conclusion of each sortie, and I alluded to the
18 multiple airplanes, if there's four airplanes and
19 you're going to go do, let's say, an air-to-ground
20 mission, the flight lead or the instructor, if the
21 instructor is leading the formation, at the end of the
22 flight during the debrief, the training session
23 afterwards, they would use every single pilot's
24 videotape and reconstruct generally all of the bombing
25 activity or all of the air-to-air engagements and

1 critique each of the pilots on their performance with
2 respect to the radar, the laser range finder, the bomb
3 accuracy, the maneuver, et cetera. That's one way.

4 You also have that videotape available to
5 use in the future for other purposes, other training
6 purposes, for members who were not actually in the
7 flight.

8 MR. SOPER: And you've seen several of
9 these training tapes during your career?

10 LT. COLONEL HORSTMAN: Thousands and
11 thousands.

12 MR. SOPER: Are you aware of any, sir,
13 that actually show a pilot who's had an emergency and
14 captures the emergency on film, including up to the
15 point and after of ejection?

16 LT. COLONEL HORSTMAN: Yes, sir, and the
17 Air Force tries in an accident to recover the tape, so
18 that they can reconstruct what actually happened.
19 Typically, every month on a safety training afternoon,
20 a Friday afternoon typically, you would review those.
21 The safety folks would get together and they would get
22 one or two or three, or whatever the applicable
23 message was for that month, and you would review those
24 accidents. So, yes, we've seen hundreds of those.

25 MR. SOPER: And I take it you have a

1 videotape here with us this morning that shows a pilot
2 having an emergency and ejecting?

3 LT. COLONEL HORSTMAN: Yes, sir, I do.

4 MR. SOPER: Can you tell us what that tape
5 shows generally?

6 LT. COLONEL HORSTMAN: Yes, sir. It shows
7 an aircraft on a training range. It has an engine
8 malfunction and unable to solve it. Subsequently, the
9 pilot ejects at low altitude, and the aircraft impacts
10 the ground. It's all on videotape, and it was from
11 the same individual who testified in front of this
12 Commission two months ago.

13 MR. SOPER: And who would that be? Just
14 remind us.

15 LT. COLONEL HORSTMAN: Frank Bernard.

16 MR. SOPER: You've seen this whole tape?

17 LT. COLONEL HORSTMAN: I have. I've
18 watched it with Frank. It's one of the training tapes
19 that the Air Force published for the purpose of trying
20 to avoid those type of accidents in the future.

21 MR. SOPER: This tape was produced at Hill
22 Air Force Base, is that right?

23 LT. COLONEL HORSTMAN: Yes, sir, it is.

24 MR. SOPER: And it runs about 10 minutes?

25 Is that right?

1 LT. COLONEL HORSTMAN: Yes, sir, about 10.

2 MR. SOPER: May I approach the witness,
3 Your Honor?

4 CHAIRMAN FARRAR: Certainly.

5 MR. GAUKLER: Your Honor, I would note for
6 the record we have never received a copy of this tape
7 in discovery or today did we know that they were
8 considering use of a tape. We have made it the
9 practice the past couple of weeks in terms of some new
10 documents or calculations, or something like that, to
11 advise. For example, we provided them a copy of PFS
12 245 over the weekend at least, if not earlier. We
13 have not seen this, and I take objection to that on
14 that ground.

15 MR. SOPER: Do you want me to respond to
16 that, Your Honor? Right now what I would propose is
17 that we play it, have Lieutenant Colonel Horstman tell
18 us what it is. Then I would move its admission
19 subsequent to that, and we can argue about that after
20 we see what the document shows, which is the typical
21 way of doing it, marking a document, and looking at
22 it, and then objecting as to if it's appropriate.

23 CHAIRMAN FARRAR: Does that make sense,
24 Mr. Gaukler? We're not a jury.

25 MR. GAUKLER: Well, I guess I would like

1 to know how long they have had it. They haven't let
2 us know that they were going to use it, and I would
3 have liked to have seen it before today, seeing it for
4 the first time here.

5 MR. SOPER: I will be happy to respond to
6 that. I think we first saw it maybe a week ago, 10
7 days ago, and we just in the last day or two received
8 permission to use it. So it is a new piece of
9 material for us.

10 I'll have to say that neither PFS Exhibit
11 100 or 100A or simulations of casks on a pad, none of
12 those things were produced to us in advance. So I'm
13 not sure that it is particularly out of the ordinary
14 in this proceeding.

15 MR. GAUKLER: One hundred and 100A were
16 not simulations of casks or --

17 MR. SOPER: Not the rebuttal.

18 MR. GAUKLER: Some of them definitely
19 were. We gave you drafts beforehand.

20 CHAIRMAN FARRAR: Rather than argue about
21 this in a vacuum, Mr. Gaukler, you may have a surprise
22 or maybe we'll see it and you won't have a point about
23 surprise.

24 MR. TURK: Could I suggest a possible
25 midpoint solution?

1 CHAIRMAN FARRAR: Yes, Mr. Turk. Someone
2 turned your microphone on again.

3 (Laughter.)

4 MR. TURK: Because the State is
5 anticipating a full day of examination, that means
6 that we'll break here in about an hour and a half and
7 they'll continue the examination tomorrow. Perhaps
8 they could just give the tape to other parties to
9 review tonight, so at least we know what we're going
10 to be seeing, and continue on a different line now.

11 Does the State have copies of the tape?

12 MR. SOPER: Yes, we're prepared to hand
13 everybody who wants one a copy.

14 CHAIRMAN FARRAR: As I said, we're not a
15 jury. Let's see what we're dealing with here, and
16 then we'll decide.

17 Colonel Horstman, you said that you had
18 reviewed this with Colonel Bernard or talked with him
19 about it or --

20 LT. COLONEL HORSTMAN: Yes, sir, he showed
21 it to me and walked me through it and discussed it as
22 we went through.

23 JUDGE LAM: Is this tape related to any
24 one of the reports before us, Colonel Horstman?

25 LT. COLONEL HORSTMAN: Not a printed

1 report. It is related to the verbal testimony that
2 Colonel Bernard gave to you in Salt Lake City.

3 JUDGE LAM: This is an F-16 accident?

4 LT. COLONEL HORSTMAN: Yes, sir, it is.

5 JUDGE LAM: Then if it is an F-16
6 accident, we have before us 129 accident reports.

7 LT. COLONEL HORSTMAN: That's correct,
8 yes, sir.

9 JUDGE LAM: Why is this one not related to
10 any one of them?

11 LT. COLONEL HORSTMAN: Remember, we're
12 taking a finite group of accidents that we've chosen
13 to discuss. I reviewed 150 F-16 accident reports.
14 We've only talked, in response to PFS, about the 129
15 -- actually, 130 if you include the Panama accident.
16 So this one happened before that timeframe.

17 CHAIRMAN FARRAR: Wasn't he the fellow who
18 ejected twice?

19 LT. COLONEL HORSTMAN: Yes, sir, he is.

20 MR. GAUKLER: And this ejection concerns
21 the F-16 accident?

22 LT. COLONEL HORSTMAN: Yes, sir, it's
23 exclusively F-16 video, and if I could preface it,
24 instead of me walking you through what's going on in
25 the videotape, the purpose of this training tape is to

1 educate all ejection seat pilots on ejecting at or
2 above 2,000 feet and the scenarios around that.

3 Attempting to train them, so that they
4 will, again, abide by the rules and regulations
5 published in the Air Force manuals, and this goes to
6 show his actions and how he provided, or how well he
7 was trained and how that training paid off in his
8 ejection.

9 MR. SOPER: There's an audio portion of
10 this, too. We have the audio.

11 CHAIRMAN FARRAR: And, Mr. Gaukler, your
12 objection at this point is surprise, not necessarily
13 lack of relevance?

14 MR. GAUKLER: Assuming they say what it
15 said, it's a surprise right now.

16 MR. TURK: But, also, there's no way to
17 object to the contents because we don't know what the
18 contents are. We can't say if it's prejudicial. We
19 can't say if it's a fair representation of anything
20 that's before the Board. I think allowing the parties
21 to review it first would allow them to know whether
22 they have an objection or not.

23 MR. SOPER: Well, the ordinary course is
24 we hand out the document, we look at it, and that's
25 what we are doing right now.

1 CHAIRMAN FARRAR: Mr. Turk, there's some
2 merit in what you say, but we're here and we're trying
3 to move along, and we're not a jury. So let's see it.
4 Where is it going to be? Go ahead. I've got it on my
5 monitor. How about in the back of the room?

6 Let's go off the record.

7 (Whereupon, the proceedings went off the
8 record at 3:30 p.m. and resumed at 3:32 p.m.)

9 (Video being played)

10 CHAIRMAN FARRAR: All right, Mr. Soper,
11 we've seen the videotape. You plan to offer it?

12 MR. SOPER: I'm looking for what our last
13 exhibit number was, Your Honor, to ask to have it
14 marked. It looks like State 188?

15 CHAIRMAN FARRAR: No.

16 MR. SOPER: I'm sorry, I missed out on all
17 the seismic exhibits, forgive me.

18 CHAIRMAN FARRAR: We've got 219 as the
19 last one. Does anybody else have that? So this would
20 be --

21 MR. SOPER: 220, then for this?

22 CHAIRMAN FARRAR: -- 220. But that is
23 according to our Lockhart's log, which has been
24 reasonably accurate.

25 MR. SOPER: There is no one that can do

1 any better right now.

2 CHAIRMAN FARRAR: Let's mark it for
3 identification as State exhibit 220.

4 (Whereupon, the above-
5 referenced to document was
6 marked as State Exhibit No. 220
7 for identification.)

8 MR. SOPER: And we would offer that into
9 evidence, Your Honor.

10 CHAIRMAN FARRAR: Mr. Gaukler?

11 MR. GAUKLER: I would object to have more
12 time to review it.

13 CHAIRMAN FARRAR: More time?

14 MR. GAUKLER: To view it, yes.

15 CHAIRMAN FARRAR: Okay. There is no
16 question this is an official Air Force, I mean, --

17 MR. SOPER: I can ask some questions of --

18 CHAIRMAN FARRAR: Let me -- it is -- not
19 that movies are always truthful, but it said it was
20 made at Hill Air Force Base?

21 MR. SOPER: That is correct.

22 MR. GAUKLER: We don't object to it on the
23 grounds as official --

24 CHAIRMAN FARRAR: Its authenticity, or
25 anything like that?

1 MR. GAUKLER: Nothing like that, no.

2 CHAIRMAN FARRAR: Then we will hold off on
3 the motion to admit.

4 MS. MARCO: Can I be heard on this, Your
5 Honor?

6 CHAIRMAN FARRAR: Certainly.

7 MS. MARCO: I would like to know for what
8 purpose it is being offered.

9 MR. SOPER: There will be several
10 questions that Lt. Col. Horstman will answer
11 concerning the tape, discuss the tape. So it would
12 just be for a range of -- I don't know how to give you
13 that in a simple answer.

14 I suppose to several things, it goes to
15 what it is like to actually experience an ejection.
16 It goes to the training the pilots receive for an
17 ejection, it goes up to -- it goes to the matters that
18 occupy a pilot's mind at the time of ejection. It
19 goes to the visibility out of the cockpit.

20 I mean, it goes to the very heart of what
21 we are concerned with here, is a pilot ejecting in an
22 emergency, particularly a failed engine.

23 MS. MARCO: Okay, then based on that I
24 would like to note what the Staff's objections are,
25 even though I understand that we are holding this off.

1 The Staff objects, first of all, on the
2 basis that it is cumulative. We've heard from this
3 witness, sworn here under oath, providing this exact
4 same sort of testimony. The only thing that I see
5 here, or heard here, that this is going to be used
6 for, that is any different than what we've heard
7 before from this witness, has to do with the
8 visibility through a cockpit.

9 And I would note that this is, perhaps,
10 not the best way of showing that, because we have here
11 an old videotape.

12 MR. SILBERG: The witness testified to the
13 visibility issue, specifically.

14 MS. MARCO: Okay, well, then perhaps that
15 is also something we could find in the transcript.
16 But t would be the Staff's objection.

17 MR. TURK: Also, may we have one second?

18 (Pause.)

19 MR. TURK: We would note one other
20 objection. That is in terms of what occupies a
21 pilot's mind. This was an aggressive training
22 mission, in which large scale forces were involved,
23 with aggressor airplanes opposing them.

24 And with respect to what occupies a
25 pilot's mind, the tape included words to the effect

1 that for the first 30 seconds the pilot was concerned
2 with shooting down the aggressor F-5. That is not a
3 Skull Valley type situation, nor are the other
4 conditions that are described in the tape
5 representative of Skull Valley flying conditions.

