

1 NASA OFFICE OF PUBLIC AFFAIRS
2 303 E STREET, S.W., #P
3 WASHINGTON, D.C. 20546
4 (202) 358-1600
5

6
7 NASA PRESS CONFERENCE

8
9 MODERATED BY KEITH HENRY; ACCOMPANIED BY
10 BOB DAUGHERTY AND MARK SHUART

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13

14 **PROCEEDINGS**

15 MR. HENRY: Please direct your questions to an individual, if your
16 question is to Bob Daugherty in particular or Mark Shuart in particular.

17 Each of the participants are going to have a short statement that
18 will be available on the NASA Columbia website after this briefing, and we are
19 going to try to go for about an hour. We will see how that goes. Our goal is to
20 give everyone a chance to ask at least one question, but we will ask you to
21 help move things along so that can happen. Of course, it is critical that
22 everyone mute their phones when they are not speaking so that everyone else
23 can hear, including our radio friends.

24 MR. HENRY: Mark wants to go first. So Mark Shuart is talking
25 next.

26 MR. SHUART: Good afternoon. My name is Mark Shuart. I am
27 the director for Structures and Materials here at the Langley Research Center.

28 I would like to open today's discussion with two background

1 comments. The first comment is that the Langley Research Center is widely
2 recognized for its technical expertise in aerospace. As part of that capability,
3 the NASA Langley Structures and Materials organization has been identified as
4 the agency's center of excellence in that discipline.

5 The Structures and Materials organization participated in Orbiter
6 tile research in the early 1980's and helped analyze the Challenger accident
7 and return-to-shuttle flight.

8 Recently, an outside organization, the National Transportation
9 Safety Board, sought our expertise, and we are currently assisting them in the
10 accident investigation for American Airlines 587.

11 My second comment follows the first. The reason we are experts
12 in Structures and Materials is because of our people and our facilities. A fine
13 example of our personnel is Bob Daugherty. Bob has more than 20 years
14 experience in landing dynamics, the area that looks at wheels, landing gear,
15 runways, and how they all interact. He is a senior research engineer and has
16 received several awards for his contributions to human space flight. I trust his
17 judgment because of his demonstrated track record.

18 It is my pleasure to yield the microphone to Bob Daugherty.

19 MR. DAUGHERTY: Thanks, Mark.

20 My name is Bob Daugherty, and I am a senior research engineer
21 here at Langley Research Center where I have worked for almost 23 years.

1 At the Aircraft Landing Dynamics facility, we do research on
2 advanced landing gear systems. We characterize aircraft and spacecraft
3 takeoff and landing performance with mathematical models to describe things
4 like steering and braking friction, and we work from time to time on solving
5 operational problems for a number of commercial and other governmental
6 agencies. In one form or another, I have worked on shuttle tire and landing
7 issues for about 18 years.

8 First, let me say that I don't know what caused the Columbia
9 tragedy, but I do firmly believe the Columbia Accident Investigation Board will
10 figure out the cause and offer solutions to prevent it from happening again. I
11 feel like everyone at NASA that we owe this to the families and to the public.

12 Second, why I am speaking with you today, honestly I was very
13 surprised by the attention my writing received. I view my involvement as a
14 small sideline focused on landing issues, and I have been in somewhat of a
15 quandary. I really do believe that the best thing I can do for the investigation is
16 to talk to the investigative board first.

17 On the other hand, it is frustrating that my words are being
18 misinterpreted. My quandary has now been relieved since the board has said
19 they don't mind if I speak up. So I want to clear the air as much as possible,
20 and I hope you will excuse me in advance if we get into any technical areas
21 where I may still feel it is best to talk to the board first.

1 Finally, before taking questions, I would just like to mention what I
2 consider my most important point, and that is my intention with my e-mails. I
3 was asked a question from a longtime friend and colleague about whether we
4 had ever simulated a landing with two flat tires. After some thinking, I believe
5 that that was the wrong question. The thing that might get you in that
6 predicament would manifest itself long before you got to the runway.

7 And I simply wanted to present the whole range of issues
8 between catastrophe and a perfect landing. I wanted to make sure that
9 everybody could be as ready as possible for any eventuality. The e-mail was
10 intended to spark discussion to ensure if there were such plans, and I believe
11 they did just that. With that, I think we will be able to take questions.

12 MR. HENRY: Okay. Dave Schleck, Newport News Daily Press,
13 first question.

14 TELEPHONE CALLER: Yes. This is Dave, directed towards Mr.
15 Daugherty.

16 What were you doing on the morning of February 1st, and when
17 you heard Columbia was lost and maybe later you heard the radio
18 communications by Jeff Kling saying, "We just lost tire pressure on both tires,"
19 did you think of your e-mails? Did you think your scenarios may have come
20 true, and if not, what were you thinking that morning?

21 MR. DAUGHERTY: I try to watch every landing and launch, and I

1 had come into the office that Saturday morning to be able to watch the NASA
2 channel. And I got there, gees, just a few minutes before 9:00 a.m. So I was
3 watching it on the NASA channel, did not hear the comments in real time on
4 losing sensors and so forth.

5 I guess the first time that something looked out of the ordinary to
6 me was when they were doing more COM checks than normal, and by the time
7 I had heard the statement that they had not seen anything on the Merit Island
8 radar, you know, that was a troubling time.

9 Have I answered your question?

10 TELEPHONE CALLER: Well, in everything that you have read and
11 heard since the disaster, do you have any thoughts as to whether some of your
12 scenarios are still as a possibility as the cause of the disaster?

13 MR. DAUGHERTY: Well, you know, certainly that is the first thing
14 that ran through my mind, and I was certainly hoping that something like that
15 had not occurred. Of course, we still just don't know, but, yeah, that is the first
16 thing that ran through my mind when something was apparently seriously
17 missed.

18 TELEPHONE CALLER: Okay. And to follow up, could I ask, your
19 e-mail seemed to be one step away from reaching Bill Ready, and this is a
20 question maybe Mark and Bob could answer. Do you wish now that it had
21 reached a higher level of NASA, and do you think it should have reached a

1 higher level, why or why not?

2 MR. DAUGHERTY: This is Bob.

3 I think the way to answer that, first of all, is do I think it should
4 have, rather than "wish," and I don't think it should have.

5 My e-mail was technical issues that I intended to have technical
6 people discuss, and that is exactly what happened. So, in my estimation, it
7 went exactly where I intended it and where I thought it should be.

8 MR. SHUART: This is Mark.

9 I followed exactly what Bob was -- followed closely what Bob was
10 doing, and it looked like all was being taken care of at his level, which typically
11 is the way we try to resolve things.

12 MR. HENRY: Thank you, Dave.

13 Andy Petkovski from the Richmond Times Dispatch?

14 TELEPHONE CALLER: Yes. Hi. Can you hear me?

15 MR. HENRY: Yes.

16 TELEPHONE CALLER: From reading the e-mails, Bob, it seems
17 that there is sort of a level of concern beyond just discussing possibilities, and
18 I was wondering at the time you wrote those e-mails whether the scenarios
19 you were outlining seemed more than hypothetical and you were feeling real
20 concern that disaster may be on the way.

21 Several times, you mentioned potential endings of not a good day

1 or a catastrophe, and were you getting -- by the time you e-mailed your
2 bosses, did you feel that you really had -- that there was a genuine possibility
3 that what happened would happen?

4 MR. DAUGHERTY: Yeah. Thanks, Andy.

5 Frankly, no. There really wasn't a level of concern. I know you
6 can get that from the e-mails, but these were, you know, e-mails between
7 longtime colleagues. So we spent a lot of time talking in the e-mails like we
8 might talk in person, and there was not concern from my standpoint in the
9 e-mails, had no clue whatever that the analysis might or might not be right.
10 We were simply looking into, well, let's be conservative, what if the analysis
11 weren't right, let's think of the things that you might want to plan for and have a
12 game plan in your back pocket.

