

DCA23LA384

OPERATIONAL FACTORS

Attachment 2
Instructor Pilot Transcript
March 20, 2024

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *

BOEING 767-322 ACCIDENT WHILE *

LANDING AT THE GEORGE BUSH * Accident No.: DCA23LA084

INTERCONTINENTAL AIRPORT IN *

HOUSTON, TEXAS ON JULY 29, 2023 *

* * * * *

Interview of: JEFFREY ARNOLD

Evaluator and APD and Line Check Pilot 75/6 Fleet
United Airlines

Tuesday,
February 13, 2024

APPEARANCES:

SHAWN ETCHER, Operational Factors Investigator
National Transportation Safety Board

BRICE BANNING, Senior Aviation and Accident Investigator
National Transportation Safety Board

MICHAEL BROWN, Investigator
National Transportation Safety Board

RYAN HURLING, Senior Flight Safety Investigator
United Airlines

STEVE DEMKO, Chief Accident Investigator
United Master Executive Council
Captain on the 757/6 from Newark
Air Line Pilots Association

JOHN HANSON, ESQ.
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I N T E R V I E W

1
2 MR. ETCHER: All right. Well, good morning. My name is
3 Shawn Etcher with the National Transportation Safety Board, and
4 I'm an operational factors investigator. All that means is I look
5 at everything before the cockpit door, the interaction of the
6 crew, the crew's training histories, everything.

7 You're here today because you're a training expert, and I
8 need to know what I can about training. So you're here to educate
9 me, and I appreciate you coming in this morning.

10 Thankfully, I don't have to know everything. So if we've got
11 a lot of parties involved and subject matter experts as well.

12 CAPT ARNOLD: Good.

13 MR. ETCHER: And I will go around the room here, have
14 everybody introduce themselves for the recording, and we will
15 start with Brice.

16 CAPT ARNOLD: Hi, Brice.

17 MR. BANNING: Hey, good morning.

18 CAPT ARNOLD: Good morning.

19 MR. BANNING: I'm Brice Banning. I'm a senior aviation and
20 accident investigator with the NTSB, and I'm with AS10 and I'm the
21 investigator-in-charge for this event. So thank you so much for
22 visiting with us.

23 CAPT ARNOLD: You're welcome. Good morning.

24 MR. BROWN: Good morning. I'm Mike Brown with the NTSB.
25 Twenty years air traffic control experience. So I just came to

1 the Board last August.

2 CAPT ARNOLD: Thank you. Nice to meet you.

3 MR. BROWN: Nice to meet you.

4 MR. HURLING: Ryan Hurling, United Airlines, senior flight
5 safety investigator, and I was the investigator-in-charge for this
6 event from the company's side.

7 MR. DEMKO: I'm Steve Demko with the Air Line Pilots
8 Association. I'm a captain on the 7576 from Newark, and I'm also
9 the chief accident investigator for our Master Executive Council.

10 CAPT ARNOLD: Nice to meet you guys.

11 MR. ETCHER: So that's everybody that's going to be
12 interviewing you or talking with you today.

13 CAPT ARNOLD: Okay.

14 MR. ETCHER: I keep saying it's an interview. It's not.
15 It's education. My apologies. But, as part of this process, we
16 do record. We do send that recording out to be transcribed. That
17 transcript itself when it comes back, we'll make any typo changes
18 such as misspelled acronyms or whatever. But we don't change
19 anything you say. That transcript itself will become part of the
20 public docket when this case opens up, and just for the record,
21 are you okay with us recording and transcribing it?

22 CAPT ARNOLD: Yeah, I consent to it.

23 MR. ETCHER: Okay. And the recording itself will not be part
24 of any public docket. It will just be the transcript. So you
25 don't have to worry about hearing your voice on the 10 o'clock

1 news at night, all right.

2 CAPT ARNOLD: Okay. Good.

3 MR. ETCHER: All righty. As part of our regulations, you're
4 entitled to a representative if you wish. Do you wish to have one
5 of those?

6 CAPT ARNOLD: Yes, I do.

7 MR. ETCHER: All righty. And for the record, John, could you
8 introduce yourself?

9 MR. HANSON: Good morning, gentlemen. My name is John
10 Hanson, H-a-n-s-o-n. I'm a staff attorney with the Air Line
11 Pilots Association, and my title is senior labor relations
12 counsel. And I'm here to provide legal representation to Captain
13 Jeffrey Arnold.