6 Those things may tend to go to the
7 usefulness of the exhibit. But in terms of its
8 admissibility, it seems like it is not really a
9 representation of ejection in Skull Valley, or the
10 kinds of things that would be going on during an
11 ejection event in Skull Valley.

12 CHAIRMAN FARRAR: When you are thinking
13 about this, whenever you get to think about it, the
14 Staff is right, Col. Bernard did testify, and on page
15 3876 I see that he came in, and when he asked what his
16 schedule is, he said he had a videotape.

17 And I said, I don't know that we have the
18 equipment to show it. And if I recall correctly I was
19 also thinking why do we need the videotape if he is
20 right here to testify? So he mentioned it, and I
21 didn't think much of it, if that helps in your
22 thinking now.

23 And we --

24 MR. SILBERG: And that also goes to the --

25 CHAIRMAN FARRAR: What we will do, after

1 you testify, the parties can decide whether they want
2 to make the extra effort to see that, so that it is
3 just background, you might be thinking about.

4 MR. SILBERG: And that also goes to the
5 issue of surprise, because obviously the State knew at
6 the time that there was a videotape.

7 MR. SOPER: Everyone knew at the time that
8 there was a videotape.

9 MR. SILBERG: But we didn't see it.

10 MR. SOPER: But you could have.

11 MR. SILBERG: And you waited until the day
12 of the rebuttal hearing to let the parties know that
13 you wanted it introduced into evidence.

14 MR. GAUKLER: I would just add, and I
15 recall Mr. Turk's point that this was not Skull Valley
16 type situation, that in the accident he was involved
17 in operations, special operations range, involved in
18 combat training, unlike Skull Valley, so it is not
19 representative of Skull Valley.

20 So I would have that objection, I know,
21 for sure, similar to Mr. Turk's.

22 CHAIRMAN FARRAR: If I recall this, didn't
23 all this arise because each side had a witness who was
24 going to testify about what Maj. Smith said to them,
25 and the Board was concerned that we had competing, and

1 while we are not against hearsay, we had competing
2 hearsay about to be offered, and we suggested that
3 people get Maj. Smith in, and I think we never got
4 Maj. Smith, but we got all these other fellows showing
5 up by phone, and whatever.

6 And Mr. Soper, you represented, at that
7 point, that you had -- that his name surfaced, you
8 said here, and you hadn't met him, and didn't know his
9 rank, hadn't talked to him?

10 MR. SOPER: That is exactly right, Your
11 Honor. If I might, this is -- with the introduction
12 of exhibit 100, and 100A which were without notice, or
13 fanfare, and our objection to those exhibits, the
14 Board determined that they, in fact, were not proper
15 rebuttal, and that the State, they were in fact a
16 second bite at the apple, I believe your words, Judge
17 Farrar.

18 And that the State would also have a
19 second bite, not purely rebuttal, that we may offer
20 such things. Now, what we've been talking about, and
21 what the very heart of this whole proceeding is, is
22 what happens in an injunction.

23 And we've had, obviously, contradicting,
24 and if I may say so, experts for each side, certainly
25 would be in favor of their client, with Gen. Jefferson

1 saying, well there is nothing to fear here, I don't
2 know why a pilot would fear ejection.

3 Now, we don't have anything that even
4 approaches, not even comes close, to sitting inside
5 that cockpit when this emergency happens. Not
6 anything comes close.

7 We've got people saying, well, this isn't
8 a big deal, this is a routine thing, and why would a
9 pilot fear this? Now we've got a video of a guy who
10 has ejected not once, but twice, has flown for 20
11 years, an experienced pilot, and says, here is what
12 this is about.

13 And not only that, let me tell you, not a
14 recreation, look out my window with me, look over my
15 shoulder, watch with me as I go down and eject.
16 Something that probably to have this opportunity, to
17 have first-hand what this is about, is an opportunity
18 that would ordinarily never arise.

19 To pass this over would be unthinkable.
20 This is the core, there is no objection, other than
21 the fact that it shows, what is surprising is the fact
22 that here is an experienced pilot, I've got people
23 talking to me, I've got things going on, this is the
24 real world. Let's not have it sugar coated, let's not
25 say this is a piece of cake, let's not turn our back

1 on being there. We are there.

2 Now, if they want to argue that minutes
3 before they were doing military exercises, then they
4 can argue that. If they want to argue anything else
5 about it, they can argue that.

6 Certainly it is no different than Gen.
7 Jefferson looking at a document saying, well, he
8 turned and avoided the farm, in my opinion. It
9 doesn't say that, but he was met by some civilians.

10 When we have the real thing how can it be
11 something less than that?

12 MR. GAUKLER: Well, first of all, we did
13 have Col. Bernard testify in person to his accident,
14 and he did talk about that, so we have his live
15 testimony on the record, already.

16 CHAIRMAN FARRAR: Let me take you back to
17 that day. And I seem to remember this was a Friday of
18 the first week, and it was a little confusing, because
19 we had all this prepared testimony, and all of a
20 sudden these people start showing up, off the street,
21 as it were, by telephone, and here and there.

22 And so it was not the most orderly
23 procedure. We were in the State Capitol, didn't have
24 video equipment. Suppose at that point, when Col.
25 Bernard says I have a videotape, you might want to see

1 it, would we all have said then, yes, good idea
2 testify and show your video, would there have been a
3 problem if that had happened?

4 MR. TURK: I think, speaking for
5 ourselves, we would have said we would like to see the
6 tape first to see if we have any objections to it,
7 like we said today.

8 And then if I had seen the tape, Your
9 Honor, I would have raised the same objection that I
10 did with respect to whether it is representative of
11 possible ejection at Skull Valley, where you don't
12 have aggressive combat maneuvers, you don't have
13 opposing forces, you don't have these large scale
14 exercises involving all sorts of aircraft, and lots of
15 chatter on the radio.

16 It wouldn't be representative, it would be
17 illustrative of what it might be like to eject, but
18 not very useful with respect to anticipating what
19 would happen in Skull Valley.

20 MR. SILBERG: And you also would have had
21 Col. Bernard there to ask questions about the tape, as
22 opposed to someone who may have talked to Col. Bernard
23 giving his impressions of the tape.

24 CHAIRMAN FARRAR: Wasn't that Col.
25 Bernard?

1 MR. SOPER: Yes, Col. Bernard did testify,
2 but this is not --

3 CHAIRMAN FARRAR: No, wasn't that Col.
4 Bernard on the tape?

5 MR. SOPER: Yes.

6 CHAIRMAN FARRAR: Mr. Silberg, I thought
7 you just said someone talking to Col. Bernard?

8 MR. SILBERG: That was Lt. Col. Horstman
9 said that he had talked to Col. Bernard. I don't know
10 what the questions that are going to arise from this
11 tape are similar to that.

12 CHAIRMAN FARRAR: Oh, you mean you don't
13 want Lt. Col. Horstman testifying about his
14 conversations with Col. Bernard?

15 MR. SILBERG: Well, it just seems that if
16 we had seen the tape when Col. Bernard was here, we
17 could have asked Col. Bernard if we had any questions
18 about the tape.

19 I just think that bringing it in at the
20 last minute, when the State obviously knew two months
21 ago, two and a half months ago, that there was a
22 videotape, is reasonably unfair.

23 I don't know until we study the tape what
24 it really shows to our pilots. But it seems to me
25 that to bring it in at the last minute, when it could

1 have been brought in earlier, I think is --

2 MR. SOPER: Well, I would make that same
3 objection to exhibit 100 and 100A, and I think the
4 Board has already ruled that they could have brought
5 in those exhibits earlier.

6 This is not offered as a piece of
7 testimony. This is a document, and under the Rules of
8 Procedure, this is a document. It happens to be in
9 the form of a videotape. If this were a training
10 manual that we could hand out, like it has been handed
11 out here, the Dash One F-16 manual, or any of the
12 other pieces of information produced by the Air Force
13 that we have looked at; it gets passed out, it gets
14 marked, and we look at it, and it is official, and it
15 goes into the record.

16 This is the same thing. Now, if we reduce
17 this to a transcript, and pictures, or whatever, just
18 because it is in a videotape, it is still a document.
19 And I would have to say more probative than anything
20 that has been before the Board.

21 MR. SILBERG: The fact that it is a
22 document is irrelevant.

23 CHAIRMAN FARRAR: Let me -- we aren't
24 going to rule at this point, we will give the Staff
25 and the Applicant time to think about it. But let me

1 make sure we understand your objections.

2 One is surprise?

3 MR. GAUKLER: Number Two --

4 CHAIRMAN FARRAR: But surprise in that the
5 State didn't -- Mr. Silberg, I take it we all learned,
6 on April 12th, that this existed?

7 MR. SILBERG: Correct.

8 CHAIRMAN FARRAR: And Mr. Silberg
9 represented at that time that he had never heard of
10 this fellow until the day before?

11 MR. SILBERG: Correct.

12 CHAIRMAN FARRAR: So are we on agreement
13 on that, that we all learned some people may have
14 looked at what Col. Bernard said, and others may not
15 have, but everyone learned on the same day that he had
16 said there was a videotape, and we didn't do anything
17 about it at the time.

18 Second, the Staff says, you've got a
19 surprise claim, that the State didn't tell you they
20 were bringing this in. Staff has a claim that this is
21 cumulative, which is the opposite of surprise.

22 MR. SILBERG: I think it is additional.
23 I think the subject matter was dealt with, at least to
24 the extent that Mr. Soper described it, and I quickly
25 reviewed the transcript of Col. Bernard's testimony,

1 I saw that a lot of these same things were described,
2 with the visibility_for instance.

3 I think he described the stress level from
4 bailing out. In listening to it quickly it seemed --
5 I didn't detect a great stress level in his voice, at
6 least. But I'm sure that they are trained not to --
7 to be able to cope with that stress level.

8 But I think most of the topics that Mr.
9 Soper discussed were covered in the testimony. So to
10 that extent I think it is correct. Now, there may be
11 other things in there, and until we hear the full set
12 of questions and answers, we won't really know what
13 this is being used for.

14 But it seems to me that the State could
15 easily have made this available to us. We may not
16 even be able to get videotape machines to review it on
17 short order.

18 MR. SOPER: Your Honor, if -- I think we
19 are missing the point on this. When the Staff's
20 exhibit 100 came up, it was without any fanfare, and
21 this was the same objection by the State. This is
22 cumulative, and you Your Honors said, isn't this just
23 a rehash of what you've already done?

24 The Board conferred, it was agreed that
25 they could have a second bite.

1 CHAIRMAN FARRAR: No, I said more than
2 that. I said that this should have been for direct.
3 And we let it in anyhow.

4 MR. SILBERG: But the State also had every
5 one of those reports, and they had exhibit 100 for
6 weeks prior to the hearing.

7 MR. SOPER: No we didn't. Exhibit 100,
8 the main exhibit came in without any notice, no notice
9 whatsoever.

10 CHAIRMAN FARRAR: And so we gave them,
11 since we knew which way -- what direction the schedule
12 was taking at that point, we took advantage of the
13 fact that seismic was going to take forever, which it
14 did.

15 MR. GAUKLER: Unfortunately.

16 CHAIRMAN FARRAR: And so we said, good,
17 take that time to study it, and come back and be
18 prepared today to deal with it.

19 MR. SOPER: We are now offering our
20 testimony as to our second crack at able to avoid,
21 just like the panel, and PFS has been allowed to do.

22 MR. GAUKLER: We didn't avoid any
23 additional testimony, other than rebuttal. In fact
24 the able to avoid would be the 90 percent, I don't
25 know which, but --

1 CHAIRMAN FARRAR: Well, one could look at
2 all those reports and exhibit 100 is an elaboration on
3 your direct, you all claimed it was an answer to Judge
4 Lam's question, but I was sort of the view it was
5 something you could have anticipated even without his
6 question, so we let it in.

7 This looks like an elaboration on Col.
8 Bernard's testimony. I encourage you, while you are
9 thinking about this, to read our December 26 seismic
10 decision, because I really believe the rules have to
11 be the same for everybody.

12 JUDGE LAM: I would also like to hear from
13 the Staff to elaborate more on the Staff's objection.
14 Is the Staff's objection basically based on legal
15 considerations?

16 Let me take a step back. If anything that
17 would be helpful to this licensing board to make a
18 decision, why would this particular piece of offered
19 evidence not be beneficial to us, particularly the
20 circumstances describing how this tape, as an official
21 U.S. Air Force document, were made.

22 And all the circumstances were well
23 described. And assuming we are able to cut through
24 the complications involving non-specific relationship
25 with Skull Valley, and all this combat training, why

1 would this piece of offered evidence not be beneficial
2 to us?