13 TELEPHONE CALLER: If I can follow up, when you expressed
14 concern that certain simulations be done where the models were already set
15 up, did you -- how much did it matter to you that it be performed?

16 MR. DAUGHERTY: It mattered a lot to me. If you had any
17 dealings with engineers, you will find they are always looking over your
18 shoulders impatient, and as any engineer who wants information, we always
19 think what we want is the most important thing at the time. Since we have
20 been asked about landing with two flat tires and that was the mechanism by
21 which we could get the answers, sure, I was impatient to get those things

1 done, and some of that impatience, you know, came out in the e-mails, but it
2 wasn't concern because I felt there were any real problems. It was simply
3 impatience to get the answers that I wanted to be able to pass forward.

4 MR. HENRY: Tom Morgan, Channel 12, Richmond.

5 I will remind everyone to mute when you have the opportunity.

6 TELEPHONE CALLER: Can you hear me, Keith?

7 MR. HENRY: Yes.

8 TELEPHONE CALLER: My question is for Bob.

9 As far as future space missions go and after reading the e-mails,
10 I got the sense that you were concerned that you were not being -- or the
11 e-mails were not being taken seriously. When you hesitate in offering any
12 other advice pertaining to any other future space missions after this?

13 MR. DAUGHERTY: Great question, and, you know, I guess the
14 perception that I didn't think my e-mails were being taken seriously, I frankly
15 don't know where that came from. I thought my e-mails were absolutely taken
16 seriously by the EMAX folks, absolutely taken seriously, and so the answer to
17 the second part was no, I wouldn't hesitate in the least to do exactly the same
18 thing because I felt good about our interaction.

19 MR. SHUART: This is Mark.

20 What I want to add to that is, in fact, earlier in the week when I
21 found out that Bob was having some questions coming to him from the folks

1 down at JSC, I asked him to keep me in the loop in the e-mails and things like
2 that as to what was going on. I can assure you that everything that Bob
3 Daugherty was sending was taken seriously by me and those above me.

4 TELEPHONE CALLER: To follow up, if the investigation finds that
5 the cause for the disaster does have something to do with any of the
6 suggestions you made, how will you react to the findings?

7 MR. DAUGHERTY: Well, you know, frankly, since these weren't a
8 prediction of what might happen -- I had absolutely no foreknowledge, no
9 reason to believe the analysis was wrong, whether it was right or wrong. So, if
10 it just so happens that some of these "what if" scenarios happens to, you
11 know, be anywhere in the ball park of what the board decides the problem --
12 you know, concludes the problem was -- and they will decide and conclude
13 what the problem was -- frankly I don't see a link between the two.

14 MR. HENRY: Dale Dodding with WDC Norfolk.

15 TELEPHONE CALLER: Thank you, Keith. Can you hear me?

16 MR. HENRY: Yes.

17 TELEPHONE CALLER: A question regarding the research into
18 the tiles and in-flight repairs. I seem to recall a recent local story where a
19 retired researcher from Langley was being called back to look at research they
20 had done in the '70s and '80s about the potential for in-flight repairs of
21 damaged tiles, a period that was discarded I guess then as impractical and

1 not very easy to carry out without EVAs and that sort of thing. Is there a look
2 being given now to the possibility of in-flight repairs of tiles getting knocked off
3 during takeoff?

4 MR. SHUART: Dale, this is Mark Shuart. Let me answer that one
5 because I am the one who asked Blaine Stein [ph] who worked on the on-orbit
6 repair work quite some time ago to please just gather some information for
7 me so I would know what it was that we had done in the past.

8 By the way, there were a lot of folks that looked at several different
9 concepts, not just people here at Langley, how to do on-orbit repair, and we
10 are really not to that point where we are going to go anywhere with that
11 information at this time.

12 TELEPHONE CALLER: Just one quick follow-up, is there
13 research being done on a next-generation heat protection? Is there
14 something beyond the tiles that have been used all these years that might be
15 in the pipeline for future spacecraft?

16 MR. SHUART: This is Mark again.

17 In fact, we do have research that is going on, on what one might
18 call advanced thermal protection systems. We have been looking for many
19 years at metallic thermal protection systems as well as looking at new
20 concepts where the structures themselves are able to better withstand the
21 heat without having thermal protection systems by themselves that absorb it.

1 MR. HENRY: All right. Seth Borenstein with Knight-Ridder.

2 TELEPHONE CALLER: Thank you, Keith.

3 This is for Bob. It is a two-parter. You talked about how this is to
4 prepare them for "what if" situations, you know, if a situation occurs while they
5 are in mission control, and, yet, when we talked to Heflin and Leroy Kane, no
6 one in the flight control area have this. The flight control directors didn't have
7 any of your documents during reentry. So doesn't that kind of point to the fact
8 that they weren't taking you seriously, that they didn't have your list of "what if"
9 possibilities with them during real time?

10 And the second part of that is: Were you aware of the John
11 Cowell [ph] e-mail, which said that the analysis is giving a false sense of
12 security on the thermal analysis?

13 MR. DAUGHERTY: Okay, thanks. Regarding the first part of that
14 question, I believe they were prepared in the sense that they had to set up
15 these e-mails, and I think if you go look at the press conference that Kling and
16 others made, you will hear them say that they did have the results of our e-mail
17 discussions with them in case they did have to make some decisions in real
18 time. So it sounds to me like they were as prepared as they could be.

19 TELEPHONE CALLER: But not --

20 MR. DAUGHERTY: I am getting some feedback.

21 I was aware of John Cowell's e-mails. That was one of the first

1 set of e-mails that I received on Monday.

2 TELEPHONE CALLER: And did that disturb you?

3 MR. DAUGHERTY: Sorry. Again, I am having a lot of echoes.

4 Did it disturb me?

5 TELEPHONE CALLER: Mm-hmm.

6 MR. DAUGHERTY: No, I wouldn't say it was disturbing. It simply
7 told me in terms, you know, this is an unusual problem, difficult to get your
8 arms around, and that there are a lot of people working hard on it. Certainly,
9 there are differing opinions out there, and that is what you really need. If
10 everybody has got the same opinion, you are going to miss something.

11 TELEPHONE CALLER: Is it fair to say that you don't often have
12 someone of Doug Dwoyer level mentioning the possibility of bringing
13 something up to Bill Ready?

14 MR. DAUGHERTY: I would say that Doug -- I have a lot of
15 conversations with Doug, as you might expect. Sometimes he talked about
16 moving things up to an associate administrator. Often, it is another one
17 besides Bill Ready, but this was one that it is not unusual for Doug to make
18 suggestions that where some information, if want to pursue it, ought to go.

19 TELEPHONE CALLER: Thank you.

20 MR. HENRY: Jeff Smith from The Washington Post.

21 TELEPHONE CALLER: Hi, Bob. Bob, what did you mean by

1 "getting information is like the plague," and also, with regard to the
2 simulations, was there some resistance to doing the simulations? Could you
3 explain what that was and why?

4 MR. DAUGHERTY: Good question. The comment about "getting
5 information like the plague," first of all, it was toward -- between friends, and I
6 tend to be a little more colorful when I am with my friends.

7 Again, it was frustration in a sense because there were
8 simulations already going on and approved that were, in a sense, very similar
9 to what we were after, but different enough that we couldn't just jump in, in the
10 middle of the astronaut training that was going on.

11 Again, I always want to get the information I am after immediately.
12 So there was some frustration there about getting that information, and that
13 comment was truly very specific just to the issue of trying to get the simulation
14 runs.