14 MR. ETCHER: Thank you very much, John. And thank you for
15 calling in to be his representative. So if he has questions for
16 you, we'll go on pause. We'll leave the room, whatever it takes,
17 so you guys can converse as necessary if that become necessary.

18 MR. HANSON: Appreciate that. Thanks.

19 MR. ETCHER: Sure. Before we get started, I always like to
20 have a few rules. I mean we're government, right. We've got to
21 have rules. But, during this investigation, this is not any kind
22 of a checkride at all either. If you don't know an answer, I
23 don't know works perfect.

24 CAPT ARNOLD: Okay.

25 MR. ETCHER: If you have an opinion, awesome, just let us

1 know it's your opinion because 30 days later when I'm reading
2 through this transcript, if I don't know it's an opinion, I'll
3 think it's more fact. So -- and sometimes I do ask for
4 opinions --

5 CAPT ARNOLD: Okay.

6 MR. ETCHER: -- you know, and that's okay, too. But we'll --
7 I like facts because I want to learn. I like opinions, too,
8 because sometimes that's where the need for learning comes from.
9 Just let us know.

10 CAPT ARNOLD: Okay, absolutely.

11 MR. ETCHER: If you need a break to use the restroom, to talk
12 to, you know, converse with counsel, whatever, that's fine. Just
13 say so. We'll hit pause, we'll leave.

14 CAPT ARNOLD: Okay.

15 MR. ETCHER: We'll do whatever. Like I said, we're not in
16 the sim right now. We're not doing anything stressful. It's just
17 we're having a conversation.

18 CAPT ARNOLD: Okay. Perfect. Perfect.

19 MR. ETCHER: All righty. Do you have any other questions
20 before we get started?

21 CAPT ARNOLD: No, I do not. I do not.

22 MR. ETCHER: Okay. I always start the interview with the
23 toughest questions first.

24 CAPT ARNOLD: Okay.

25 MR. ETCHER: So I always get the tough ones out.

1 CAPT ARNOLD: Okay.

2 INTERVIEW OF JEFFREY ARNOLD

3 BY MR. ETCHER:

4 Q. Just for the record, can you state your full name and spell
5 your last?

6 A. Jeffrey Arnold. I go by Jeff, but A-r-n-o-l-d.

7 Q. Perfect. And what is your job title?

8 A. I'm a evaluator and APD and line check pilot for the 756
9 fleet of United Airlines.

10 Q. Perfect. How long have been in that position?

11 A. The current position, just coming up on 4 years. I've been
12 in the fleet for coming up on 10 years. I've been on the airplane
13 for 14 years, flew it for 4 years on the line.

14 Q. Okay. So you've been training for quite a bit of time then?

15 A. Yes.

16 Q. Okay. How do you like doing training?

17 A. I like training. Yeah, it's rewarding. I had some previous
18 experience years ago on an airplane you might have heard of, the
19 727, and I was an instructor on that and LCA on that as well for
20 -- back in the early-mid '90s. So I do, I enjoy training.

21 Q. Okay. Now, in your role, do you actually do ground training,
22 sim training or do you just oversee all that? Kind of help me
23 understand a day in the life if you will.

24 A. You know, as an evaluator, I primarily do qual line events or
25 rating ridings, and -- or continue qual, LOEs. So I'm primarily

1 doing LOEs of some kind, a LOFT checkride if you will. The old
2 term for it under Appendix H but it's -- the new name for it is a
3 LOE. And then as a line check pilot, I'll go out and do OEs or
4 line checks at the line operation as well. And then occasionally
5 we do landings classes as evaluators. That's kind of what they
6 constrain us to. They keep our role pretty defined. And then
7 with -- we have overtime or reserve assignments, and we'll
8 sometimes do seat support. So I'll sit in as either a first
9 officer or captain during other training events as scheduling
10 needs, but my primary job that I do is either qual rides or
11 continuing qual rides.

12 Q. Okay. And you said something, and I apologize. You said
13 landings class?

14 A. We have a -- it's called LDRQ. It's a landings class. It
15 keeps -- it gets pilots landing current.

16 Q. Okay.

17 A. In its basic form, it's three takeoffs and landings to a full
18 stop every 90 to satisfy that FAR but it's a little bit more than
19 that. United's built a little more robust program, and it also
20 gets display currency and some other things. It checks a few
21 other boxes.