3 Specifically if the state of mind of the
4 pilot, and all the stress factors relating to how
5 ejection function should be performed?

6 MS. MARCO: Well, I would say that this
7 very same pilot had come in here, earlier, and he was
8 able to describe that before us, to the satisfaction
9 of everyone here who had questioned him.

10 And now to have something come in without
11 the benefit of having him beside us, to be able to
12 question him live, and under oath, that that would be
13 also a troubling matter, to look at it absent that
14 sort of live under oath guidance by the person who was
15 involved.

16 CHAIRMAN FARRAR: Unfortunately, Ms.
17 Marco, all 59 of the accident reports are hearsay, on
18 hearsay. The authors of the reports aren't in here,
19 and the people that they talked to aren't in here.

20 MS. MARCO: Right. But we did have the
21 benefit of hearing from Mr. Bernard, earlier.

22 CHAIRMAN FARRAR: Right, but the notion
23 that you can't cross examine Mr. Soper, seems to me is
24 absolutely correct, that if you consider this a
25 document, it at least rises to the dignity of the

1 aircraft accident reports, which are clearly hearsay
2 on hearsay, and which no one has challenged.

3 No one has raised the objection that we
4 don't have the author of those 59 reports in here, and
5 that we don't have the people that the authors talked
6 to, in here.

7 MS. MARCO: But in this case we had heard
8 from him before, that is my point.

9 CHAIRMAN FARRAR: Now, cumulative is not
10 something that, I haven't consulted with my
11 colleagues, but that is not one that we really get
12 excited about. I mean, you may be right that it is
13 cumulative, but, number one that is, if something is
14 merely cumulative, and we let it in by mistake, that
15 is not the sort of error that concerns me.

16 If it is merely -- now, if it is merely
17 cumulative, why am I getting all this argument about
18 it?

19 MR. SILBERG: I think one of the reasons
20 is we really haven't had a chance to look at it. It
21 is not like a piece of paper, where you can read the
22 words. We just got a fleeting view of it.

23 I don't know what is in there, frankly.

24 CHAIRMAN FARRAR: And that argues that we
25 should have stuck to our guns a half hour ago, and not

1 had all this argument, and then let you all go look at
2 it, and maybe you all will resolve it among
3 yourselves.

4 MR. SILBERG: I would have been much
5 happier if we had taken the time to look at it
6 carefully, because it may be that, frankly, if it is
7 only cumulative, I don't much care.

8 If Col. Bernard had played it at the time,
9 I wouldn't have cared. But I really don't know what
10 is in there.

11 CHAIRMAN FARRAR: That is very fair.

12 MR. SILBERG: And that is why the surprise
13 issue, now, seems to be most troubling to me, at
14 least.

15 CHAIRMAN FARRAR: All right, well let's go
16 back to what we said a while back. Mr. Gaukler, I
17 think those were, in fact, the first words out of your
18 mouth.

19 MR. GAUKLER: The first words out of my
20 mouth, Your Honor, yes.

21 CHAIRMAN FARRAR: So we will give you
22 credit for having the right idea. We appreciate
23 everyone's very well stated arguments, and go back and
24 check it out tonight, and we will see what you all
25 think tomorrow.

1 " Mr. Soper, do you have -- has it been a
2 while since we had a break? I can't remember.

3 MR. GAUKLER: At about 2:30 we broke for
4 our rebuttal, almost two hours.

5 CHAIRMAN FARRAR: Yes. This issue is so
6 exciting that we --

7 (Laughter.)

8 CHAIRMAN FARRAR: So time for a break
9 slipped away. It is 10 after. Mr. Soper, assuming
10 you don't question on the tape, do you have a lot of
11 other questions of Lt. Col. Horstman?

12 MR. SOPER: Let me just suggest, Your
13 Honor, without having to decide whether the tape is
14 admissible, it might be helpful if we could ask Lt.
15 Col. Horstman about whether or not this is a Skull
16 Valley type event, and what its relevance is to this
17 Proceeding.

18 That will assist the Board when you hear
19 the arguments?

20 CHAIRMAN FARRAR: Would that help the
21 Parties in their review tonight? I think, Mr. Turk,
22 you had made arguments that this was not a Skull
23 Valley event, and without saying whether those were
24 right or wrong, it might help?

25 MR. TURK: Your Honor, I think the best

1 thing to do is to follow the normal course. And that
2 is, let us review the thing before we get evidence on
3 it. Because once you get evidence on it, that is in
4 the record.

5 If it is not properly admissible, then we
6 have to move to strike, and we are back into the claim
7 to undo, let the cat out of the box that has already
8 been digested by, or whatever the --

9 (Laughter.)

10 (Whereupon, the above-entitled matter
11 went off the record at 4:11 p.m. and went
12 back on the record at 4:28 p.m.)

13 CHAIRMAN FARRAR: On the record. Just for
14 purposes of planning, Mr. Gaukler, how long this week
15 is your panel of experts available to you to consult
16 or to appear on the stand?

17 MR. GAUKLER: Through Wednesday.

18 CHAIRMAN FARRAR: Okay. Colonel Horstman?

19 LT. COLONEL HORSTMAN: I'm at your
20 service, Sir.

21 CHAIRMAN FARRAR: Okay. Go ahead Mr.
22 Soper. I think we've agreed to do matters other than
23 related to the video tape.

24 MR. SOPER: All right. Thank you.

25 JUDGE LAM: Before you proceed, Mr. Soper,

1 may I ask you to clarify what you meant. You earlier
2 mentioned that you had possession of the tape for a
3 while but you only recently received permission to
4 show it. Would you elaborate?

5 MR. SOPER: Sure, Your Honor. Colonel
6 Frank Bernard, the pilot in the video came to our
7 office at our request. I gave him a call. Having had
8 the opportunity to see the video and having thought
9 about it, I asked him to come in and bring it. This
10 was I'm guessing within the last ten days or something
11 like that.

12 He came into the office. He showed it and
13 said you'll have to get permission if you use this.
14 This is an Air Force document. So, having conditioned
15 it on that, we rode on the advice of one of our
16 Congressmen and wrote directly to the Secretary of the
17 Air Force and described the video. Our Congressman
18 hand carried that letter. I'm sure a staff member
19 did.

20 We, Ms. Nakahara, just recently heard back
21 that there was not an objection to using it. So
22 that's what I meant. Colonel Bernard or Lieutenant
23 Bernard or Captain?

24 LT. COLONEL HORSTMAN: Colonel retired.

25 MR. SOPER: Colonel retired Bernard

1 conditioned us using it on getting an approval. He
2 didn't want to be placed in the position of making
3 representations as to whether we could use it and if
4 the Air Force would consider it sacred or something.

5 JUDGE KLINE: Is this the same tape that
6 Colonel Bernard proffered at the time of his
7 testimony?

8 MR. SOPER: Apparently so. It's the only
9 one I'm aware of.

10 JUDGE KLINE: What if everybody had said
11 yes at the time? Could it have been shown then or
12 would he have been restrained or what?

13 MR. SOPER: I think absent having the
14 video equipment in there we would have played it is my
15 understanding.

16 JUDGE KLINE: Yes. Okay. Without
17 permission I guess. He apparently didn't have
18 permission then. Did he?

19 MR. SOPER: I don't know that he even
20 thought about it.

21 JUDGE KLINE: Okay.

22 MR. SOPER: His motivation for coming over
23 was I think he read about the hearing in the newspaper
24 and called up and offered himself. Does that answer
25 your question, Judge Lam?

1 JUDGE LAM: Thank you, Mr. Soper.

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

3 CHAIRMAN FARRAR: Yes. Go ahead.

4 BY MR. SOPER:

5 Q Lt. Colonel Horstman, I understand that
6 there is another training feature used by Air Force
7 pilots known as a simulator. Is that correct?

8 A Yes, sir. It's now called a training
9 device. But it's essentially a simulator, yes.

10 Q Is that a device that essentially every
11 Air Force base maintains on its base?

12 A It used to be that all large F-16 wings
13 had a simulator. They were a motion simulator like
14 you would have at a major airline. Since they've made
15 them much smaller, each squadron is now authorized its
16 own simulator. So essentially every F-16 squadron in
17 the Air Force would have one of these simulators. It
18 would be block specific for the F-16 if they were in
19 block 30s or block 40s. They would just reconfigure
20 it based on software.

21 Q Is that an essential part of F-16 pilot
22 training?

23 A Yes, sir. It's required. That's where
24 you do all of your emergency procedures training that
25 I was mentioning before. You train engine-out, flame-

1 out approaches. You train for hydraulic failures.
2 You have a check ride, an annual evaluation which
3 requires the simulator to be used to evaluate you on
4 your ability to perform those procedures.

5 Q Without going into a lot of detail, could
6 you explain to the Board what a simulator and this is
7 a flight simulator. Is that a better description?

8 A Yes, sir.

9 Q Could you explain to the Board briefly
10 what you do? I mean, what does it look like? What is
11 the reason that a pilot would sit down at such a
12 thing?

13 A Physically, there's a computer work
14 station adjacent to a cock-pit. The cock-pit is a
15 scale replica of the aircraft cock-pit. In front of
16 that cock-pit is a big screen television which would
17 provide you with a visual display of your canopy,
18 looking through the heads up display, et cetera.
19 There is a heads up display.

20 You can film it. All the switches inside
21 the cock-pit with respect to the emergency procedures
22 and flight controls and all of that, they perform as
23 they would in the aircraft. So I guess if you were to
24 take Microsoft Simulator and put it on steroids,
25 that's pretty close to what it is.

1 Q So, would you be able to recreate a
2 certain condition? In other words, recreate a certain
3 altitude, a certain object in your path, those types
4 of environments on the simulator.

5 A Yes. That's what they do. They recreate
6 accidents many times to see if the pilot could have
7 recovered from some type of a situation. They would
8 go recreate the exact circumstances and keep replaying
9 it and see if an instructor pilot could in fact solve
10 that problem and recover the aircraft.

11 Q Would a flight simulator be helpful in
12 demonstrating the extent of which a pilot might be
13 able to observe objects flying through Skull Valley?

14 A Yes. Two-dimensionally because on a video
15 it's always going to be two-dimensional. You could
16 program a site similar, larger, smaller, easy to see,
17 difficult to see, various weather conditions. One of
18 the things that we have discussed is how low can a
19 pilot see as Colonel Fly discussed. Ten to 11 degrees
20 below the horizon is where your vision is restricted
21 by we just call it the front of the aircraft. But
22 that ten or 11 degrees is completely different
23 depending on your level of attack, your flight path
24 through the air and how fast you're going.

25 Q Have you had occasion to do some -- What

1 do you call it when you get to work on a simulator?

2 A Pain. It's painful. You hate them.
3 They're the worst part of your day.

4 Q Have you had an occasion to be able to run
5 some example flights on a simulator recently to
6 demonstrate some Skull Valley conditions?

7 A Yes, sir. I spent 30 minutes in the
8 simulator at Hill Air Force Base last Friday
9 afternoon. I videotaped it for this proceeding
10 basically to try to recreate three distinct scenarios
11 to educate the audience on the conversations we've
12 been having for all of the testimony, et cetera, not
13 to draw a conclusion but just to educate them so that
14 they would have the ability to see more real time what
15 goes on in front of a pilot visually.

16 Q What are the three scenarios that you
17 taped?

18 A The first two are approximately 4,000 feet
19 AGL. I say approximately because you have an altitude
20 freeze. I'm flying a simulator. So the air speed is
21 plus or minus. It's about 425 knots and about 4,000
22 feet. I tried to be relatively typical of the Skull
23 Valley conditions that we have discussed most
24 frequently.

25 The first one of those has a slight bit of

1 weather in it at 2,000 feet above the ground. The
2 second one has no weather at all. The third one is a
3 2,000 foot approach. That one is at 200 knots
4 simulating pre-ejection, not with the nose way up but
5 just flying through the air maintaining altitude.

6 I also made sure that the turn point that
7 we were pointing at was the largest turn point in the
8 simulator database. It's an oil refinery.

9 Q It's a what?

10 A It's an oil refinery. That steer point
11 was programmed in for all three scenarios for the
12 specific purpose of knowing the distance between the
13 pilot and the ground object which means you will have
14 a steering cue pointing to that ground object all of
15 the time. The testimony we've seen states that PFS
16 does not believe you would do that, but this is for
17 the simple purpose of helping identify where it is in
18 the simulator and showing the distance to that target.

19 Q You say you made a video tape of this
20 simulator.

21 A Yes, sir.

22 Q How long does that run?

23 A Less than five minutes.

24 Q Do you have that with you here today?

25 A Yes, sir. I do.

1 Q Were there any conditions placed on the
2 use of that tape by the United States Air Force?

3 A Yes, sir. They allowed me to film the
4 video but not release it until Air Force Legal Counsel
5 had an opportunity to review it.