15 Even though I mentioned it was, quote, "the wrong question," if
16 you did find yourself getting to a runway, if you did have problems with flat tires,
17 we definitely wanted to be able to have that information and pass it along. So
18 that is not a NASA-wide comment. It was directly referring to trying to get a few
19 simulation runs.

20 And there was no resistance whatsoever at NASA AMES. They
21 were very, very cooperative, very professional. It is just that we had not planned

1 on getting such simulation runs when they set up the simulation schedule.

2 TELEPHONE CALLER: Well, I have to say that to a layman, when
3 you say, "getting information is like the plague," it does sound as if there is
4 some resistance to the idea, taking on additional information or doing
5 additional research. I am still having trouble understanding. You are saying,
6 your statement, there was no resistance?

7 MR. DAUGHERTY: Yeah. All I can say is, again, it was sort of the
8 way I talked to my engineering buddies, and, frankly, I understand the difficulty
9 with interpreting that, but that is kind of why we are talking today, to try to clear
10 that up as best we can.

11 You know, the guys at AMES, they were very receptive. I don't
12 want to paint them as unreceptive at all, but, again, when you break a training
13 schedule, that is a big deal, and this was a couple of engineers wanting some
14 information on the side. So, even though I was frustrated, I absolutely
15 understood that you couldn't just jump in the middle of things.

16 TELEPHONE CALLER: The initial answer from AMES was that
17 they couldn't do it and then that was overcome?

18 MR. DAUGHERTY: No. It is just that these were simulations that
19 had not been discussed prior when the entire SIMS schedule had been sent
20 up. So, in a sense, these are unapproved, and you don't just run around doing
21 unapproved SIMS without a good reason. They are certainly not displacing the

1 approved simulation schedule.

2 TELEPHONE CALLER: Can I ask you a question for Mr. Stuart
3 without taking too much time?

4 MR. HENRY: Go ahead.

5 TELEPHONE CALLER: Mr. Stuart, is there another occasion in
6 which e-mails like this have passed in and out of Langley during a flight and
7 these has been some question about raising the issue to someone at the
8 level of Mr. Ready? Is this an unprecedented event?

9 MR. SHUART: This was the first time it has happened that I know
10 of.

11 TELEPHONE CALLER: Thank you.

12 MR. HENRY: Warren Leary, NYTimes, I assume you are still in a
13 listening mode, but, Edward Wong, did you want to ask a question, from the
14 New York Times?

15 MR. HENRY: Any question from the New York Times.

16 TELEPHONE CALLER: Yeah, I'm right here. Sort of following up
17 on that last question, if this was the first time that that happened, can you
18 explain in particular why this was the first time and whether in your opinion that
19 that should have -- because it was the first time, it should have gained more
20 prominence and consideration?

21 MR. DAUGHERTY: The folks down at JSC, I am sure, will call

1 whoever they feel like they need whenever an issue comes up and they want to
2 discuss things.

3 I essentially sent something through my organization asking if we
4 had ever gotten calls in the past, just in anticipation of a question like this, and
5 what I heard back was that we never have been contacted during a mission.
6 We often talk with the folks down there about shuttle issues, but this was the
7 first time we had ever been discussed during an issue, during a mission.

8 Now, whether or not -- I didn't say that just because it is the first
9 time that we ought to treat it sometimes special. It is an engineering issue. It
10 was something that we felt like we needed to deal with. It looked like it was
11 being handled appropriately.

12 TELEPHONE CALLER: Okay, thanks.

13 MR. HENRY: Ted Bridis from AP?

14 TELEPHONE CALLER: Can you hear me, gentlemen?

15 MR. DAUGHERTY: Yes.

16 TELEPHONE CALLER: For Mr. Daugherty, can you tell me to
17 what extent you were familiar with the findings and any of the underlying
18 support for the Boeing analysis at the time that Mr. Campbell made the phone
19 call on January 27th?

20 And you have alluded to the phone call, but can you describe kind
21 of the tone and content of exactly what Mr. Campbell was seeking?

1 MR. DAUGHERTY: Okay, Ted. Prior to that phone call, I had not
2 seen anything with regard to the analysis at all. Mr. Campbell did send me a
3 couple e-mails that I guess you can see in some of the e-mail traffic that has
4 been released, and did forward me a couple of pitches on the debris analysis
5 and so forth.

6 Now, as far as the analysis, I absolutely am neither a tile expert
7 nor a thermal analyst, really don't have any expertise at all in that area. So, you
8 know, with regard to the analysis, I, like anybody else who is not an expert, can
9 simply read it and look at its findings.

10 Carlisle and I talked at length about this issue, and we both
11 agreed that not talking about whether we believed the analysis or not, what
12 was a good prudent thing to do in the area of expertise that he and I are in, and
13 that is, well, let's play devil's advocate, what if that analysis were wrong, what
14 kind of issues could we add value to this situation.

15 TELEPHONE CALLER: Just to follow up, on the 27th as you are
16 doing this "what if" thing, you described the possibility in a conversational
17 thread with Mr. Carlisle about a space walk, possibly going out looking at tile
18 and that could possibly have caused any more damage than what we are
19 already talking about, and that was in response to Mr. Carlisle's note regarding
20 the use of a spy telescope to get some DOD imaging. Were you aware at that
21 point, and to your extent that you knew whether Mr. Carlisle was aware that

1 NASA had days earlier withdrawn a sort of unofficial request for DOD imaging?

2 MR. DAUGHERTY: I do believe that Carlisle did mention that he
3 had heard -- and again, he is not a telescope guy nor am I. I do believe he
4 mentioned that at this point in time, I hadn't heard about all the prior traffic
5 regarding the telescope, but I believe he mentioned that there at that point was
6 not any telescope work being done, and he and I agreed that, you know, good
7 engineering practice from our standpoint would be put your eyes on the
8 problem. I mean, every engineer would think that as a layperson without
9 having the knowledge about the analysis that the experts did.

10 So I would also say I am not an EBA expert, but sort of my generic
11 engineering experience said, "Boy, it would be great to get your eyeballs on
12 that problem," and hence, the comment.

13 TELEPHONE CALLER: Okay. Thank you, gentlemen.

14 MR. HENRY: Okay. Leela Abboud, Wall Street Journal?

15 TELEPHONE CALLER: I will pass for now. Thanks.

16 MR. HENRY: Either Gweneth Shaw or Robin Siriano from the
17 Orlando Sentinel.

18 TELEPHONE CALLER: It is Robin Siriano. Can you hear me?

19 MR. HENRY: Yes.

20 TELEPHONE CALLER: Bob, I guess I need to kind of go back to
21 the beginning a little. Who is it, then, that called you from JSC? Was it Carlisle

1 Campbell, and did you have discussions with anyone else at JSC beyond
2 e-mails?

3 MR. DAUGHERTY: It was Carlisle that called me, and, again, we
4 were friends and colleagues. And prior to the e-mail to David Lechner, which
5 you have seen, of course, Carlisle was it from JSC.

6 Notwithstanding one of the other -- one and the other engineers
7 at JSC who happened to be at AMES, of course, we were talking about
8 simulations with him.

9 TELEPHONE CALLER: And as far as phone calls?

10 MR. DAUGHERTY: Again, that was it until I had written that e-mail
11 to David, and, of course, David called back thanking us for the input.

12 TELEPHONE CALLER: Since the accident, did someone from
13 JSC contact you about the e-mails, or what happened after the accident
14 occurred and all this interest in these e-mails came up?

15 MR. DAUGHERTY: Well, goodness, there hasn't been any
16 interest in the e-mails.

17 No. Really, since everybody has been so busy with the accident,
18 other than talking to -- you know, I continued to talk to Carlisle all the time, as
19 we always do, but really haven't had much phone traffic at all, or e-mail traffic,
20 since then.