22 Q. And is that all done in a simulator or is that actually done
23 in the airplane?

24 A. That's all done in the simulator.

25 Q. Okay.

1 A. Yeah.

2 Q. All righty. And for your simulators, are they Class Cs,
3 Class Ds, Frasca (ph.) sim?

4 A. They're Ds. Yeah, they're all double Ds, yeah. We used to
5 have a Frasca sim. That was for our interviews. That was for new
6 hire pilots. You may remember that.

7 Q. Yeah.

8 A. If you could fly that, you could fly anything. Yeah, they're
9 all Level D sims.

10 Q. Okay.

11 A. We have seven full motion sims in our fleet, soon to be six.
12 We're going to lose one of them.

13 Q. Since we're talking about landings right now, I'll zero in on
14 that just for a little bit since we're already talking about it.
15 The landings class, do you teach people how to land or is it just
16 strictly currencies?

17 A. It's currency but if they're not proficient, then we'll teach
18 landings. We'll train to proficiency with sim time available.
19 Sometimes we have a lot more sim time. Sometimes we don't base on
20 the number of participants. So it is possible that someone
21 doesn't reach that proficiency and fails a landings class for
22 sure.

23 Q. Okay. And ballpark, do you know how often that happens?

24 A. I would be guessing.

25 Q. And that's okay.

1 A. I don't know.

2 Q. I don't know works fine. Like I said, don't hesitate to use
3 that when necessary. Okay. Perfect. So, in these landing
4 classes, do you ever have anybody that just doesn't land it well
5 or are they proficient enough that they can come in and grease the
6 line every time?

7 A. No. Well, we'll have people that have a little struggle or
8 land a little long, and we're hoping that they go around or they
9 may have a, you know, we don't, we don't grade. There's no
10 parameter for grading a grease job landing versus a firmer
11 landing. We just don't -- that's not in our grading criteria, but
12 we're looking at centerline within the touchdown zone.

13 Q. Okay.

14 A. So -- but, yes, we do have people that struggle.

15 Q. And I understand landing long or maybe not perfectly on
16 centerline or whatever, but is there any other issues with
17 landings that you've seen in your time whether doing your LOEs or
18 the landings class?

19 A. We'll see, and most of my time, I'd say 10 percent of it is
20 landings classes and 90 percent of it's qual or continuing qual
21 rides. But in my previous instructor time in the fleet, I did
22 much more of that. So I'm kind of going back to that point, but
23 even as I've conducted the landings classes as an evaluator,
24 you'll see folks occasionally be off centerline, get back to
25 center or they may get a slight bounce and settle down, and that's

1 not uncommon. And a few times I'll get someone that's landing
2 long, and our parameters are that they need to make the touchdown
3 zone the first 3,000 feet or the first third of the useable
4 runway, whichever's less. And if you can't make it, it's an
5 unstable high definition, and they're supposed to go around. So
6 occasionally that happens.

7 Q. Okay. I'm going to ask for your opinion here --

8 A. Okay.

9 Q. -- because you've flown the airplane. You've obviously flown
10 in the sim as well. Are they comparable when it comes to landings
11 or the feel of it in the sim? Is it similar to the airplane? I
12 mean do your pilots say, oh, the sim's nothing like it? But --

13 A. It's similar in the sense of, you know, the simulator's
14 always going to lack some fidelity that the airplane provides.
15 That's my opinion. And you're going to get a better sense.
16 You've got more inputs, more sensory inputs in the aircraft from
17 your sides visually and everything. It just doesn't provide the
18 number of inputs that you have in the real aircraft. So, they are
19 different. I don't know. Does that answer your question?

20 Q. It does. I mean you kind of give me a reason why it's
21 different. So that kind of helps me understand it.

22 A. Okay.

23 Q. Do you hear pilots say all the time, oh, the sim's nothing
24 like the airplane and others are like, it's not that far off? So
25 I just -- I wanted to know what your opinion was with what the sim

1 is versus the airplane.