6 Q Did you try this morning to find out if
7 you had permission?

8 A Yes, sir. On break, I checked my
9 voicemail. It's been released for use.

10 Q This morning it was?

11 A It was not released yet as of this
12 morning.

13 Q And this noon?

14 A At noon, it was not released.

15 Q And just minutes ago, you called again?

16 A Yes, sir.

17 Q What was the message?

18 A The message was that we could release that
19 and show the video tape to the hearing.

20 MR. SOPER: Your Honors, I would do this.
21 I would offer the video tape to be marked. We can
22 play it and give everybody a copy to study overnight.
23 Whatever your pleasure is. We can pass it on to study
24 overnight, and I will go on to another exhibit. My
25 ordinary way to proceed would be to have the video

1 marked and played for identification and have Colonel
2 Horstman describe what we're watching. I'm pausing
3 here out of courtesy for the objections that I
4 anticipate.

5 LT. COLONEL HORSTMAN: If I may add, I
6 didn't finish the release. The Air Force also offers
7 the use of the simulator to any of the other panel
8 witnesses, the judges, the attorneys on the other
9 sides.

10 CHAIRMAN FARRAR: Refresh me of what you
11 said at the beginning. This was done very recently.

12 LT. COLONEL HORSTMAN: Last Friday, Sir.

13 CHAIRMAN FARRAR: And you got on the
14 simulator because you're an ex-Air Force person.

15 LT. COLONEL HORSTMAN: I'm not sure I
16 understand.

17 CHAIRMAN FARRAR: In other words --

18 MR. SOPER: Why would they give you
19 permission?

20 CHAIRMAN FARRAR: Right.

21 LT. COLONEL HORSTMAN: Because I asked.
22 Just after I got out of the simulator, one of the
23 squadrons had a family day and the wives and children
24 had the simulator after I did. So they offer it to
25 the public periodically but only if you ask.

1 MR. SILBERG: Excuse me. Does that
2 include designing the simulation as in your case?

3 LT. COLONEL HORSTMAN: No. When I design
4 the simulations, those specific simulations were
5 approved by the Air Force.

6 MR. SILBERG: And does this offer include
7 that same flexibility?

8 LT. COLONEL HORSTMAN: Yes, sir.

9 CHAIRMAN FARRAR: There's a strange quiet
10 in the room.

11 MR. GAUKLER: This raises the same issues
12 as the other tape and with the much larger
13 implications in terms of if for some reason we don't
14 think the simulation is correct, we would want to do
15 our own. At this late, it would raise questions. So
16 I would say that we should look at it overnight and
17 address this tomorrow.

18 CHAIRMAN FARRAR: Let me ask. We're
19 getting all excited because these things are video
20 tapes. Under the Federal Rules, is Mr. Soper correct
21 at all that these are just documents?

22 MR. SILBERG: I have no idea whether
23 that's true or not from my standpoint. I'd treat it
24 the same as any other document.

25 MR. SOPER: Or any testimony that we don't

1 know what's about to come.

2 CHAIRMAN FARRAR: Okay. The reason I ask
3 if it's "just a document" is I seem to remember during
4 the seismic phase of the proceeding every time the
5 State would do something, Dr. Soler would go off to
6 his computer and he would crank out something. Then
7 the next morning we would have yet another document.

8 And you would mark that and introduce it
9 and the witness would talk about it. Then the State
10 would object or not object. So how is this different?
11 And that document would be handed to us. Later if it
12 didn't come into evidence we had looked at it. So how
13 is this different?

14 MR. GAUKLER: Some of the documents you
15 could -- state and draft before hand so they had a
16 chance to look at --

17 CHAIRMAN FARRAR: No. I'm talking about
18 when Dr. Solar would go off to his computer or he'd
19 call back to New Jersey or wherever he's from and
20 magically the next morning would appear that a
21 document. There's nothing wrong with it. They had
22 heard testimony that day and said we can respond to
23 that and they'd crank out some new thing.

24 MR. GAUKLER: On Friday night, Saturday
25 the rebuttal, but Friday night we heard some testimony

1 Friday afternoon and we did that Friday evening with
2 respect to a particular run.

3 CHAIRMAN FARRAR: And when someone
4 complained that it was this report that had a big nice
5 cover page and it said report on it, somebody else
6 said well if he'd just gone out and testified to that
7 we wouldn't have made a big deal about it. So what's
8 the difference between rebuttal testimony that someone
9 comes up with and says I heard something yesterday so
10 I'm going to testify about it.

11 What Dr. Soler does is, goes off to, has
12 his boys or girls back in the lab, crank out a thing
13 that says report or somebody goes and does a video.
14 Why are we treating this differently? In other words,
15 that you get to go look at it overnight before it gets
16 marked as identification. That's the problem.

17 MR. GAUKLER: I don't see any difference
18 between a video and a document in that sense, Your
19 Honor. I do know that except for that in respect to
20 seismic the one run which we did Friday evening which
21 we produced at the hearing which was not a report but
22 just a run that he had done and had the graphs. On
23 the report, we had sent the State draft reports
24 earlier then made changes to them. But we have sent
25 the State draft reports.

1 CHAIRMAN FARRAR: I thought there were
2 some things that he dreamed up on the spot in response
3 to specific testimony that had come in.

4 MR. GAUKLER: One thing that definitely
5 happened the last two things of the seismic hearing,
6 Friday afternoon, we heard the testimony of Dr.
7 Ostadan and Dr. Bartlett with respect to the pad to
8 pad interaction and the sliding of the casks. That's
9 when Dr. Soler that evening did a run to get the force
10 that was acting on the soil, soil-cement boundary.
11 You heard the testimony Friday afternoon. Friday
12 night he ran it and again Saturday and presented it.
13 And we at that point showed the State what it was.

14 CHAIRMAN FARRAR: Right. But you offered
15 it into evidence. You didn't say to the State go home
16 for a night and look at this and tell us whether you
17 like it or not. They got to look at it right on the
18 spot and then they got their people to respond to it.

19 MR. GAUKLER: I think we showed them to
20 them right on the spot. I think we showed it to them.
21 I'm not completely sure about that though, Your Honor.

22 CHAIRMAN FARRAR: I'm not blaming anyone
23 for anything here. That developed in the course of
24 the case. It was rebuttal. Here we have rebuttal.

25 MR. TURK: But do you?

1 CHAIRMAN FARRAR: What?

2 MR. TURK: My question is but do you. The
3 example that Mr. Gaukler was speaking about was where
4 a witness for the State came up with some statement in
5 his testimony in cross examination. PFS immediately
6 turned around and said here's a response to that. I
7 haven't heard yet what this simulator run is intended
8 to rebut. I don't know why it's not simply just a
9 supplementation of the original direct testimony.

10 MR. SOPER: No. The response from Soler
11 was to my cross examination several days or weeks
12 before actually.

13 MR. TURK: But my point is I don't know
14 whether the simulator runs that Lt. Colonel Horstman
15 has performed is rebuttal or merely an additional
16 demonstration of something that could have been in the
17 original direct testimony.

18 MR. SOPER: We're specifically taking a
19 second bite here. That's I think water over the dam.

20 MR. TURK: Your Honor, I have two
21 problems. One is it doesn't appear to be rebuttal
22 because I'm not sure that it rebuts anything. It's
23 simply another demonstration.

24 CHAIRMAN FARRAR: First off, even though
25 we got confused on this on seismic, it's legitimate

1 . rebuttal. Since you prefile your direct at the same
2 time, it's legitimate rebuttal to rebut a prefiled
3 direct that they filed three months ago.

4 MR. GAUKLER: I agree with Your Honor.

5 CHAIRMAN FARRAR: It seems bizarre, but
6 that's true. And they also have the chance for sur-
7 rebuttal which we did in seismic. We began to combine
8 at the end.

9 MR. GAUKLER: Right.

10 CHAIRMAN FARRAR: We were trying to figure
11 out what hat people were wearing. They can do sur-
12 rebuttal to what they heard today.

13 MR. GAUKLER: Right.

14 MR. TURK: My question is what does it
15 rebut. What is the evidence that's contrary to what
16 they now intend to try to show?

17 MR. SOPER: Colonel Fly says that the nose
18 of an aircraft does not obstruct the view. This
19 simulator run will show just the opposite.

20 MR. TURK: The witness himself has
21 indicated orally just a few minutes ago that he agreed
22 with the ten to 11 degree front of the airplane, with
23 the fact that when you look out at the front of the
24 airplane you're obscured below the horizon at ten to
25 11 degrees below that horizon line.

1 " LT. COLONEL HORSTMAN: Only under certain
2 flight conditions. _

3 MR. GAUKLER: Your Honor, if I could make
4 a suggestion. I would suggest that we move forward,
5 look at today, get it over with. We will withhold our
6 objection until we have a chance to further study it
7 this evening. We can argue the merits tomorrow. We
8 would withhold our objection as well obviously to any
9 moral testimony that Lt. Colonel Horstman says about
10 it. I think that's the best way to proceed. Let's go
11 forward, see it, argue tomorrow morning after we've
12 had a chance to think about it.

13 MR. SILBERG: I would make one other
14 request. I don't know whether there are any documents
15 which reflect the conditions under which the
16 simulation was run other than the two sentences that
17 Lt. Colonel Horstman gave us before which I'm not sure
18 I understood or fully copied down. I don't know if
19 that's done in writing, if there's a print out that
20 shows the base conditions for the simulation. If
21 there are, that would certainly --

22 MR. SOPER: It's designed to accompany his
23 testimony, Your Honor. It doesn't have a soundtrack.
24 We would have --

25 CHAIRMAN FARRAR: But what Mr. Silberg is

1 . saying is did he type up or maybe had some notes that
2 he said here's how I'm going to set up the simulator.

3 MR. SILBERG: There must have been some
4 inputs into the simulator machine.

5 CHAIRMAN FARRAR: And Mr. Silberg is
6 saying if he had those now, that would help him
7 overnight.

8 MR. SILBERG: It would certainly help our
9 experts say is this reasonable, legitimate, better.

10 CHAIRMAN FARRAR: Does that type of
11 document exist, Colonel Horstman?

12 LT. COLONEL HORSTMAN: Yes, Sir. I have
13 the e-mail traffic at home. I could have it e-mailed
14 here. I believe I could produce it by the morning.

15 MR. SILBERG: You can't get it by tonight
16 so we can look at it with the tape.

17 LT. COLONEL HORSTMAN: I can try. It
18 depends on if my wife is home or not.

19 (Laughter.)

20 CHAIRMAN FARRAR: Why don't you all work
21 together when we break to see if there's some way we
22 can arrange that? Then, Mr. Gaukler, thank you for
23 your offer. So not withstanding the Staff objection,
24 we'll take up Mr. Gaukler's offer and we'll show the
25 video tape now. That should be marked as State

1 . Exhibit 221.

2 (Whereupon, the above-referred to
3 document was marked as State's Exhibit
4 No. 221 for identification.)

5 MR. TURK: Your Honor, I didn't object.
6 I was asking why it was rebuttal testimony. Mr. Soper
7 indicated the reason is that it has to do with the ten
8 to 11 degree issue.

9 (Discussion off the microphones.)

10 MR. TURK: I thought we're not going to
11 watch it. I thought we were going to take it home and
12 look at it.

13 CHAIRMAN FARRAR: I thought that was Mr.
14 Gaukler's offer.

15 MR. GAUKLER: My offer is to watch it now.

16 MR. TURK: Then I would object. I thought
17 we were going to take it home.

18 CHAIRMAN FARRAR: That's why I said not
19 withstanding your objection we will watch it.

20 MR. TURK: May I state the objection then
21 which I have not done yet?

22 CHAIRMAN FARRAR: I thought you had. Go
23 ahead.

24 MR. TURK: I don't know whether it's going
25 to have something in it that's incorrect that would

1 give us grounds to object to it or not. I think we
2 should withhold asking the Judges to review it or to
3 look at it until we know if we have objections.

4 CHAIRMAN FARRAR: Okay.

5 MR. TURK: The problem is the same.
6 Unless we know the objection, we don't know whether it
7 is something you should be shown.

8 CHAIRMAN FARRAR: But no one in the room
9 has told me yet how this is different from a document.

10 MR. TURK: It looks different.

11 CHAIRMAN FARRAR: It looks different from
12 a document, but as I understand the rules, it's a
13 document.

14 MR. TURK: In evidence, it could be a
15 banana. It could be a T-shirt.

16 CHAIRMAN FARRAR: Well, right. But so is
17 every document that every lawyer hands out during the
18 course of a proceeding. They give one to each other.
19 They give one to us. They give one to the Court
20 Reporter. We mark it and we look at it. Sometimes
21 it's in and sometimes it's out. So until you tell me
22 how this differs from that -- And again it comes down
23 to we're not a jury. We're not overly impressionable
24 that if we later say we shouldn't have seen this, we
25 won't see it and we won't rely on it. It's the same

1 as if you hand me a document. I understand
2 intuitively the basis of your objection, but this is
3 no different unless I'm misstating the Federal Rules
4 of Evidence.