21 MR. HENRY: Tracy Watson, USA Today.

1 TELEPHONE CALLER: Thanks to both of you for speaking with
2 us.

3 I wanted to ask Mr. Daugherty about an e-mail dated January
4 28th. To a layperson's eye, it certainly looks like you have some pretty serious
5 doubts about what the outcome of the flight is going to be. It reads any more
6 activity today on tile damage or people just relegated to crossing their fingers
7 and hoping for the best. Can you tell me what you were thinking when you
8 wrote that?

9 MR. DAUGHERTY: Well, this was the day after Carlisle and I had
10 first spoken, and he had shown me some e-mail traffic and the video that you
11 all have seen. Again, as two engineers just talking amongst their selves
12 without technical expertise really in this area of tile damage and so forth, we
13 were wondering what kind of other information might be gathered regarding
14 the severity of the problem.

15 Really, being on the outside of that entire loop, this was simply,
16 again, a question from a friend to a friend wondering if he had heard any more
17 about EDAs or telescope views and so forth.

18 TELEPHONE CALLER: Just a follow-up, from what I understand,
19 when you saw that video, you found it pretty dramatic. Is that right? Am I
20 interpreting your e-mail correctly?

21 MR. DAUGHERTY: Yeah, Tracy. I think that is fair. I did say

1 "Wow" was the first comment in the e-mail after I saw the video. As all of you
2 saw that video, it was an impressive event, and I was sure that after seeing
3 that, certainly would have the expert sitting up and going to work trying to figure
4 out exactly what happened.

5 TELEPHONE CALLER: Thank you.

6 MR. HENRY: Deborah Zabarenko

7 TELEPHONE CALLER: Very good.

8 MR. HENRY: -- from Reuters.

9 TELEPHONE CALLER: That would be me. Hi.

10 First, I will add my thanks to Tracy's, and also, that if somebody
11 was going through my old e-mails the way we are going through yours, I
12 wouldn't be too comfortable, but let's go along with this.

13 Tracy actually picked up the exact e-mail that I was looking at.
14 They are all indicating a high level of frustration and discomfort, but throughout
15 this stack of e-mails that we've all seen, there are references there, or not, to "I
16 wouldn't want my loved one to go through this," "I wouldn't want them to do this
17 particular scenario," fears not explicitly stated as a loss of crew, loss-of-vehicle
18 incident. This just seems so extraordinary to me, and it doesn't quite jive with
19 what we have heard about this was typical engineers "what if-ing" during a
20 flight. What is your take on that?

21 MR. DAUGHERTY: You know, if you -- yeah. I don't want you

1 looking at e-mails from the last 20 years or anything, but, you know, I do use --
2 when I am doing engineering and talking about "what ifs" -- and we have done
3 it before for various other things, not during missions -- you know, that is -- a
4 lot of people say I wouldn't do that if my mom was on it or something. You
5 want to make the best engineering judgments you can, and I use that as my
6 standard for what is the right thing to do engineering-wise. So it really was not
7 as an extreme comment in my -- it looks more extreme to you than it does to
8 me, I guess.

9 TELEPHONE CALLER: Let me follow up and ask it this way.
10 Can you think of -- you have been there for 23 years? You are the expert's
11 expert. Can you think of any other shuttle flight during or after that you have
12 looked at the data, looked the information that you have, and have this kind of
13 "Well, man, I wouldn't want my mom on this flight"?

14 MR. DAUGHERTY: Well, the answer is no, but I have to clarify. I
15 didn't -- I wasn't really making the statement, "I wouldn't want my mom or loved
16 one on this flight," at all.

17 What I was saying is if you find yourself in a jam, you know, there
18 are certain ways or certain avenues to try to get out of that jam, some of which
19 may be better than others, and you pick the ones that are most viable to you.
20 That is all.

21 TELEPHONE CALLER: Okay. Thanks.

1 MR. HENRY: Larry Wheeler, Gannett?

2 TELEPHONE CALLER: I will pass. Thank you.

3 MR. HENRY: And Frank Moring, Aviation Week?

4 TELEPHONE CALLER: Thank you.

5 Just to make sure I understand the context here, was this or was
6 this not the first time you had ever -- you two gentlemen had ever dealt with this
7 kind of situation or been asked to during a mission?

8 MR. SHUART: This is Mark.

9 And this is the first time that as far as I know in Structures and
10 Materials we have ever had to deal with a situation like this during a mission.

11 TELEPHONE CALLER: Okay. My question, then, is: What did
12 you expect the results or the use of your work to be, or what were you told it
13 would be?

14 MR. DAUGHERTY: Frank, this is Bob.

15 My intention and expectation was to ensure as part of the larger
16 team that unusual events that might occur during the landing phase had been
17 pre-thought out in this, albeit, unusual situation, where there was some
18 amount of unknown damage, and those expectations were absolutely met by
19 the guys at Mission Operations.

20 TELEPHONE CALLER: Did you expect it to go on up to the crew?

21 MR. DAUGHERTY: Absolutely not because these weren't -- they

1 weren't really concerns. They certainly weren't warnings. They were simply
2 "be ready for anything," just like there are a myriad of other things that they
3 have Plan B's in their console books, and this is nothing more than some
4 more extensive Plan B's in this likely unusual situation. So they absolutely met
5 my expectations and absolutely handled it at the level I intended.

6 MR. HENRY: Keith Cowing, NASA Watch.

7 TELEPHONE CALLER: This is Keith Cowing.

8 There was a time when only NASA Watch would publish internal
9 NASA e-mails, and they would usually be anonymous. Now we see them on
10 NASA. And for Bob, you have got a bunch of people you have never met or
11 worked with who are putting everything you have said and wrote under a
12 microscope. Has this now affected the way you write e-mails? Has it affected
13 the way other people do? Do you think this is going to have a positive or a
14 negative impact on the way that people communicate in the agency?

15 MR. DAUGHERTY: Keith, that is a great question, and, you know,
16 I bet you are going to see, depending on who you talk to, a range of answers.

17 My answer is, as you can see, I am not afraid to say stuff, and I
18 absolutely wouldn't change a word, even after this storm of e-mail traffic out
19 there to the world.

20 I feel very comfortable with what I have said and how I have said
21 it. So it is certainly not going to affect my behavior in the future regarding

1 e-mails.

2 MR. SHUART: This is Mark. I certainly hope it doesn't affect his
3 behavior or anybody else in our organization. We try and get folks to speak up
4 when they see things, and it really was a surprise to us to see NASA putting
5 something up before NASA Watch.

6 [Laughter.]

7 TELEPHONE CALLER: Well, a follow-up, then, to either of you
8 guys. Now that you have got all these folks that are, quote, "getting in your
9 knickers," do you have any advice for reporters who are trying to get inside your
10 head that might help them frame the questions better, perhaps get to answers
11 that their readers can understand?

12 MR. SHUART: This is Mark.

13 And I think one of the things that we want to make sure we do is
14 be as helpful as we can in answering questions.

15 This time, I know that many of you have been frustrated in your
16 inability in the past, or ability, to get to talk with us, but we were trying to do what
17 we thought was best in the context of an ongoing investigation, and once we
18 got an okay from the investigation board, here we are to try and add a little
19 context.

20 So I guess to answer your question, if you want to understand
21 what we mean, it is probably good to ask.

1 MR. DAUGHERTY: This is Bob.

2 I would say that, you know, this is new to all of us, certainly.

3 There may be a happy -- hopefully is -- a happy medium between not
4 jeopardizing investigations if it was something else in the future and plainly not
5 saying anything. That is sort of frustrating on everybody's part, and we are
6 feeling our way through perhaps to a happy medium there.