2 A. Yeah. You certainly need the -- you need the airplane
3 landings to really finish that off because it doesn't do -- like I
4 said, without that sensory input, it doesn't give you I think the
5 input you need as far as -- we always kind of talk about two
6 landings in all the airplanes, but these airplanes especially
7 because they're longer but, you know, you get the mains touching
8 down and then that whole process of flying the nose down to the
9 ground. Those sensory inputs aren't as apparent in the sim I
10 don't think. That's my opinion. It's much more -- I don't know
11 what the term is, but you provided a lot more input in the
12 airplane obviously, and that's the real deal.

13 Q. Okay. So you bring up an interesting question about flying
14 the airplane and two landings, touch the mains and then flying the
15 nose down. What do you mean by that?

16 A. Well, in our fleet, especially we've got, you know, as the
17 mains touch down, there's a lot of pressures back and forward on
18 the nose column because as the ground spoilers deploy, you do get
19 some nose up pitch moments. So there tends to be -- there needs
20 to be an awareness of pitch attitude on landing because it can
21 change, and then as you go into reverse thrust, you've also got
22 that constant drag pulling you down. So a lot of times you're
23 doing a little bit of this, back pressure and forward pressure as
24 you're flying the nose to the ground softly.

25 Q. Okay. Is that maybe your opinion, maybe it's -- you can

1 define it, whatever. Flying the nose down, is that different in a
2 76 versus any other planes? Is it more -- I'm trying to figure
3 out the words I'm looking for. Does it require more pilot
4 concentration on flying it? You know, some flights you can land
5 and just let the nose ease down, no big deal. Some --

6 A. You know, it's been -- I've flown a lot of airplanes at
7 United, and I would say it's no different but, you know, the 57-
8 300s are very long airplanes. The 67-400 is. Those two airplane
9 types tend to be a little more pronounced just because you have a
10 longer moment there, a lot farther against that rotation point for
11 the nose to fall. So they're just different. I would say it's --
12 the fleet is challenging in the sense that we have different
13 airplanes. We have 57-200s, 57-300s, 67-300s and 67-400s, and
14 they all have their little nuances.

15 Q. Okay.

16 A. I think that would be probably what, in my opinion, makes the
17 aircraft more challenging as a fleet.

18 Q. Okay. Now, since they're in the same fleet, the category,
19 pilots can fly a 75 today and 76-400 tomorrow.

20 A. Yes.

21 Q. Is that -- obviously you guys teach a difference class I
22 assume?

23 A. We do a differences class at the end of the course for --
24 specifically for the 67-400 --

25 Q. Okay.

1 A. -- because it's, it's got display differences as well. It's
2 LCD displays instead of the EFIS/MAP. It's PFD/ND, next
3 generation displays versus the EFIS/MAP of 1978, you know. That's
4 what we're going back to --

5 Q. Yeah, right.

6 A. -- which we love.

7 Q. Yeah. So that difference you said is in the 400 series. Is
8 there not -- and again, your opinion is great, and if it's not,
9 just let me know. Is there not a big difference between the 7523
10 and the 76300 series that requires the special difference?

11 A. There's a difference in the feel, yeah. There's a
12 significant difference in the feel of the aircraft, yeah. And
13 upon takeoff and landing, it's definitely something that we teach
14 our pilots to be aware of and we have our simulators. We have two
15 67-300 simulators and then two 67-400 simulators and three 57
16 simulators. So they all get a touch with all those sims.

17 Q. During training?

18 A. During training, yeah. They'll see them all.

19 Q. All right. So for a moment, my condolences in advance, let's
20 say United hired me because they were just that desperate. But,
21 you were stuck with training me. And, you know, we're flying the
22 76/75 combo obviously because you're training me. How would you
23 teach me or is there a way to teach me to land this airplane? You
24 know, I came out of Argent. Can you kind of help walk me through?
25 How would you help me learn how to land this airplane?

1 A. Well, we'd be on full flight sim 1, and we would get you some
2 air work first and steep turns and stalls and that airplane feel.
3 That's kind of what we do in that first simulator. And then get
4 you on a downwind, and then probably -- what I always like doing
5 is I let the airplane auto land first and let you get a site
6 picture. You see exactly coming down that 3 degree glide slope,
7 configured on speed, with the auto land system. And then freeze
8 it at certain points. Maybe even go back and let you see that
9 site picture and then let you start flying it along the fly
10 tracker on the glide slope, and then really developing that site
11 picture where that touchdown zone is and the windshield based on
12 your seat adjustment and setting proper pitch and power. It all
13 starts there, stabilized approach criteria. So we would get you
14 there.