5 MR. TURK: Your Honor, in terms of the
6 proper course, I would object on the grounds that a
7 visual representation is potentially more prejudicial
8 than a piece of paper which you may or may not read
9 before we raise our objections. It goes into your
10 mind. Once you see it, it's there. And I don't know
11 what it is. I may like it. But I think the proper
12 course is for people to be able to see it and decide
13 if it's objectionable or not.

14 CHAIRMAN FARRAR: What did we do with Dr.
15 Soler's animation/cartoon?

16 MR. SOPER: I might say that I don't see
17 any way the Board can rule on it without having seen
18 it regardless of if Mr. Turk sees it first and forms
19 an objection. I don't know how you can rule on that
20 objection without viewing it.

21 CHAIRMAN FARRAR: What did we do with Dr.
22 Soler's animation? We marked it.

23 MR. GAUKLER: We watched it and then we
24 moved to admit it after we watched it.

25 CHAIRMAN FARRAR: Right.

1 (Discussion off the microphones.)

2 CHAIRMAN FARRAR: Go ahead.

3 LT. COLONEL HORSTMAN: And I'm going to
4 ask you to hit pause right after it gets started to
5 explain what it looks like.

6 (Discussion off the microphones.)

7 JUDGE LAM: Mr. Gaukler, procedurally this
8 is no different than handling Dr. Soler's animation.

9 MR. GAUKLER: That's correct, Your Honor.

10 MR. SILBERG: We concede that Lt. Colonel
11 Horstman has simulated the Licensing Board Panel on
12 the --

13 (Discussion off the microphones. Video
14 tech problems.)

15 MR. SOPER: Should we wait just one more
16 moment, Your Honor? ..

17 CHAIRMAN FARRAR: Yes. He's just going to
18 roll in a stand-alone deal. Are we ahead or behind?
19 We want to finish the Applicant's panel today which
20 we've done. Right?

21 MR. GAUKLER: That's correct, Your Honor.
22 And we wanted to finish the Staff and the State's
23 rebuttal tomorrow and leave Wednesday for anything
24 that's left over.

25 CHAIRMAN FARRAR: So we're all right

1 . considering we've already had the bulk of the two
2 arguments that we would have had to have had tomorrow
3 morning.

4 MR. GAUKLER: How much more do you think
5 you have on direct?

6 MR. SOPER: A couple hours I think.

7 CHAIRMAN FARRAR: Earlier you had said
8 you'd have a day. So far you've had nothing but two
9 hours of nothing but largely argument about why you
10 can't do what you want to try to do.

11 MR. SOPER: I'm just trying to prepare
12 you, Your Honor.

13 CHAIRMAN FARRAR: In the face of that, how
14 did your day get cut down to a couple of hours?

15 MR. SOPER: That was an initial estimate,
16 Your Honor.

17 CHAIRMAN FARRAR: You know where he
18 learned that from, Ms. Chancellor who has not been
19 seen since last Friday.

20 MR. GAUKLER: I thought it was from
21 airlines.

22 (Laughter.)

23 MR. SOPER: I might be optimistic. I was
24 thinking maybe a couple hours tomorrow, I mean, after
25 today we'd finish. I guess we go to 5:30 p.m. or so

1 . today.

2 CHAIRMAN FARRAR: Well, let's do this
3 video and see where we are. Now, you'll show this.
4 Colonel Horstman wants to narrate it as we go along.

5 MR. SOPER: Yes.

6 CHAIRMAN FARRAR: Which we'll have to do
7 by -- for the Court Reporter.

8 MR. SOPER: Yes.

9 CHAIRMAN FARRAR: Then you'll have some
10 questions afterwards about it.

11 MR. SOPER: Yes.

12 CHAIRMAN FARRAR: And maybe we would have
13 the parties ask questions about what it represents and
14 so forth that would help you think about it tonight.

15 (Discussion off the microphones.)

16 LT. COLONEL HORSTMAN: Hit pause please.
17 Okay. By way of definition, on the far left there is
18 the air speed indicator which is currently reading 427
19 knots.

20 CHAIRMAN FARRAR: Wait a minute. Turn it
21 back on for a second. For the record, what is this?

22 LT. COLONEL HORSTMAN: This is a video
23 tape of a heads up display and the F-16 simulator at
24 Hill Air Force Base block 40.

25 CHAIRMAN FARRAR: Okay.

1 LT. COLONEL HORSTMAN: On the right hand
2 side in the little boxed item is 9,350 feet. That is
3 the altitude above the mean sea level at the current
4 altimeter setting.

5 MR. GAUKLER: Excuse me, Lt. Colonel
6 Horstman, what was that number again?

7 LT. COLONEL HORSTMAN: 9,350. If you look
8 below that at the 7:00 position about six inches in
9 the TV, there's an R and then another box. Inside
10 that other box is the radar altimeter which reads
11 3,950 feet. Below that is a number of 1,500 feet.
12 That is the pre-programmed number when you're low
13 altitude warning should go off. The female on the
14 audio tape would say "altitude."

15 The number below that is hard to read. I
16 believe it's 8.6. That is the mileage between the
17 aircraft and the steer point. Below that, it says
18 that it's steer point number three. In the middle of
19 the heads up display at the top is a horizontal line.
20 That is the horizon. Below that there's a circle with
21 a little fin at the top and two little wings. That's
22 the aircraft flight path marker.

23 A third of the way down the television
24 screen are some dashed, canted lines with a five next
25 to it. That represents five degrees nose low or below

1 the horizon. Sorry. Below that are some numbers.
2 The boxed number is the current heading that the
3 aircraft or simulator is on. Below that is a ten
4 degree pitch ladder which is twice as much as five
5 degrees. On the left hand side, there's some more
6 information that's really not relevant to this.

7 MR. SILBERG: When you say the five and
8 ten degree, that doesn't mean that the plane is
9 actually in that configuration. That just tells you
10 if your horizon gets to that level then it's five
11 degrees.

12 LT. COLONEL HORSTMAN: That's correct. If
13 you would look now, the flight path marker is about
14 one degree. Whether it's nose high or nose low
15 becomes irrelevant. The aircraft flight path is aimed
16 one degree below the horizon.

17 MS. MARCO: And what is that background?
18 Is that raining?

19 LT. COLONEL HORSTMAN: I'll get to that in
20 just one second. There's one more thing I want to
21 talk about.

22 MR. SILBERG: How can you tell that's one
23 degree below or above?

24 LT. COLONEL HORSTMAN: Because the horizon
25 is at zero degrees, the horizontal line, the solid

1 . line. " It's about one-fifth of the way between the
2 horizon and the five degree nose low pitch ladder.

3 MR. SILBERG: So that horizontal line
4 across the top is nose level.

5 LT. COLONEL HORSTMAN: Yes. Well, no.
6 It's flight path level.

7 MR. SILBERG: Flight path level.

8 LT. COLONEL HORSTMAN: And there's a huge
9 difference depending on your air speed.

10 MR. SOPER: Is there a way you can take
11 the microphone with you and walk up to the screen?
12 Would that be helpful so you can point at some of
13 these things?

14 MR. SILBERG: I think we're okay.

15 LT. COLONEL HORSTMAN: All right. The
16 last item is in the direct middle of the television
17 screen. It's a little diamond. When we role the
18 tape, you will see that it is in fact a diamond. That
19 diamond is the steer point selection. If you'll look
20 just slightly long and right maybe a half and inch of
21 that diamond, there's a white object. That is an oil
22 refinery in the simulator. We chose it to give the
23 most contrast so that you'd be able to watch it
24 throughout the video as a reference point for what a
25 ground site would be.

1 MR. SILBERG: I didn't see the diamond.

2 LT. COLONEL HORSTMAN: (Away from
3 microphone.) That's the diamond. That's an oil
4 refinery. It's two to three hundred feet high, acres
5 and acres wide.

6 MR. SILBERG: Which is the oil refinery,
7 just slightly to the right and above it?

8 LT. COLONEL HORSTMAN: When we roll this,
9 you'll be able to see it much more clearly.

10 (Discussion away from microphones.)

11 MR. SILBERG: Again, what does the diamond
12 represent?

13 LT. COLONEL HORSTMAN: The diamond
14 represents the steer point that the avionics have
15 selected. It's where the internal navigation system
16 says the aircraft or is the next steer point. If it's
17 behind you, meaning behind the aircraft, you won't see
18 it. If it's 90 degrees to the left, then right up at
19 the top -- Can you hit play again, please and then
20 pause? There it is. If you look at the top of the
21 aircraft, the top of the TV screen, there's a little
22 plus symbol.

23 MR. SILBERG: Above that horizontal line?

24 LT. COLONEL HORSTMAN: Yes. About an inch
25 above that. That is where the airplane is aimed.

1 That's important because at different air speeds it's
2 aimed at different places than where the flight path
3 marker is actually going. Where the aircraft is
4 pointed may or may not be where the aircraft is going.

5 MR. SILBERG: When you say "the aircraft,"
6 do you mean the nose of the aircraft?

7 LT. COLONEL HORSTMAN: The fuselage
8 reference line. So, in laymen's terms the nose of the
9 aircraft, the PETO (PH) tube in space, that's where
10 you think the aircraft should be going.

11 If the steer point were off to the left,
12 off the edge of the TV screen, you would not see the
13 diamond, but you would see a locator line up on top by
14 that plus. That would be to the left. It would say
15 "degrees" for example 70 degrees to the left. So, you
16 would have a reference point in the heads up display
17 for the selected steer point.

18 The dark objects below -- Let me back up.
19 The top 20 percent of the screen is light colored.
20 That is the sky. Below that is dark objects. That is
21 the ground. There are white patches which simulates
22 about ten percent cloud cover. This is the first run
23 that I selected. The second one doesn't have any
24 cloud cover at all.

25 The changes in the last few seconds.

1 . We're now at 7.7 miles from the oil refinery. I say
2 that because we intentionally picked an object that
3 would be easy to video tape. It is larger and has
4 much more contrast than the PFS site would. Any other
5 questions on the academic part of this?

6 MR. SOPER: What's the ground altitude
7 above ground level?

8 LT. COLONEL HORSTMAN: Currently it's 39
9 or 40 I believe. Just under 4,000 feet.

10 MR. SOPER: Which box is that again?

11 LT. COLONEL HORSTMAN: That's the altitude
12 above sea level.

13 MR. SILBERG: Why do you say the oil
14 refinery has more contrast than PFS?

15 LT. COLONEL HORSTMAN: Well, for one
16 because it's white and doesn't blend in and has lots
17 of vertical development. As you get closer, you'll
18 see.

19 MR. SILBERG: I'm talking about in the
20 simulation.

21 LT. COLONEL HORSTMAN: Yes. My point here
22 is I'm trying to find the largest cultural turn point
23 that we could have so that you would be able to track
24 it visually during the simulator ride.

25 CHAIRMAN FARRAR: Colonel Horstman, where

1 . did you get this terrain to use in the simulator?

2 LT. COLONEL HORSTMAN: Skull Valley.

3 CHAIRMAN FARRAR: No. I mean, but
4 physically how do you load this in?

5 LT. COLONEL HORSTMAN: When you start your
6 program in this case Salt Lake City started Hill Air
7 Force Base --

8 CHAIRMAN FARRAR: So, the simulator
9 already has this in it somewhere.

10 LT. COLONEL HORSTMAN: Sort of. When I
11 say sort of, they used to have the exact references,
12 well relatively exact, kind of dated. Now they're
13 more synthetic if you will. It's two-dimensional. It
14 used to be the depth was very different, when you have
15 a full motion simulator. So, in this case, it is
16 simulating the ground in Skull Valley. It is not
17 simulating that there are mountains left, right, that
18 the North Pole is with ice on it, none of that. Just
19 what you see is all it is.

20 CHAIRMAN FARRAR: And it only has in it
21 things relative to Hill Air Force Base.

22 LT. COLONEL HORSTMAN: No. You could
23 program a sea level. Because of the way the
24 simulators work, the ground is brown or green. The
25 ocean is a different color blue than the sky with

1 . clouds that are white. So, there are some cheapening
2 devices I guess. --

3 MR. SILBERG: The Skull Valley simulation
4 does not include the fact that -- (Away from
5 microphone.)

6 LT. COLONEL HORSTMAN: No. We picked the
7 ground at that elevation so that you would see a more
8 representative piece of information. We've talked
9 about AGL and MSL numerous times. I continue to see
10 puzzled looks when we're talking about 8,500 feet
11 versus this morning. There was a huge question about
12 whether or not 5,000 feet was AGL for weather or if
13 weather should be MSL. So this is just to help
14 understand that.