7 MR. HENRY: If not, we will go to Frank Sietzen with UPI and/or
8 Space America.

9 TELEPHONE CALLER: Thanks, Keith.

10 Bob is an expert on landing systems. Can you tell me if an
11 Orbiter belly landing on a hard-surface runway is a survivable event?

12 MR. DAUGHERTY: I can tell you what I have talked to some EMAX
13 folks on. I am not an aerodynamics expert. I have some ideas, of course, on
14 that sort of landing, and you saw in my e-mails that I wouldn't want a loved one
15 to be in that vehicle when it lands like that.

16 Subsequent talks with folks in Mission Operations pretty much
17 confirm that. There are certainly bad things that can happen in such a landing,
18 as you have seen in a lot of the e-mails, both with -- particularly the ones from
19 the guys at JSC. So it is a really bad day if you were to belly-land that vehicle,
20 apparently. It may not be survivable.

21 TELEPHONE CALLER: So my follow-up would be: For whatever

1 reason, if a landing gear doesn't come down, you are going to lose that
2 vehicle?

3 MR. DAUGHERTY: I think it is treated that way. That is a much
4 better question for the MOD folks at JSC, though.

5 TELEPHONE CALLER: Thank you.

6 MR. HENRY: Bill Glanz, Washington Times.

7 TELEPHONE CALLER: Yeah, thanks. I have a question for each
8 of you.

9 For Bob, does this represent all your e-mails on the subject?

10 Then for Mark, in light of all that has gone on here with the
11 e-mails and the second-guessing, is there any reason to believe that you guys
12 need to change the way that you handle the e-mails, or does the system work?

13 MR. DAUGHERTY: Believe me, I have lived a lot of times. I think
14 all of my e-mails with regard to this -- you know, the week of the 27th up
15 through that Friday, I guess, I think -- well, as far as I can tell, every single one
16 of them has been released.

17 And I'm sorry. The second part of that question, again?

18 TELEPHONE CALLER: For Mark is there any reason to believe
19 that these were handled the right way, or does the system work and does it
20 need to be fixed?

21 MR. SHUART: I think from my perspective, I don't see any

1 different way to handle these e-mails. It is all in the context of the e-mail. They
2 were handled correctly.

3 TELEPHONE CALLER: Okay, thank you.

4 Okay. I think we are down to you, Mark, from Houston Chronicle.

5 TELEPHONE CALLER: Mark Carreau.

6 My question is for either gentleman. I wonder if you could tell us
7 whether you think it would have been some value to have more of a firsthand
8 knowledge of the Boeing report either through firsthand participation in the
9 early days or through some other device, even some sort of
10 Internet-accessible discussion or summary of how extensive the debate had
11 been so that maybe you had even a wider notion of the whole issue, and
12 would you think that that would be helpful in the future?

13 MR. SHUART: This is Mark.

14 It is easy to look in hindsight and think about how things might be
15 done differently, but, in fact, I guess we thought that the experts had been
16 engaged down at JSC and that they were on top of it.

17 MR. DAUGHERTY: And this is Bob.

18 You know, I think the answer for me is a definite no. It wouldn't
19 have changed anything I did because I am not a tile expert, and I could have
20 looked at a chart for a year and I still won't be a tile expert.

21 TELEPHONE CALLER: If I could follow on that, I guess, though,

1 you know, this debate went on for several days after the flight. You might have
2 had some sense of just how prolonged this discussion was, and I know that
3 equates to thoroughness on your part, but I just wonder if it would have
4 changed your perception of, one, what the problem was and, two, just a sense
5 of how much they were wrestling with it, if you knew that there were kind of
6 chapters to the final answer and that there were some discussions about a
7 space walk or using a telescope of some kind to look at the space shuttle. I
8 mean it just sort of seemed like you guys might have chimed in with sort of the
9 basic engineering observations that would have just widened the circle of
10 debate.

11 MR. HENRY: And what is your question, then?

12 TELEPHONE CALLER: Do you not think that that would be
13 helpful?

14 MR. SHUART: This is Mark.

15 And I guess the way that I would answer that is if we had -- if they
16 felt like there was an expertise -- in this case, I don't want to try and put you off
17 too much, but they felt like that they had an expertise down there that they were
18 relying on, and if they wanted to get a second opinion, as demonstrated, and
19 the fact that they called Bob, they would have asked for it. So I feel like that they
20 felt like things were under control.

21 It is not surprising when you have difficult engineering situations

1 that it takes a little while to get everybody to discuss different sorts of points of
2 view, and, clearly, this was one of those.

3 MR. DAUGHERTY: Let me just add -- this is Bob -- just a quick
4 point. You know, we did apply our technical expertise to the technical question
5 that was asked of us, and, you know, if we take our non-technical opinions and
6 everybody did that and clogs up the system, there wouldn't be a spot for the
7 technical guys to get through. So we stuck with what we knew.

8 MR. HENRY: L.A. Times, will it be Nick Anderson or Ralph?

9 TELEPHONE CALLER: This is Nick. Can you hear me?

10 MR. HENRY: Yes.

11 TELEPHONE CALLER: Thank you both for taking the questions.

12 I am struck by the fact that we are all mostly talking here about
13 e-mails, and I know that quite a bit of work goes on through e-mail, but this is a
14 question for Bob and I guess also Mark. Were there other conversations that
15 focused on these issues where you elaborated on these issues with your
16 colleagues? In other words, did the debate have an oral dimension to it as
17 well, and if so, have you shared any of that with either folks higher up at NASA
18 or at Columbia Accident Investigation Board?

19 MR. DAUGHERTY: This is Bob.

20 There were a couple phone calls that I was involved in that I have
21 written up in a timeline and provided to the board. They really are of the same

1 nature and quality as the e-mails pretty much. So there isn't any new
2 information in the verbiage that discusses the phone calls, no.

3 TELEPHONE CALLER: Okay. Is that also true for Mark?

4 MR. SHUART: And this is Mark.

5 I guess when this all went through, I did have a discussion. It
6 turned out Doug Dwoyer and Del Freeman both were off site when the initial
7 e-mail started going on, and I did see Doug and Del, I believe, if it wasn't on
8 Thursday, it was on Friday. I think it was on Friday, and mentioned to them,
9 "Hey, have you seen the e-mails?" There was a little discussion about that.
10 That was before we had gotten the e-mail back from Lechner, and then I sent
11 that on as soon as that came in as well, but other than that, there were no
12 other discussions.

13 TELEPHONE CALLER: So your conversation was a brief one like
14 "Hey, are you in the loop on this?"

15 MR. DAUGHERTY: Correct.

16 TELEPHONE CALLER: That is interesting.

17 Also, I wanted to ask a quick follow-up. A lot of the discussion
18 has been about whether information went high enough up the food chain, and
19 I am kind of curious about lateral sharing of information. Do you feel like there
20 was enough information-sharing laterally? Might there have been thermal
21 experts within NASA or other experts that I don't know of that could have

1 benefited from seeing this traffic?

2 MR. SHUART: This is Mark.

3 Let me address that one. Certainly, there are a lot of different
4 sorts of experts that could be brought to bear on an engineering problem, and
5 the folks, thermal stress guys, I have a number of people like that in our
6 Structures and Materials organization here, but that is not to say they don't have
7 them down at JSC. They do, and I am sure if they needed some help, I know
8 the folks down there pretty well at the level that I am at. Just like Bob, I am sure
9 that folks at the working level know each other as well. So, if they had
10 questions that they needed some help on, I am sure they would have asked
11 us.

12 TELEPHONE CALLER: Okay. So, just to be sure I understand,
13 you don't feel like this would have benefited from more sideways
14 information-sharing within NASA?

15 MR. SHUART: I don't know that I would go quite that far. I would
16 just say there wasn't any more sideways information.