15 And then, you know, the big thing in this fleet is your
16 approach attitude is 2 degrees possibly with flaps 30 gear down
17 coming down a glide path with that normal, you know, rev plus 5
18 target. And our landing pitch attitude is only about 5 degrees.
19 So you're only changing your pitch about 3 degrees to touchdown.
20 So it's real subtle, and it's sensitive. So we would work on
21 that. And it's not uncommon for people to float a little bit or
22 not flare enough and land a little firmer. And so we work you
23 through that, and probably after three or four landings, you'd be
24 getting some success and doing well. But that's, I mean in
25 general terms, that's the sole -- that's how we'd work that.

1 Q. Okay. Perfect. No, it helps me understand, you know, what a
2 new pilot --

3 A. Yeah.

4 Q. -- would feel. I know you're probably aware of the event
5 that occurred in Houston last year. Do you see that kind of an
6 event, a rapid de-rotation happening? Often, ever, never in the
7 sim?

8 A. No, I don't. I don't. I mean, no, not often. Not often.
9 If -- I don't personally.

10 Q. If in the sim, again you were training me. So again my
11 condolences because I'm slow, but if you saw me doing a rapid de-
12 rotation, is there a way that -- to correct that before it bangs
13 the nose down or is it -- do you know? Have you ever seen it?

14 A. Well, you know, I've seen hard landings in the sim, and I've
15 see pilots over control the pitch in the sim. So I can -- but not
16 -- I think once it happens, it's probably too late when someone
17 over controls it and gets the nose going down, and you kind of get
18 that PIO kind of thing going. There's probably not a lot that you
19 can do that close to the ground, you know, it's happening.

20 Q. Okay. So -- and again, your opinions. Mine, too. If I'm
21 rapidly de-rotating and, you know, it's already too late, is there
22 a way to -- is there a proper way to correct a rapid de-rotation
23 in this airplane? I know sometimes my instincts might be to pull
24 back quicker and that might just get that PIO going even worse.

25 A. You know, it depends on where you're at, but if that nose

1 gear's coming down, there's, you know, other than pulling back,
2 there's not a lot you can do which would be the instinct which,
3 yeah, it could -- probably going to be too much, and then you get
4 this porpoising phenomenon going which we've had in this incident
5 it sounds like. I don't know all the specific details. I know
6 there was two impacts on the nose, and I believe 2 weeks later,
7 DHL did almost the same thing, and then 2012, we've got video of
8 ANA doing almost exactly the same thing with the same crease and
9 everything. So it sounds like it's been done before --

10 Q. Okay.

11 A. -- unfortunately.

12 Q. Now, I know back -- I'll say back in the day, granted, it
13 might have only been 5 years ago, but back in the day, it seemed
14 like a 75/76, and that was more of a senior airplane. And I know
15 you guys got other aircraft now that are more senior but you have
16 other aircraft that are more junior. Are you seeing more junior
17 crews coming into the 756 fleet?

18 A. You know, we're seeing about the same. We're seeing -- if
19 anything that's seeing more junior crews, it may be the 78 and the
20 triple are getting new hires, and we're, of course, getting new
21 hire captains. That's a new thing here. And it's been happening
22 at Delta. It's been already, we've -- I think. So what we're
23 probably seeing is less experience though amongst all the
24 applicants and that's industrywide. That's probably the thing
25 that's changed.

1 Q. So considering that --

2 A. Um-hum.

3 Q. -- has that increased trainings workload in training crews?
4 How does that experience factor into a crew learning the airplane,
5 learning what to do?

6 A. Well, I mean there's less, there's less experience to fall
7 back on. So it can, it can be more additional sims or additional
8 training or repeats of maneuvers, those types of things, more
9 training certainly impacts higher training. But I -- that's -- I
10 don't have data to prove that.

11 Q. Right.

12 A. That's what I've observed.

13 Q. So as I said earlier, again you're stuck training me here.

14 A. Okay.

15 Q. And I'm slow. So I need more sims or I need more training.
16 What is that process for somebody inexperienced maybe or somebody
17 just needs more training? What is that process here? Do you
18 know?