15 MR. SILBERG: By the way, you said that
16 the radar altimeters are at 3,950.

17 LT. COLONEL HORSTMAN: That's correct.

18 MR. SILBERG: What is the difference
19 between the radar altimeter and the real height or
20 either MSL or AGL?

21 LT. COLONEL HORSTMAN: Exactly what I just
22 said. It is the height above the ground. It's
23 actually historic. It's where you were a nanosecond
24 ago. So, it measures via radar the altitude of the
25 aircraft over the earth or the water or whatever is

1 the nearest object that is above ground level. The
2 upper box represents mean sea level.

3 MR. SILBERG: Okay. So then radar
4 altimeter is essentially AGL.

5 LT. COLONEL HORSTMAN: It's exactly AGL.
6 Yes, sir.

7 MR. GAUKLER: You were saying the size of
8 the refinery was two or three hundred feet high. How
9 do you know the size of the refinery?

10 LT. COLONEL HORSTMAN: Without having all
11 the exact coordinates, we looked at a nuclear power
12 plant. We looked at bridges that were 400 feet long
13 on each side and estimated this to be about two to
14 three hundred feet high and numerous acres. I can't
15 give you any more than that because we don't have it.
16 But as I said, we tried to pick the object in the
17 simulator that would give you all the most perspective
18 of tracking a ground site in the simulator.

19 MR. SILBERG: You're saying the simulator
20 does have a nuclear power plant in it.

21 LT. COLONEL HORSTMAN: Yes, sir. We
22 routinely bomb it with simulated ordinance. There's
23 no radiation leak.

24 (Laughter.)

25 LT. COLONEL HORSTMAN: Okay. Moving on.

1 . We're going to play this in a minute. Then I'm going
2 to ask for it to be paused at a certain point. You'll
3 notice that the mileage will tick down, the altitudes
4 will vary a little bit. We have it on altitude
5 freeze. We're flying it. I'm flying the left and
6 right. I'm flying with speed. So, it will vary a
7 little bit. You could be perfectly precise. But I
8 also in my right hand had a video camera and in my
9 left hand I was flying and doing the power. It was a
10 kind of a three-ring circus.

11 MR. TURK: Where does it show the distance
12 to the target?

13 LT. COLONEL HORSTMAN: Right here.
14 (Indicating.) It's kind of skewed right now. I think
15 it says 7.5 miles to the object which in this case is
16 the steer point.

17 MR. SILBERG: You said you were filming
18 this by hand.

19 LT. COLONEL HORSTMAN: Yes. Because the
20 simulators are no longer full-motion, that video is a
21 TV screen. So, you can't take a video of a TV screen
22 unless you have a digital camera. I put a digital
23 camera in my right hand and flew with my left. I'm
24 multi-talented.

25 MR. SILBERG: I would just have assumed

1 that the simulator would film these things.

2 LT. COLONEL HORSTMAN: It would. The
3 airplanes do. The simulator, the cheap version
4 doesn't film the video. It films ground track and
5 ordnance releases and when you do all of your
6 emergency switches because it's designed as an
7 emergency procedure simulator and an ordnance
8 training simulator. It's not designed as a video tape
9 here.

10 If you're shooting down an airplane in the
11 simulator, you have just kind of an object out there.
12 You can say that it's an airplane. But what's
13 important is your closure, the distance, whether the
14 ordnance functioned, whether you were too close, et
15 cetera. So, it's not designed to provide a video
16 representation of the video. It's designed to provide
17 you lots of other pieces of information for training
18 purposes.

19 MR. TURK: I have one last question. Does
20 this show the nose of the plane?

21 LT. COLONEL HORSTMAN: It does. If you
22 look up in here, you'll see it later on as you get
23 different air speeds. Right down at the bottom you
24 will see as it moves where the ground is obscured.
25 That is the nose of the aircraft obscuring the ground.

1 MR. BARNETT: That's a little more than
2 ten degrees where the nose is pointed. Is that right?
3 Ten degrees below that --

4 LT. COLONEL HORSTMAN: Yes, sir. Right
5 now it's just below it. It could be 12 degrees. I
6 can't quite tell because it's frozen. Just as Colonel
7 Fly said. Any other questions? Okay. If you could
8 run the tape please and I'll tell you when to stop it.
9 I moved the camera. Unfortunately, I'm a better pilot
10 than a video man.

11 So, you can see the object coming into
12 view at 6.2 miles. He's at 4,040 feet now. The same
13 heading.

14 MR. SILBERG: What is that smiley face?

15 LT. COLONEL HORSTMAN: Pause. Angle of
16 bank indicator.

17 JUDGE LAM: What did you say again?

18 LT. COLONEL HORSTMAN: Angle of bank
19 indicator. If you have 45 degrees of bank, you will
20 see the horizon one way and you will see the angle of
21 bank the other way. They do that so when you're
22 upside-down you know that's right side up.

23 MR. BARNETT: Does the nose show in this
24 picture?

25 LT. COLONEL HORSTMAN: I can't quite tell.

1 . When I see it, I'll point that out. The first two,
2 it's hardly apparent. The third one, it's very
3 apparent. Play please. Freeze it.

4 The aircraft nose obscures at we'll call
5 it 11 degrees. The object is at about nine degrees.
6 We're at 3.9 nautical miles from the steer point.
7 Roll the tape please. Freeze. Where is the object?
8 It's underneath the nose. It's behind the weather.
9 So, if my steer point is selected on steer point four,
10 I have no reference to the target in this point.

11 MR. BARNETT: What's the distance? At
12 that point, I can't read the numbers.

13 LT. COLONEL HORSTMAN: I believe it's 3.2
14 nautical miles.

15 MR. BARNETT: And what's the AGL altitude?

16 LT. COLONEL HORSTMAN: 4,000 and change.

17 MR. TURK: And how do we see the attitude
18 of the plane? In other words, how much it's pointing
19 down or up.

20 LT. COLONEL HORSTMAN: It's right there.
21 It's level flight.

22 MR. TURK: That seems to have moved from
23 before.

24 LT. COLONEL HORSTMAN: It does. It
25 migrates up and down just like in an airplane.

1 MR. BARNETT: So, you're saying that the
2 contrast between the blue and the dark is not the real
3 horizon. That's not the actual earth.

4 LT. COLONEL HORSTMAN: This is the horizon
5 as made by the internal reference system.

6 MR. BARNETT: Okay. But the earth itself
7 is actually the line between the --

8 LT. COLONEL HORSTMAN: Yes. About half a
9 degree nose low. And you'd expect that. If there's
10 a mountain range behind it, then the mountains would
11 be over the whole television screen.

12 MR. TURK: I don't understand why the
13 representation of the plane which I assume is that
14 circle with the tail sticking up from it --

15 LT. COLONEL HORSTMAN: That's it, yes.

16 MR. TURK: I don't understand why that has
17 now moved higher than it was before relative to the
18 horizon line.

19 LT. COLONEL HORSTMAN: Because you're in
20 level flight. This is the horizon. (Indicating.) For
21 this entire video, it bobbles a little bit but that
22 has remained essentially at the horizon because we're
23 in level flight.

24 MR. TURK: When I drew the picture the way
25 you had it starting originally, I saw the horizon line

1 and I saw the plane distinctly below it.

2 LT. COLONEL HORSTMAN: That's correct. It
3 would bounce up and down a slight bit.

4 MR. TURK: Doesn't the attitude of the
5 plane affect that? In other words, if the plane is
6 pointing slightly higher relative to the ground, then
7 it will lift up relative to the horizon line. If the
8 plane is pointing downwards, nose downwards, it will
9 go lower.

10 LT. COLONEL HORSTMAN: It depends on the
11 air speed.

12 MR. TURK: This would seem to indicate
13 that you've -- the attitude of the plane --

14 LT. COLONEL HORSTMAN: And we have in
15 order to keep it at the same height above ground
16 level. The ground is not perfectly flat. So the
17 aircraft is going to try to fly in this simulation at
18 about 4,000 feet above the ground. The ground rises
19 slightly in this example and so you go up and down
20 ever so slightly. It's perfectly normal. It happens
21 in every airplane. In the 737, the heads up display
22 that we use is virtually identical to that. So, it's
23 pretty common.

24 Continue the tape please. It will stop in
25 a moment. It resets.

1 (Discussion off the microphones.)

2 LT. COLONEL HORSTMAN: I'm sorry. Freeze.
3 The training lesson was over. Once the site passed
4 underneath the nose of the aircraft at about three and
5 a half miles or underneath the weather, you could no
6 longer see it.

7 MR. BARNETT: Okay. That was the end of
8 the run.

9 LT. COLONEL HORSTMAN: Yes. I'm sorry.
10 This is the second run. There's no weather. I'm
11 trying to fly this the exact same way. There's no
12 weather in there whatsoever just to give you a
13 different look at it. Roll the tape please. You will
14 see that this bobbles around a little bit.

15 MR. SILBERG: And that's one degree up or
16 down.

17 LT. COLONEL HORSTMAN: That's correct.

18 MR. SILBERG: What is that grey area?

19 LT. COLONEL HORSTMAN: It gets worse.
20 It's the lighting and this cheap camera that I have.
21 So we're now 5.7 miles from this oil refinery at 413
22 knots, 4,200 feet above the ground, 4,190.

23 MR. TURK: Please stop the tape for a
24 second.

25 LT. COLONEL HORSTMAN: Pause the tape

1 . please.

2 MR. TURK: Again I see the airplane has
3 risen up relative to the horizon line. To me that
4 indicates you're lifting the nose.

5 LT. COLONEL HORSTMAN: No. When you fly
6 an airplane, there's always wander.

7 MR. TURK: But it's not wandering. It's
8 trending up. It's only wandering in one direction,
9 and I'm wondering why.

10 LT. COLONEL HORSTMAN: Because it's trying
11 to maintain the same height above the ground. The
12 ground is not perfectly level.

13 MR. TURK: Why does it always go up?

14 LT. COLONEL HORSTMAN: Because the ground
15 hasn't moved yet in either simulation. Roll the tape
16 please. So at 3.3 miles, the object is out of view.
17 Is that important for this? No. We don't expect to
18 have anybody eject at 4,000 feet at 400 knots.

19 MR. GAUKLER: Lt. Colonel Horstman, I take
20 it that you basically are holding the altitude the
21 same at 4,000 feet. Is that what you're trying to do?

22 LT. COLONEL HORSTMAN: The simulator is
23 attempting to hold the AGL altitude constant. The
24 ground is not perfectly flat. So it will climb and
25 descend the aircraft on its own.

1 MR. GAUKLER: And would that be normally
2 the way you would fly, to hold the altitude constant
3 or do you have it manual?

4 LT. COLONEL HORSTMAN: It would depend on
5 the mission and the altitude. The lower the altitude
6 you go, the more AGL becomes important. Below 2,000
7 feet it would become much more important. If you were
8 flying through at these altitudes, I wouldn't
9 especially personally be all that concerned with my
10 AGL altitude because I can see in front of me. I know
11 I'm call it three to four thousand feet above.

12 I'd be more concerned with what my wing-
13 man is doing and where he is and whether he has
14 terrain clearance. Semi-air speed is important. If
15 I'm in the block, seven or eight thousand feet or
16 nine thousand feet, that's sufficient for this type of
17 a scenario. So, it would depend on the set of
18 circumstances.

19 MR. GAUKLER: So, typically at three or
20 four thousand feet you probably would have it manual
21 as opposed to if it was somewhat lower you would have
22 the airplane itself. Do I understand that correctly?

23 LT. COLONEL HORSTMAN: No. I think I
24 misspoke.

25 MR. GAUKLER: Okay. I'm sorry. I was

1 . just trying to understand.

2 LT. COLONEL HORSTMAN: The only time in
3 the F-16 I've ever used the auto-pilot was on a radar
4 downwind preparing to land or cruising over Iraq. You
5 hand fly the airplane all the time. But you would
6 hand fly it based on whatever the most applicable
7 reference point was. The lower you go, the more
8 important the radar altimeter is. The higher you go,
9 the less important it is. Above a certain altitude
10 and I don't remember what it is, it quits functioning.
11 It becomes very little usefulness.

12 MR. GAUKLER: You hand fly it regardless
13 of what altitude it is.

14 LT. COLONEL HORSTMAN: Yes, sir.

15 MR. GAUKLER: But you would use different
16 points to focus how you control the airplane at the
17 altitude you're flying at.