17 Again, as we look in 20/20 hindsight, we are going to think of a lot
18 of things that we wished were different.

19 TELEPHONE CALLER: Thank you.

20 MR. HENRY: Jeremy Manier, Chicago Tribune.

21 TELEPHONE CALLER: Thanks. Can you hear me?

1 MR. HENRY: Yes.

2 TELEPHONE CALLER: Thanks again for taking this call. I have
3 one general question and one narrow one.

4 First, for Bob, but also Mark if he has some input on this, I think
5 one of the reasons these e-mails have interested people is that it seems that
6 you provoked a lot of interesting discussion both in Houston and among your
7 colleagues. I am sort of wondering what in your background affected the way
8 that you approached these issues and sort of frames the issues in general.
9 You have spoken to a little bit of this. This is unique as far as your being
10 involved in this process during a flight, but how did you approach this issue?

11 MR. DAUGHERTY: Boy that is quite a -- quite a question. It
12 involves some thinking, I guess, but let me try it.

13 You know, I guess the longer you are an engineer, the more
14 times you see that you miss something or things -- you know, the physical
15 world didn't work exactly the way you had assumed it. So you, I think, get to the
16 point where you kind of naturally play the "what if" game more and more often,
17 and I think that is something that just experience brings along. So I don't think
18 there was anything special in this case.

19 On many, many other issues, that is sort of the way you evolve to
20 look at issues. I think it is just sort of in our nature after working engineering
21 problems for so long.

1 MR. SHUART: Jeremy, let me say that ever since Challenger, the
2 entire agency had a profound change in that safety is the key consideration
3 that people think about, and it is just as vibrant here at the Langley Research
4 Center as it is at JSC or KFC when they are dealing with launch issues. So,
5 when these things come up, we are paying attention to them. We have got
6 safety in mind because it is part of our culture.

7 TELEPHONE CALLER: Also, just as far as the landing gear in
8 particular, there is that e-mail from Coca-Cola that somebody brought up
9 about -- that seemed to indicate that maybe there was more of a vulnerability
10 around the perimeter of the landing gear than some other places. I know you
11 are not a thermal expert, Bob, but can you tell us a little bit about whether there
12 were special concerns as far as that goes that you were thinking about with
13 the landing gear and doing your own input into this problem?

14 MR. DAUGHERTY: Yeah, that is a good question, and I am not
15 an expert on the structure around the landing gear and why that that might be a
16 more vulnerable place than others, but, of course, I did read that comment
17 from that expert. Certainly, it colors how you think, even though I am not an
18 expert. So it didn't -- it didn't alarm me and it didn't make what I said turn into a
19 warning at all, but, obviously, I sat up and took note when I read that.

20 TELEPHONE CALLER: Thanks very much.

21 MR. HENRY: Florida Today, is it going to be Chris or John Kelly?

1 TELEPHONE CALLER: Okay, thanks. And again, I appreciate
2 you guys talking to us today.

3 The question about the sideways information, I just want to
4 explore that a little further, and maybe Bob can speak to this. Do you feel like --
5 I mean, you said you felt like your comments were taken seriously, but do you
6 wish that maybe there were more sort of cross-pollination as far as expertise
7 is concerned?

8 We have been told over and over that people sort of stick to their
9 area of expertise. Does there need to be more interaction?

10 MR. DAUGHERTY: Well, I would have to say that, certainly, in one
11 sense, people do need to stick to their expertise. That is why I am not out
12 there talking about tiles and thermal protection because I just don't know it.

13 And again, my involvement with wanting to spark discussions on
14 planning for anything bad that could happen, that discussion would not have
15 changed, regardless of any sideways talking in my involvement with the
16 thermal people.

17 MR. SHUART: Kelly, this is Mark. It is a very interesting sort of
18 kind of balance that we think about. With very complex systems, you would like
19 to have experts that are deep -- have deep background in particular facets of
20 perhaps a complex system like the shuttle. Then again, you would kind of like
21 to have people that understand lots of the different disciplines and pieces of it,

1 but then when you do that, that breadth that they would have, they are just as a
2 matter of fact -- they just can't be as deep. So we always are kind of in one of
3 these situations where you wished that some folks were a little broader, but
4 when they are, they are not as deep, and when you get somebody that is real
5 deep; sometimes you wish they were a little broader. Hopefully, from an
6 engineering perspective, we try and balance that.

7 TELEPHONE CALLER: Thanks.

8 MR. HENRY: Okay. Thank you, Chris.

9 Bruce Nichols, Dallas Morning News?

10 TELEPHONE CALLER: Can you hear me?

11 MR. HENRY: Yes.

12 TELEPHONE CALLER: This is probably a question for Mark
13 since Bob has said he is not an expert. Can you tell us anything about these
14 wind tunnel tests that are showing the leading edge as the panel six
15 specifically as a likely cause of this problem?

16 MR. SHUART: The quick answer, Bruce, is no because I am not
17 a wind tunnel guy. I am a structures and material guy.

18 MR. HENRY: I will break my own rule and answer that question.
19 This is Keith Henry.

20 TELEPHONE CALLER: Thanks.

21 MR. HENRY: The -- well, actually the answer, you are not going to

1 like the answer. We are considering the investigative team our client with
2 those one-tunnel tests. So we are turning those results over to them. If you
3 would like to see them and know what they mean, talk to those guys.

4 TELEPHONE CALLER: Meaning the board?

5 MR. HENRY: Yes.

6 TELEPHONE CALLER: Okay, thanks.

7 MR. HENRY: You bet.

8 Irene Brown, Discovery Channel.

9 TELEPHONE CALLER: Thank you. The discussion that you had
10 pretty much ended because it was time to bring the Orbiter home, and one of
11 the last e-mails were exchanged like on the 31st and I think, Mark, you had
12 passed along everything you had had and ended your comments with a
13 sentence that you hoped that the folks at JSC were listening.

14 If this whole thing had happened earlier in the flight, if Carlisle
15 Campbell had contacted you, Bob, earlier and this discussion had started
16 earlier and there was more time to continue with it, where do you think it would
17 have gone? What else could you have done with this, or how would you have
18 wanted JSC to listen and use what you had determined through your analysis?

19 MR. DAUGHERTY: Thanks, Irene. This is Bob.

20 You formed the question that the discussion ended prior to the
21 landing, but, you know, from my perspective, it was resolved. The intended

1 purpose of the e-mail was resolved, and the guys in Mission Operations did
2 have -- in my opinion, did have a plan to handle landing issues. So I don't
3 think extra time would have changed anything. They had resolved it.

4 MR. HENRY: Okay. Earl Lane from Newsday?

5 TELEPHONE CALLER: Hi. Again, just on this last day, the one
6 telephone conversation that was mentioned in Bob Duramis' summary for Ron
7 Dittimore occurred late on Friday afternoon. Carlisle Campbell, Bob Duramis
8 stated [inaudible] in Bob Daugherty. They did talk in there that Bob Duramis
9 and David Patternostra [ph] had some skepticism about the accuracy of the
10 AIM sim in light of other data, and I am wondering if you could discuss that.

11 Then, at the end, it says that everyone agreed that they expected a
12 safe entry on Saturday, and does that reflect, Bob, your thoughts at that time?

13 MR. DAUGHERTY: Yeah, Earl. The conversation that afternoon
14 regarding the results of the sim run let me answer the last part first.

15 Yeah, we all absolutely agreed that there was no expectation of
16 anything bad happening during the landing, and at the end of that
17 conversation, we talked about, boy, it would be nice to see -- you know, to see
18 what the damage looks like once they are walking around the vehicle on the
19 runway, no expectation of real problems at all.