19 A. To the point of, you know, from the instructor's standpoint
20 which they would request additional training, you know, and call a
21 simulator session incomplete. And then they would seek out
22 scheduling in the fleet to get that person additional training and
23 write up an additional training request as a formal process where
24 they can share the areas of deficiency and what they think the
25 prescribed -- the prescription we call it, should be. So then

1 training would assign an additional sim to accompany them.

2 Q. Do you know, is that a challenge to get done? Is that pretty
3 easy? Is that almost like, yeah, I figured you were going to need
4 "X" number of more sims for a new hire or whatever?

5 A. No, it's not a challenge. If it's needed, United's there to
6 train to proficiency.

7 Q. So -- and I know you do a lot of LOEs in the sim, QLOEs and
8 everything. So you're giving the guys checkrides. Sorry, that's
9 the wrong word. You're giving them a LOE. But, in doing so, how
10 often do you have a crew that's not successful?

11 A. I don't track it, but I want to say last year I did 58 type
12 ratings, and I'm not sure how many checkrides because some crews,
13 that's just the type ratings I know that I have in the designee
14 management system. Some folks have already been typed on the
15 airplane, and I'm still giving them a qual LOE. So I'm guessing
16 70 or 80 rides. And I think I may have had two unsats last year,
17 and probably three or four short cycle sat, short cycles. So, you
18 know, as a percentage, it's pretty low. It's 2, 3 percent I would
19 say, and the year before I may have had 2 or 3 unsats I kind of
20 remember and maybe 4 or 5 sat short cycles, and that was -- I know
21 I had a higher year that year. It was about 100 total rides
22 because I did 90 type ratings the year before. So we've been
23 busy.

24 Q. I can imagine. Maybe you should come give me a checkride.
25 Sounds like a good -- no, I'm joking. So kind of thinking back,

1 you had a short cycle unsat. Did you say short? Is that what you
2 call it?

3 A. So we have three different possibilities. We have an
4 incomplete or a -- so there's a little different verbiage in the
5 FAA. There's a discontinuance. It's either sat, unsat or
6 discontinuance. In United's AQP world, it's either sat or unsat
7 short cycle or sat short cycle or incomplete, and that incomplete
8 is due to some malfunction or the student is sick -- instructor or
9 student is sick. So it's kind of the same as a discontinuance in
10 the FAA's language. So those are the possible outcomes.

11 Q. So, that's a new phrase for me. Sat short cycle. Explain
12 what that is.

13 A. So United's got a program in place, the AQP document. Pilots
14 -- a pilot sat, he goes out and in our fleet we actually are
15 unique because then we have two more simulator sessions after the
16 LOE for differences. We're the only fleet in the building that
17 has that that I'm aware of but I don't think anyone else does. We
18 have dif 1 and dif 2 for that 67-400. Then they go up to OE, and
19 then they go out with a LCP, line check pilot, and finish their OE
20 and then they're released to the line. So that would be one
21 avenue.

22 The other one would be they're sat, but it's a short cycle
23 meaning the grades were, in the case of this individual, he -- I
24 gave him three 4s. So once you hit two -- you can have two 4s
25 which is minimum performance in an event set. You're still sat.

1 He hit a third one that turns him into a sat that's short cycle.
2 Short cycle says we're going to -- you're going to go out to do
3 your OE. You're going to do dif 1, dif 2, and then go out to OE,
4 but we're going to bring you back in the building in 90 days
5 instead of in 9 months because we want -- you know, you had some
6 struggles. We want to get you back in the building for sim time
7 and training time and make sure that you're proficiency is up to
8 standards. And then once that's completed, then they go back on a
9 normal 9 month cycle. Actually, they go back to a 6 month event
10 because that would be 9 months, 6 months plus the 3, and then
11 they're back on a 9 month. And we see them from a continuing qual
12 basis. That's the AQP document. So I think I told you two of
13 them.

14 The other possibility is unsat short cycle, and that means
15 there was more than three 4s or one 5 graded in any event set.
16 And so it's unsat, and then that means additional training and
17 then a second checkride I guess you could say.

18 Q. Okay. And that's what this individual had. Okay. So -- and
19 I just want to make sure I've got it clear for the record because
20 when I read this, I'll probably have forgotten. Fours and fives
21 in pilot terms are bad. Ones and twos are good.