18 LT. COLONEL HORSTMAN: Yes, sir. That's
19 correct.

20 MR. TURK: And the same thing here. You
21 were hand flying it in the simulator.

22 LT. COLONEL HORSTMAN: No. I'm hand
23 flying the left and right and the air speed. The
24 simulator, we programmed it to stay at the same height
25 at the ground level. So, it's trying to attain in

1 that case about 4,000 feet. In this case I think it's
2 1,800 feet or 2,000 feet. It's attempting to do that.
3 What you find is the lower you go the harder it is
4 because you're flying over terrain that is much more
5 measurable. The lower you go the more difficult it is
6 to hold 500 feet above ground level because a small
7 ridge line means a large climb. Whereas at 4,000 feet
8 you would ignore that.

9 MR. TURK: What did you do with air speed
10 or the simulator?

11 LT. COLONEL HORSTMAN: That was me. I was
12 doing my best to maintain 400 to 425.

13 MR. BARNETT: Could you have had the
14 simulator do everything?

15 LT. COLONEL HORSTMAN: No, because I
16 wanted to. The F-16 doesn't have a coupled navigation
17 system. You do that by hand. The simulator just
18 gives you the ability to freeze the altitude or it can
19 freeze a point in space and you don't move. So you
20 can do loops and never move not that it has any value.

21 MR. TURK: If your air speed was dropping
22 would the simulator be raising your nose?

23 LT. COLONEL HORSTMAN: Yes, and that's
24 what you are going to see this time. This set-up I'm
25 trying to maintain 200 knots and about 2,000 feet. If

1 I get a little bit low or a little bit high, I'll try
2 to point that out. In this case I'm 300 feet low.

3 MR. BARNETT: This is the third run.

4 LT. COLONEL HORSTMAN: This is the third
5 and final run that I've filmed.

6 MR. TURK: Before you do this one more
7 question.

8 LT. COLONEL HORSTMAN: Yes.

9 MR. TURK: The simulator is raising your
10 nose, that would show up at the plane lifting up
11 towards the horizon line and possibly going above the
12 horizon line.

13 LT. COLONEL HORSTMAN: No, it would show
14 up in the end or attack indicator which you don't
15 have. All this will show is in this case it's
16 pointing down. You can have the flight path marker
17 aimed at the horizon in various air speed and g-
18 loadings.

19 We've had airplanes with 30 degrees nose
20 high and hit the ground and the ground was flat
21 because the airplane fluttered up. They have a sink
22 rate and the flight path marker hits the ground at the
23 same time the airplane does. So it's relative to the
24 g-loading. It's relative to your angle of attack
25 which is g and air speed.

1 MR. BARNETT: In the picture that we have
2 up there right now what are we looking at when you
3 have this dark area below that horizontal line and
4 then you have that light area above the horizontal
5 line. What are we looking at there?

6 LT. COLONEL HORSTMAN: That's the earth
7 and the sky.

8 MR. BARNETT: Okay. So we have the sky
9 blue again.

10 LT. COLONEL HORSTMAN: Yes, it's going to
11 get a little fuzzy like that because in this last run
12 the light somehow didn't record quite as well but all
13 the other indications are about the same.

14 MR. SILBERG: What are those two lines in
15 the upper part of the screen? It looks like they have
16 an S on either side.

17 LT. COLONEL HORSTMAN: It's a five degree
18 Claren (PH) pitch ladder as opposed to a five degree
19 diving pitch ladder that maybe the diving one is
20 candid and broken so if you are upside down, perfectly
21 invert at 30 degrees nose low, you'll know.

22 MR. GAUKLER: And what's the plus sign
23 again up towards the middle of the top of the screen?

24 LT. COLONEL HORSTMAN: That is where the
25 fuselage reference line of the aircraft is pointing.

1 . What you will notice at 200 knots that's pointed at
2 seven or eight degrees above the horizon. At 400
3 knots it was pointed slightly above the horizon maybe
4 a degree or so.

5 MR. GAUKLER: This is 200 knots at 2,000
6 feet.

7 LT. COLONEL HORSTMAN: Yes.

8 MR. GAUKLER: But holding level at 2,000
9 feet.

10 LT. COLONEL HORSTMAN: Attempting to, yes.
11 It will babble some. Right now we are in a slight
12 descent and the computer will fix that for us. It
13 will come and launder up and down. The Stewart point
14 in this case is low and left. It will always be lower
15 but in this case it is left and I have to turn to
16 acquire it. So if you would run the tape please.

17 The qualifier has just come into view.
18 I'm turning to capture. It's at eight nautical miles,
19 center of the video. The nose of the aircraft is at
20 four degrees nose low. Stop.

21 MR. TURK: Where are we at now?

22 LT. COLONEL HORSTMAN: We're at 4.7 miles
23 from the oil refinery and you cannot see it.

24 MR. TURK: Where is the nose?

25 LT. COLONEL HORSTMAN: The nose of the

1 aircraft is at 11 degrees nose high.

2 MR. TURK: There is a visual
3 representation of the nose. Can I see the nose from
4 here?

5 LT. COLONEL HORSTMAN: The flight path
6 marker where the aircraft is actually flying is one
7 degree above the horizon. The aircraft is -- 10
8 degrees above that.

9 MR. SOPER: I think he means where the
10 nose on the picture.

11 LT. COLONEL HORSTMAN: Right here at
12 approximately three degrees nose low.

13 MR. TURK: So in this picture the nose of
14 the airplane is pointing 11 degrees above level.

15 LT. COLONEL HORSTMAN: Yes and yet the
16 flight path is actually essentially level. It's one
17 degree.

18 MR. GAUKLER: Now you wouldn't normally be
19 flying at 2,000 feet AGR at 200 knots level.

20 LT. COLONEL HORSTMAN: That's exactly what
21 you would do if you were going to eject.

22 MR. GAUKLER: But you wouldn't be flying
23 at that level.

24 LT. COLONEL HORSTMAN: No, you would be in
25 a five degree climb which would mean at three nautical

1 . miles you wouldn't be able to see the site because of
2 the nose of the aircraft.

3 MR. GAUKLER: But if you are traveling at
4 2,000 feet initially and just flying at that speed
5 you're not in a response to an accident situation.
6 You would be flying about 400 knots, right?

7 LT. COLONEL HORSTMAN: You would start at
8 400 knots. If you lost an engine and the weather is
9 above at 2,500 feet and you are at 2,000 feet then you
10 wouldn't zoom. You would allow the aircraft air speed
11 to decay to 200 knots and then the book says then you
12 jump out. So if that were the case you would lose
13 visual with the object you are trying to avoid and it
14 would be four and a half miles.

15 MR. BARNETT: And you said that's if you
16 had the clouds above you so you couldn't zoom.

17 LT. COLONEL HORSTMAN: That's correct.

18 MR. BARNETT: Because your normal
19 situation would be to zoom, right?

20 LT. COLONEL HORSTMAN: That's correct. If
21 you attempted to zoom, then add 30 degrees to this so
22 the airplane is going to be in front of you like this
23 and you'd be looking up towards the moon.

24 MR. SILBERG: While you're going up.

25 LT. COLONEL HORSTMAN: No, you won't be

1 going up. It's just the opposite. When you're
2 slowing down preparing to eject from 200 knots after
3 the zoom --

4 MR. SILBERG: If you're zooming you're
5 going up.

6 LT. COLONEL HORSTMAN: That's correct.
7 You are going up in a zoom. But before you eject you
8 are not going up. You are merely trading that vector
9 putting the nose up so that you have no descent and
10 you're doing is putting the nose in front of you and
11 then ejecting because it slows the aircraft down to a
12 certain speed.

13 JUDGE LAM: Colonel Horstman, when you say
14 you could not see the target do you mean the target
15 disappeared from the screen?

16 LT. COLONEL HORSTMAN: It's obscured by
17 the nose of the aircraft.

18 JUDGE LAM: Can you see it from the
19 window? I mean what do you mean when you say you
20 could not see that.

21 CHAIRMAN FARRAR: I'm trying to help you
22 here. The target is pretty much in front of you.

23 LT. COLONEL HORSTMAN: Yes.

24 CHAIRMAN FARRAR: Not on the side.

25 JUDGE LAM: But when you say you could not

1 see does it mean on the heads-up display it just
2 disappeared from the screen?

3 LT. COLONEL HORSTMAN: No, I guess the
4 best way to explain it is what kind of car do you
5 drive. Sorry personal question. Just an automobile.

6 JUDGE LAM: A Taurus.

7 LT. COLONEL HORSTMAN: So the hood opens
8 up. Imagine as you are driving down the freeway as
9 you slow down to 35 miles an hour, your hood comes up
10 one foot. Can you see in front of you? You can see
11 the trucks. Can you see the pavement?

12 JUDGE LAM: No.

13 LT. COLONEL HORSTMAN: Imagine the hood
14 coming up two feet. What can you see? The top of the
15 truck and nothing else in front of you. That's
16 essentially what the aircraft is doing. The flight
17 path at 400 knots is essentially flat. You saw that
18 because the flight path marker or the flight reference
19 line or the fuselage reference line were essentially
20 co-existed plus or minus a degree.

21 In this case they are 10 degrees off. So
22 you can see 10 degrees below the fuselage reference
23 line which is 10 degrees above the horizon because you
24 changed the aircraft angle through the sky and added
25 10 degrees on it because of the air speed loss. So as

1 you are flying through the sky you are kind of like a
2 sky boat mushing through unable to get plane and
3 carrying a skier. You are 10 degrees nose high but
4 flying level.

5 JUDGE LAM: That I understand. My
6 question is when you say you don't see does it mean
7 you don't see it through the computer screen or you
8 don't see it through the window.

9 LT. COLONEL HORSTMAN: It's physically
10 blocked by the nose of the aircraft. If you look out
11 at the nose of the airplane that's where the radome
12 (PH) is. Your dashboard is in front of you. It's
13 like being little and trying to see over the
14 dashboard.

15 JUDGE LAM: So you don't see it through
16 the window.

17 LT. COLONEL HORSTMAN: You don't see it at
18 all. Whether it's in the HUD or not it's invisible.

19 JUDGE LAM: But what about the computer
20 screen? Does the computer screen tells you it's
21 there?

22 LT. COLONEL HORSTMAN: Yes, as a matter of
23 fact this will tell you if you selected that
24 steerpoint it will tell you where it is if that
25 steerpoint is selected. If you are in a bombing mode

1 it won't because the bombing mode goes away.

2 MR. SILBERG: I'm sorry. The radome is
3 out in front of the plane, right?

4 LT. COLONEL HORSTMAN: Yes.

5 MR. SILBERG: And the windows on the F-16
6 also go all around you, don't they?

7 LT. COLONEL HORSTMAN: It's one window,
8 yes.

9 MR. SILBERG: So you may not be able to
10 see in front of you but can you see out the sides?

11 LT. COLONEL HORSTMAN: Yes, and you can
12 draw this out as to what you can actually see. The
13 visibility of F-16 is better than any other airplane
14 ever built but you still the nose and it comes off
15 like this. (Witness indicating.) So anything in the
16 forward quadrant of where the aircraft is heading is
17 obscured.

18 One of the ways that you look for objects
19 on the ground that are supposed to be below is you
20 roll up to 90 degrees back and look out the window
21 because you can't see it otherwise. So you roll
22 upside down and you look straight up which is down.

23 MR. SILBERG: But you could see out the
24 sides without having to look --

25 LT. COLONEL HORSTMAN: Yes, your

1 peripheral vision should give you a relative feeling
2 of your altitude. The lower you are the higher the
3 ground is. The higher you are the lower it is. You
4 would see that just as you were driving a car you
5 would probably pick up if you are really good driver
6 the cars next to you out of your peripheral vision.

7 MR. SILBERG: For instance I can't see the
8 pavement right in front of me.

9 LT. COLONEL HORSTMAN: That's correct.

10 MR. SILBERG: If I look out the window on
11 the side of me, I can see the pavement.

12 LT. COLONEL HORSTMAN: That's correct but
13 in an airplane it's not that easy because you are now
14 two, three, four thousand feet out and your angular
15 relationship is maybe 10 degrees so that's a mile or
16 so. So you have to roll the airplane up and look up.

17 MR. SILBERG: One other question. The
18 simulation when you say Skull Valley, does that
19 simulation include things like Skull Valley Road?

20 LT. COLONEL HORSTMAN: No. It just
21 includes that altitude. There are no physically
22 defining landmarks in this simulator scenario that has
23 anything to do with a geographical representation
24 point specific of Skull Valley.

25 MR. SILBERG: So it's really more the

1 altitude.