20 The inaccuracies we are talking about gets into exactly what
21 friction level you use on the rolling flat tires and it is on one side of the vehicle

1 versus others and some technical things like that, but there were no
2 disagreements about the results of the test -- or the simulations, rather.

3 TELEPHONE CALLER: So you thought they were adequate for
4 the purposes done?

5 MR. DAUGHERTY: Yeah, absolutely.

6 MR. HENRY: Lisa Stark from ABC, you are up.

7 TELEPHONE CALLER: Thank you. Can you hear me?

8 MR. HENRY: Yes.

9 TELEPHONE CALLER: Thanks for all your time, guys. Just
10 about everything in the world has been asked, but I will try one other thing here.

11 What strikes me from this e-mail traffic and others is two things.
12 One is how late in the game you got engaged with the first phone call. I mean,
13 it was pretty late after most of the analysis was already completed, and I am
14 wondering if you could talk about that.

15 Also, just this whole thing of formal-versus-informal request, I
16 mean, we know the request to take the picture from the military assets was,
17 quote, "informal" and that it was canceled before a formal request. You talked,
18 Bob, about frustration because there was a formal protocol for the simulators
19 and how do you interrupt that. I mean, I am wondering if this was taken almost
20 as too much as a sort of pro-format, matter-of-course discussion and no one
21 had any sense of urgency, and do you think we only have a sense of urgency in

1 hindsight or was there any kind of sense of urgency as this was all going on?

2 Sorry. I know it is a long question.

3 MR. DAUGHERTY: This is Bob.

4 I guess the way to answer that is, A, I can't comment on when we
5 were called, you know, to give an answer to a friend and a colleague on
6 landing with flat tires and doing just some generic engineering and "what
7 if-ing." But I don't think you want a landing-gear guy raising issues in the tile
8 and impact damage arena. Just don't have any expertise there, and, you know,
9 I shouldn't be getting into their act.

10 TELEPHONE CALLER: What about this issue, though, of
11 everything seeming to have to go through channels and there doesn't seem to
12 me that there was this sense of, gee, this is something we have to get our
13 hands around, either, you know, from the simulator point where you were
14 frustrated you weren't getting in quicker or -- obviously, this was not in your
15 e-mail traffic, but we saw that also perhaps in the debate over whether to use
16 military assets.

17 MR. SHUART: This is Mark.

18 Let me say that normally if we feel like those things are being
19 stonewalled very badly, this sort of thing comes through pretty quick. I think
20 that if there was information that people like Bob felt like they really weren't
21 getting, we probably would have spoken up a little bit more, but as things kind

1 of unfolded, it seemed like it was going -- it eventually worked itself through.

2 I could understand that there are people that have a particular
3 schedule that they are trying to run on a particular facility that they have waited
4 to get into, and that is the simulator. So maybe initially there is a push back
5 on, gee, you know, how important is this, but at some point in time, as has
6 worked out in this case, people recognize that this is something that is pretty
7 important. It is a flight that is up right at that point in time, and maybe we can
8 try and move things around. In that sense, the folks in the agency do try to
9 accommodate questions that people have without being so stuck by a
10 process.

11 MR. DAUGHERTY: And remember, this is sort of sideline work
12 that is not in response to a technical concern. This is some guy doing "what
13 if-ing" on the side.

14 MR. HENRY: Okay. Either Bill Harwood or Bob Orr from CBS.

15 TELEPHONE CALLER: It is Bill Harwood. Can you hear me
16 okay?

17 MR. HENRY: Yes.

18 TELEPHONE CALLER: Well, two quick ones, and they are both
19 for Bob. They are just restating questions you have already answered in
20 different ways. I just want to take another run at a couple of them.

21 Just for the record, when you drove into work that Saturday

1 morning, was there anything in the back of your mind about the possibility of
2 either, you know, damage you might see when they are on the runway -- is the
3 first part of that, the second part is was there anything in your mind that had
4 you worried that something really bad might happen. That is the first question.

5 MR. DAUGHERTY: Well, again, by all accounts, there was some
6 ambiguity to this whole thing.

7 You know, we had all seen the video. I had seen the video, and
8 even though we were absolutely doing "what if-ing" during that week, you
9 know, that is in my mind. So, you know, when you talk about buying a car, it is
10 not very long before you go buy the car. So I had been absorbed in "what if-ing"
11 all week. So, of course, there was, I think, some natural uneasiness on my
12 part, but, again, nothing that I believed -- you know, I certainly believed that
13 everything was going to be perfectly fine, and, again, I expected to see pictures
14 taken of the damaged area after they were walking around the vehicle on the
15 runway which, you know, as an engineer would be very interesting.

16 TELEPHONE CALLER: I understand you said at the very top of
17 your statement that you were frustrated in the way the e-mails have been, I
18 guess, reported in the media. You have answered this question from another
19 angle, but the question here is: What was it, the way these were portrayed,
20 that you are disagreeing with?

21 MR. DAUGHERTY: Well, you know, I guess perhaps the biggest

1 one is the -- is where I meant the comment about "getting information is being
2 treated like the plague," that was very specific to, you know, a very small area of
3 getting 10 minutes worth of work in a simulator, and, of course, that comment
4 -- and naturally so because you didn't -- you know, we weren't talking about it.
5 That sort of got imputed to Mission Operations and sort of all of NASA, and it
6 was just so far off the mark that it was just frustrating.

7 MR. SHUART: Bill, this is Mark, and I guess I want to add to that.

8 Mr. O'Keefe came to the Langley Research Center not very long
9 ago, and I am the guy that told him that this was not an engineer waving a red
10 flag and nobody paying attention, and that this is the way it seems to be being
11 portrayed in the press and that was far from the fact.

12 We did say to him at that meeting -- or I would say I said to him at
13 that meeting, it would be nice if we would have an opportunity to provide
14 context.

15 MR. HENRY: Okay. CNN?

16 TELEPHONE CALLER: Hi. This is Jordan Legon.

17 I had a question for you about your reaction after the shuttle
18 tragedy, and did you get any calls from the JSC to discuss your e-mails? And
19 what was the nature of those calls?

20 MR. DAUGHERTY: I didn't get -- I did not get any calls, you know,
21 let's say that day or whatever from JSC, and I guess Mark and I talked after the

1 accident and we thought, you know, it is a good idea to, just as everyone else
2 was, put together a package of what e-mails we had and put together and
3 received and so forth, but there were no calls from JSC wanting to discuss
4 those e-mails at the time, on.

5 TELEPHONE CALLER: Did you get any calls at any point from
6 anyone at NASA asking you to either, one, not discuss the e-mails or, two, to
7 be careful about how you talked about the e-mails or anything regarding the
8 e-mails?

9 MR. DAUGHERTY: Absolutely not. No, no real -- no direction
10 either to talk or not to talk.

11 The NASA policy that you heard and I heard was to allow people
12 to talk if they so chose, but I really did think the best thing was to try to save
13 what little I knew for the investigation board.

14 TELEPHONE CALLER: Thank you.

15 MR. HENRY: Bob Hager, NBC.

16 TELEPHONE CALLER: Yeah. This is for Bob. Way back at the
17 beginning here, you said you didn't think the issues and concerns that you
18 raised should have been passed to higher management and said later that
19 the level of notice got passed up did meet your expectations, but you passed
20 over the question about whether you wished they had. Given now that it is
21 hindsight and all, do you now wish that the concerns you expressed in the

1 e-mail had been passed up higher than they got?

2 MR. DAUGHERTY: Well, again, I do have to say, Bob, that they -- I
3 didn't -- I don't see them as concerns. They -- again, my intent was to provide
4 what expertise I had to try to make sure that Plan B's for anything bad that
5 could happen during the landing phase were in place. Again, I feel like they
6 did get put in place.