22 A. Yeah. Ones and twos are good, yeah. Threes are pretty much
23 standard. We see lots of 3s, yeah.

24 Q. All right. Are you seeing these unsats or sat short cycles,
25 are they more captains? Are they more FOs? Is it a hodgepodge of

1 both?

2 A. I'd say it's more, it's more FOs. It's more new hires.

3 Q. And in a ballpark, what are some of the things that are unsat
4 on?

5 A. You know, I've had -- it's a, it's a long answer because
6 there's -- let's see. I've had a crew mismanage some checklists,
7 you know. Our LOE is -- the scope of the LOE is very defined, you
8 know, and very constrained. We don't see everything. It's not
9 like the old Appendix H days where I see multiple crosswind
10 landings and takeoffs and, you know, multiple failures and
11 maneuvers.

12 This is, as you know, it's a LOFT or an evaluation. So we
13 see this window. So it's primarily a CRM/TEM exercise. That's
14 the -- and so -- but what I see crews do, and most of the time
15 it's a deficiency in CRM/TEM and checklist management, non-normal
16 management and that usually results in someone not flying the
17 airplane possibly. We'll see some deviations in airspeed or
18 altitude. I've had crews mismanage a checklist a few times on the
19 fuel leak. I've had them mismanage diversion decisions and then
20 occasionally I've had folks on takeoff mismanage pitch and power
21 and have flap exceedances, get the flaps retracted slower. I
22 haven't, you know, I'm trying to think of landings. Particularly
23 haven't had -- I may have had one person float down the runway and
24 land outside the touchdown zone and not go around. I may have had
25 that.

1 But for the most part, I would say for the first officers
2 it's takeoffs, with not managing pitch and power correctly or not
3 managing the rudder trim on a single engine. That's a big one. A
4 lot of our first officer candidates are coming from aircraft that
5 have -- they're more advanced than anything we have here. They've
6 got -- they're like 787s, but I think it's the E175 and 190s that
7 have, you know, a tach in it, out of trim, out of fuel transfer
8 balancing and it's almost like centerline thrust when they lose an
9 engine. So they come here and that pitch and power and rudder
10 trim, the whole experience is something that they're revisiting.
11 So some of them struggle with that I would say.

12 And then ground ops is another area that I've done more short
13 cycles with where they just aren't grasping the whole takeoff up
14 wings home, runway change. There's a lot of busy things that can
15 happen during our ground ops and pushback. That's part of our LOE
16 scenario. So they'll possibly mismanage that or make errors in
17 it. So I've had a lot of short cycles with that. That gives you
18 kind of a picture.

19 Q. It does. I look for the ballpark picture.

20 A. Yeah.

21 Q. If I try to go around each little thing, my brain would
22 explode. So we don't want that. That's messy. When you have a
23 new hire crew, new hire candidate coming through, are they paired
24 up with a captain or is it two FO, two brand new FOs together?

25 A. The ideal arrangement is a paired crew. That's the best

1 arrangement. Unfortunately we've got more first officers than
2 captains in the fleet because of international operations. So we
3 do have paired -- unpaired crews we call them. So we'll have two
4 first officers and then the priority or the preference of United
5 is to pair an incumbent first officer that's maybe transitioning
6 with that initial FO, so we have someone with some experience.
7 The last possible choice would be two initial FOs.

8 Q. All right. Have you ever recently done a checkride with two
9 initial FOs?

10 A. Yes, I -- well, see, I did one yesterday but it actually was
11 with a transition FO who was still on probation but, yeah, I've
12 done that a lot. Yeah, we do that. It does happen.

13 Q. Do you feel like -- I'm asking for your opinion.

14 A. Um-hum.

15 Q. Do you feel like that if they're two new FOs, they come to
16 you for the LOE, that they're ready to go or is it kind of still
17 risky and a little bit off the tail as they're catching up to the
18 airplane?

19 A. I think most of the time they're ready to go. I think they
20 really are. I mean there's -- they're very nervous. There's a
21 few that are still grasping onto some things and we'll see that.
22 And we'll see that and it ends up in a short cycle or maybe some
23 grades, and it's still sat that are -- maybe it has some 4s in the
24 objectives, but they'll be sat. But, you know, there's no perfect
25 ride as you know, and there's the human side where there's errors,

1 but it's how they track them. That's why I said, there's so much
2 CRM/TEM in this. When we bring them though as two new FOs, two
3 new hired guys show up or gals, we do a split segment. They don't
4 fly with each other. We have a fill in captain, one of our
5 instructors, serves as captain so that they can just sit in their
6 seat and be a first officer and perform their duties. And if
7 that's the case, I see them fly. They're designated as the pilot
8 flying always. So.