2 LT. COLONEL HORSTMAN: Obviously we have
3 had a number of conversations about that. That's why
4 I try to do that as opposed to picking something at
5 sea level. That's about the end of the tape.

6 MR. GAUKLER: I have another question too.
7 For example you were showing this simulation here I
8 forget you have 4.5 miles or something like that.

9 LT. COLONEL HORSTMAN: Yes.

10 MR. GAUKLER: Suppose at 7 miles you start
11 looking at a five degree angle off to your left.

12 LT. COLONEL HORSTMAN: Okay.

13 MR. GAUKLER: You would continue to see I
14 would take it the object for some longer period of
15 time, correct?

16 LT. COLONEL HORSTMAN: You would be able
17 to see it on the side of the nose of the aircraft.
18 The more you're displaced from it the easier it would
19 be to see.

20 MR. GAUKLER: And assuming that you had an
21 accident seven miles back so the sight ahead of you
22 would be by five degrees. Then the further you would
23 --

24 LT. COLONEL HORSTMAN: That's when I would
25 zoom the airplane and go to Michael's Army Air Field

1 and then later on I would worry about the emergency
2 just like over half_of the accidents. They go to an
3 emergency airfield to try to land the airplane.

4 MR. GAUKLER: I thought you were trying to
5 simulate an emergency here with your run at 2,000
6 feet.

7 LT. COLONEL HORSTMAN: No, I'm merely
8 trying in this to show you a representation of what
9 the pilot sees in front of him at these different
10 three scenarios, air speed, altitude and weather.

11 MR. GAUKLER: I understand that but when
12 I was asking before about the 200 knots you said
13 that's what a pilot would be doing if he was in engine
14 failure. That's what I understood your answer to be.
15 Because he personally would not be flying 200 knots
16 unless he had engine failure because he would be going
17 through Skull Valley at a greater speed I think.
18 Basically we talked about 400 knots or 425 knots. So
19 absent engine failure you'd be traveling at 400, 425.

20 LT. COLONEL HORSTMAN: Yes, sir. I would
21 agree with that.

22 MR. GAUKLER: So therefore you are using
23 200 knots here for some reason. I thought the reason
24 was to try to simulate what would be the situation in
25 engine failure. I guess my question that if you just

1 · move five degrees off say when you start out with the
2 engine failure you_would be deviating further and
3 further from the site and you wouldn't be able to see
4 the site as well as you continue to --

5 LT. COLONEL HORSTMAN: If that's what the
6 pilot did was initially lose his engine and turn away
7 from Skull Valley. The research indicates that pilot
8 will turn towards an emergency air field first. If
9 this is on their nose, they will not be worried about
10 it until very late in the game. According to the most
11 recent video tape, worry about it until 170 feet above
12 the ground when it's too late to do anything.

13 MR. GAUKLER: Excuse me, Lt. Colonel
14 Horstman, I don't think that tape supports that point.

15 LT. COLONEL HORSTMAN: We have evidence
16 that over 50 percent of the accidents, the ejection is
17 below 2,000 feet in direct violation of the Air Force
18 regulation. So this is merely trying to show you that
19 at this distance getting ready to eject you cannot see
20 four and a half miles in front of the airplane.

21 CHAIRMAN FARRAR: Have we finished running
22 the tape?

23 LT. COLONEL HORSTMAN: Yes.

24 CHAIRMAN FARRAR: Mr. Soper, this would be
25 a good time to quit. It's quarter to six.

1 MR. GAUKLER: I have a few more questions
2 I would like to ask Lt. Colonel Horstman.

3 CHAIRMAN FARRAR: What I was going to
4 suggest is we ask any questions.

5 MR. GAUKLER: Now it is true that you were
6 talking about at 4.5 miles you would not see the site
7 but you had seen it just before.

8 CHAIRMAN FARRAR: Wait, wait. Correct me
9 if I'm wrong but any questions now should go to --

10 MR. GAUKLER: Understanding.

11 CHAIRMAN FARRAR: -- understanding how
12 this was created and which shows and I guess first,
13 Mr. Soper, have you laid out what this is, how it was
14 produced and so forth? So that we would then let the
15 other parties ask a few questions related to that
16 subject matter and then they can go home and think
17 about what position they want to take tomorrow.

18 MR. SILBERG: I think I have asked a few
19 questions about how it was produced. Unless anybody
20 has additional questions on that. It's been marked as
21 State Exhibit 221 and for the record I would offer
22 that into evidence at this time and anticipate what
23 the Board is going to do with respect to that.

24 CHAIRMAN FARRAR: Right, so don't argue
25 yet now. We'll ask the parties if they want to ask

1 some questions about what they've seen that goes to
2 whether this and it will help them argue tomorrow
3 whether it's admissible rather than ask a lot of
4 substantive questions on the assumption that is
5 admissible.

6 MS. MARCO: Does this simulator have a
7 particular make and model?

8 LT. COLONEL HORSTMAN: Yes it does.

9 MS. MARCO: What is that if you know?

10 LT. COLONEL HORSTMAN: I don't know. I
11 can find out.

12 MS. MARCO: You had a vintage of this
13 simulator. What date?

14 LT. COLONEL HORSTMAN: Last Friday.

15 MS. MARCO: Last Friday was your activity
16 on it but when it was created, made?

17 LT. COLONEL HORSTMAN: I think these unit
18 training devices are -- The oldest ones are five years
19 old. The stock for it changes every six months.

20 MS. MARCO: Excuse me. I don't think that
21 mic's plugged in. That was the first --

22 LT. COLONEL HORSTMAN: The oldest ones of
23 these I believe were produced five years ago. We took
24 delivery of them when I was in the deputy officer
25 commander position. Each squadron is allocated one.

1 They get software updates every six months or
2 whatever. Boeing sees the need to do that. They are
3 run by Boeing contractors at an Air Force base.

4 MS. MARCO: Do you know the name of the
5 software that's used on it?

6 LT. COLONEL HORSTMAN: No, ma'am, I don't.

7 MS. MARCO: You said in loading the
8 geography on to the system you were using the
9 topography that goes with the system, would have you
10 wanted to put in the various fountains for Skull
11 Valley?

12 LT. COLONEL HORSTMAN: No, ma'am, you
13 can't. You can select the different kind of fighter
14 aircraft you want to use. You can select steerpoints
15 which could become targets. There's a body of
16 approximately 30 different steerpoints. Some of them
17 are vehicles. There are bridges. There's a
18 warehouse. This is the largest one we found. It's a
19 nuclear power plant, etc.

20 MS. MARCO: Radar towers?

21 LT. COLONEL HORSTMAN: Yes, there are some
22 towers. There are some lightpoles. Lots of little
23 things like that.

24 MS. MARCO: But you are not familiar with
25 the type of the specific machine that you use.

1 LT. COLONEL HORSTMAN: No, it's the same
2 simulator that Boeing operates for every F-16
3 squadron. I don't know.

4 MR. GAUKLER: I have some questions.

5 CHAIRMAN FARRAR: The staff is conferring
6 about their questions.

7 MR. GAUKLER: I didn't know if you
8 remembered or if everybody is through or what. I
9 thought I would announce.

10 CHAIRMAN FARRAR: I assume the staff is
11 through.

12 MS. MARCO: Yes, sir. We are completed.

13 CHAIRMAN FARRAR: Okay. Mr. Gaukler.

14 MR. GAUKLER: This is just a little
15 different type of question but I just wanted to
16 understand. Is it my understanding because you were
17 really taking a videograph of the actual simulator TV,
18 that the fidelity as shown on the HUD is actually much
19 less than it would be if you were in the actual
20 airplane yourself?

21 LT. COLONEL HORSTMAN: Yes, sir. The
22 fidelity in the aircraft itself is very good.

23 MR. GAUKLER: Okay. I just wanted to make
24 sure that people understood the fidelity is much
25 greater than was on that.

1 LT. COLONEL HORSTMAN: We're taking
2 pictures of pixels..

3 CHAIRMAN FARRAR: Is that all, Mr.
4 Gaukler?

5 MR. TURK: Does that mean if you were
6 actually in the simulator than you would see the nose
7 of the plane more clearly than we can see it on this
8 video?

9 LT. COLONEL HORSTMAN: Yes, it is a little
10 bit easier to see in the actual simulator. The reason
11 for that is because the horizon is bigger and in
12 addition to looking through the HUD you have about two
13 to three inches on the side of the heads-up display
14 that you have forward visibility as well.

15 It doesn't cover the entire forward
16 quadrant so you have a little bit of depth perception
17 on that and you get see the nose of the aircraft a
18 little easier. The camera also focuses on the heads-
19 up display numbers as opposed to the nose of the
20 aircraft.

21 MR. TURK: So in essence your video camera
22 is filming three feet in front of you instead of
23 filming the ground at thousands of feet below.

24 LT. COLONEL HORSTMAN: It's irrelevant
25 because the --

1 MR. TURK: The focus of the camera is on
2 the screen in front of you rather than the long
3 distance.

4 LT. COLONEL HORSTMAN: The long distance
5 would be three feet because it's a TV screen. I don't
6 think it's relevant in this case.

7 MR. TURK: What's the distance to the
8 ground that the camera is filming?

9 LT. COLONEL HORSTMAN: There is no ground.
10 It's a TV picture.

11 MR. TURK: In your previous testimony, you
12 indicated that you look through the HUD and you see
13 the ground through that screen.

14 LT. COLONEL HORSTMAN: You do.

15 MR. TURK: But you're not getting that
16 here. You're looking at the screen which is three
17 feet in front of the camera rather than focusing long
18 distance at the ground that you see through the heads-
19 up display, correct?

20 LT. COLONEL HORSTMAN: I think the answer
21 is yes. I'm not quite sure I understand the question.

22 CHAIRMAN FARRAR: We're talking two
23 dimensions first. The point of your question is two
24 dimension.

25 MR. TURK: Your testimony previously was

1 that you see the ground through the heads-up display
2 not in the heads-up_display.

3 LT. COLONEL HORSTMAN: In a real aircraft
4 you're saying.

5 MR. TURK: In a real aircraft that is
6 certainly true, correct? You're nodding. That's
7 correct.

8 LT. COLONEL HORSTMAN: (Nodding.) In a
9 real plane, you look through the combining glass which
10 has green lines projected on it and look out at the
11 ground. Your focus changes from 12 inches in front of
12 you to infinity.

13 MR. TURK: Or to the ground below.

14 LT. COLONEL HORSTMAN: Which is infinity
15 essentially.

16 MR. TURK: In the simulator is it
17 different?

18 LT. COLONEL HORSTMAN: Yes, because the
19 ground is three feet in front of you on a TV screen.
20 It's merely a simulation trying to depict that.

21 CHAIRMAN FARRAR: Mr. Gaulker, do you have
22 any more questions?

23 MR. GAUKLER: I don't think I do.

24 CHAIRMAN FARRAR: So as I understand then,
25 parties will review documents/videotapes. You all

1 have your experts here to look at them. So you will
2 let us know tomorrow what you think of them. We will
3 hear arguments at that point. You have all the facts
4 from Mr. Soper that you need in order to frame the
5 arguments. I think that he and his witness have given
6 you the timing of all this and so forth.

7 MR. SOPER: Your Honor, if it's of any
8 assistance to the Board my prior thoughts were about
9 two hours. It's probably a little optimistic I think
10 in view of how things are going.

11 CHAIRMAN FARRAR: Are there any more
12 videotapes?

13 MR. SOPER: No more. At least as we
14 adjourn tonight.

15 MR. TURK: We're a day away from closing
16 the hearing. Are there more?

17 MR. SOPER: In all earnestness there we
18 don't want to anticipate any more videos.

19 CHAIRMAN FARRAR: As the Staff and the
20 Applicant frame their arguments, remember that we are
21 going to apply the same rules to this offer of
22 evidence that we've applied to previous offers in the
23 case. That is we will do that to the best of our
24 ability. So if before you make arguments to exclude
25 something think about the material that you have had

1 to get in under similar circumstances because
2 consistency in the name of fairness as we said the
3 very first day of the hearings. So that's how we
4 planned to look at this. Anything else we need to do
5 tonight? Okay it's five of six. See you at 9:00 a.m.
6 tomorrow.

7 (Whereupon, the above-entitled matter
8 concluded at 5:55 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:

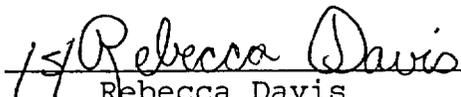
Name of Proceeding: Private Fuel Storage, LLC

Docket Number: Docket No. 72-22-ISFSI

ASLBP No. 97-732-02-ISFSI

Location: Rockville, Maryland

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.


Rebecca Davis
Official Reporter
Neal R. Gross & Co., Inc.

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