7 Since they weren't concerns or predictions of a real problem,
8 yeah, I did say that I didn't think they should be passed forward. In that respect,
9 I guess I would say no, I don't wish they were passed forward because they
10 would have -- they would have simply clogged up the system because I didn't
11 have anything technical to add in terms of the tile damage and impact
12 analysis.

13 MR. HENRY: Phil Chen, Earth News.

14 TELEPHONE CALLER: This is Phil. Can you hear me?

15 MR. HENRY: Yes.

16 TELEPHONE CALLER: For Bob, let me get you to put the
17 engineer hat back on and think a hypothetical situation. There is less damage
18 to Columbia. It does make it back through entry. Nevertheless, Jeff Kling gets
19 his indicators from his MAX team that he has lost tire pressure in the left-hand
20 side. What in your best estimate would be the possible scenario of that? How
21 much stress damage could the landing gear take and still be able to land

1 safely? At what point would it be so much damage that he or somebody on his
2 team would have to recommend doing a bail-out and abandoning the vehicle?

3 MR. DAUGHERTY: Well, I assume you read the e-mail traffic
4 between the guys at EMAX and JSC in response to my e-mail.

5 TELEPHONE CALLER: Exactly.

6 MR. DAUGHERTY: You know, those are the experts on figuring
7 out what to do, depending on what kind of data they see coming in real time.
8 So I certainly couldn't second-guess them. They are absolutely the experts
9 there.

10 I would say that one of the parts we felt like we tried to add to the
11 mix was if you can get to the runway and your gear is down, that that was a
12 survivable situation, and we wanted to make sure that the guys at Mission
13 Operations had the benefit of that simulation, and they did.

14 TELEPHONE CALLER: In your estimate, how much damage
15 could the gear have taken and still been able to deploy? I assume if for some
16 reason it didn't deploy, and then we would have had a bad day no matter what
17 at that point.

18 MR. DAUGHERTY: Yeah. I think what you read in the JSC
19 e-mails was if you think the gear isn't going to come down, then I believe -- and
20 again, read their e-mail, but I believe their plan was to bail out.

21 TELEPHONE CALLER: Okay, thanks.

1 TELEPHONE CALLER: Keith, some of us would like to ask a
2 question again, if we could.

3 MR. HENRY: All right. I will tell you what, let's hope it isn't tons
4 and tons and we can do it in sort of an ordered way. Why don't you go ahead
5 and ask a question.

6 TELEPHONE CALLER: This is Jeff Smith at The Washington
7 Post.

8 Bob, I wanted just to come back to your frame of mind on Friday
9 night and Saturday morning, the last day of the flight and the morning of the
10 landing. You said, "There was some natural uneasiness on my part." Could
11 you explain what you meant by that, please?

12 MR. DAUGHERTY: Well, again, I had spent the week talking
13 about bad things, doing all of this "what if-ing." Again, you know, I am an
14 engineer, although I am not a tile expert. So I read the analysis, and just like
15 all of you. The amount of damage was, in some respects, unknown, and that
16 combined with talking these scenarios all week long to colleagues, you know,
17 it sort of just gets your gain up a little bit. And again, that kind of naturally
18 leaves some uneasiness there.

19 TELEPHONE CALLER: But your uneasiness was -- it is that
20 word that I would like you to define. What does that mean? Does that mean
21 that you feared -- what?

1 MR. DAUGHERTY: You know, I can't say I feared anything. I
2 thought that --

3 TELEPHONE CALLER: Or that you worried, whatever. I don't
4 want to take your words for you. Just explain what you mean by -- what does
5 this word "uneasiness" mean?

6 MR. DAUGHERTY: Yeah. It is just that there is some ambiguity
7 to the whole situation. This was an event that we hadn't -- you know; none of
8 us had seen that video, a video like that before, and so there is just some
9 ambiguity to the situation, though. You know, everybody wants to be
10 completely aware of what, you know --

11 TELEPHONE CALLER: But the ambiguity was you were unsure if
12 what?

13 MR. DAUGHERTY: Again, I guess the -- unsure of how much
14 damage there was to the vehicle, and, of course, that is the premise by which
15 we started all of this "what ifting." So, again, we were -- I was interested to see
16 how much damage there would be after the landing.

17 TELEPHONE CALLER: Did you have any specific anxiety that it
18 might not come in safely?

19 MR. DAUGHERTY: No, not at all.

20 TELEPHONE CALLER: Mark, if I could ask you a question. You
21 said at one point in our conversation today -- you said as we look in hindsight,

1 we are going to wish that a lot of things were happened differently. You are
2 looking in hindsight now. You don't have that wish now?

3 MR. SHUART: All I am saying is that anybody that looked at
4 Columbia, in hindsight they might have a recommendation on something to be
5 done differently. Even you, I am sure.

6 TELEPHONE CALLER: Well, let me ask you, though. I mean,
7 you are looking at it in hindsight now. What would you like to have done
8 differently?

9 MR. HENRY: Jeff, this will be your last question, and then I will
10 ask for a couple more, from someone else.

11 TELEPHONE CALLER: Thanks, Keith.

12 MR. SHUART: I really haven't thought about it that much.

13 TELEPHONE CALLER: This is Dave Schlick, the Daily Press.
14 Could I ask one more question about something that we haven't touched on
15 yet?

16 MR. HENRY: Go ahead, and then we will do one after this, Dave.
17 Go ahead.

18 TELEPHONE CALLER: Bob, in one of your e-mails, you make
19 reference -- you are speaking of the crater and the size of the crater being
20 1,920 cubic inches. You said something to the effect of "I hope I am reading
21 that wrong." What did you mean by that? Did it seem like a large crater to you,

1 or what did you mean by that comment, "I hope I am reading that wrong"?

2 MR. DAUGHERTY: Okay. It did turn out that I was reading that
3 wrong, and, hence, I am not a tile expert.

4 The test data that as I understand it as a lay person reading
5 some of the information -- the test data made use of 3-cubic-inch specimens,
6 and apparently the size -- one estimate is the size of the original piece of foam
7 was the 19, 20. So I had it somewhat wrong there.

8 The comment about reading it wrong was simply that, you know,
9 there is an apparent disparity between 3 cubic inches and 1,900 cubic inches.

10 TELEPHONE CALLER: Okay, thank you.

11 TELEPHONE CALLER: Keith, it is Seth. Can I get a question in?

12 MR. HENRY: Yeah, go ahead. This will be the last one.

13 TELEPHONE CALLER: Okay. In terms of -- for Bob -- I know we
14 have talked about getting it up to Bill Ready, but it also didn't get on the other
15 end in Houston past David Lechner up to the Linda Hamm up to the Dittmore,
16 Milt Heflin, Leroy Kane. Is there -- do you have a feeling that -- I mean, do you
17 kind of wish at least on that end, it might have gone a little further up, even to a
18 mission management team?

19 I guess the other part of that is I understand how you feel that you
20 don't -- well, you know, in hindsight, there isn't, I think, but I guess if I were in
21 your position even with your feelings, I would still have some sleepless nights

1 wondering "what if-ing" on the other end.

2 MR. DAUGHERTY: With respect to your first part of your question,
3 you know, David Lechner passed it onto the EMAX folks with Bob Duramis.
4 That is, again, my opinion, the exact right place for it, and they discussed it just
5 like I was hoping. So, no, I don't think it -- I think it went exactly where it should
6 have gone.

7 I'm sorry. The second half was sleepless nights. The sleepless
8 nights aren't because we felt we didn't do enough. I think we did exactly what
9 our technical expertise would bid us do here with regard to landing issues.

10 MR. HENRY: Both Bob Daugherty and Mark Shuart will be on the
11 NASA Columbia website shortly, and thank you very much.

12 [End of press conference.]

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