9 Q. Okay. Is that -- in your opinion, is that a good thing?
10 Because to me, you know, my humble opinion is pilot monitoring is
11 just as much as work as the pilot flying.

12 A. You know -- yeah. The AQP course is set up to where they've
13 had lots of pilot monitoring, lots of pilot flying for the entire
14 course. And then, yeah, and it can be a threat if we have a pilot
15 who is a single student. That happens sometimes where their
16 partner's gotten sick and so we have to really address that, yeah,
17 okay, they get all this pilot flying time. We've got to make sure
18 that they are pilot monitoring as well because to your point, it's
19 very important to have that skill as well.

20 Q. Going away from this for just a little bit --

21 A. Um-hum.

22 Q. -- the event that occurred in Houston. Do you -- did they
23 give you the name of the pilots to know if you did any of their
24 training or any of their checking events?

25 A. Did the --

1 Q. Do you know who the FO was?

2 A. I do.

3 Q. Did you do his checking events?

4 A. I did.

5 Q. So, I know it's been a while. I have to go way back in the
6 gray matter and if it's not there, that's okay. Do you remember
7 anything about it?

8 A. Yes, I do.

9 Q. What do you remember?

10 A. I remember he -- well, I remember particularly well because
11 he -- I was contacted by the previous evaluator. I was given the
12 assignment on reserve the night before or 2 days after because he
13 had additional training. He may have had a day off. He may have
14 even had a few days off. I don't remember, but he was given
15 additional training. And, the other evaluator, a colleague of
16 mine, Frank Quertell (ph.), contacted me and told me about him,
17 that he had problems with takeoff and aircraft control. That's
18 what he was unsat short cycled for. And so, we talked. He
19 received the additional training, and then I gave him his second
20 checkride if you will, LOE.

21 Q. Thinking back, what you can recall, how was that second
22 checking event?

23 A. He was very nervous. We did another evaluation of limits and
24 needed action items, and we chatted and talked about what went
25 wrong before and if he was ready for the second evaluation. And I

1 really needed to calm his nerves because he was extremely nervous.
2 And so we took a break and then we came back, and he kind of
3 regrouped and performed really well during the -- I don't want to
4 call it an evaluation because it's really not, an oral evaluation
5 more, but it's an operational knowledge review, and he did well
6 there. We talked about what we were doing, and looked up the
7 flight plan. And, he did well with ground ops. In fact, I
8 remember looking back, he did really well with his preflight. He
9 may have missed a couple of things which is not uncommon, and we
10 graded those appropriately if I remember. His grounds ops were
11 good. His CR10 was really good. He really had a good grasp of
12 the uplinks and takeoff performance, first officer's duties on
13 taxi out, before takeoff checklists, his flows were good, you
14 know, not perfect but they were good.

15 And, his awareness of deicing any icing and engine run ups
16 was really good. And, taking the runway, all his flows there were
17 really good. I remember he did -- prompted the captain for engine
18 run and for a static run up because we were in icing conditions.
19 That was a departure out of Dulles to Boston was the LOE. And
20 then his takeoff from rotation rate were good. He hand flew it,
21 and then he did get a grade of -- that event was a 4. It may
22 have been two 4s, one for CR10 and one for technical because he
23 got -- we have a phenomenon of fleet. That's kind of an anomaly
24 in our flight director system, that if -- and he performed the
25 mitigation procedure instead of using VNAV on the climb when it's

1 a low altitude level up at 3,000 feet. We recommend that they use
2 5 level change and clean maneuvering speed instead of VNAV because
3 it's not failsafe, but it's a better chance of you getting a speed
4 out cap in your FMAs versus an eper (ph.) out cap. Eper means the
5 thrust is standard climb, eper even though the pitch is out
6 capped. And if guys aren't aware of it, speed goes up and they'll
7 go through the flap speeds, and I've had crews exceed 250, 260 at
8 3,000 feet because they're just not aware. He was keenly aware of
9 it. He got eper out cap even with the mitigation.

10 MR. HANSON: Jeff keeps going in and out.

11 CAPT ARNOLD: What's that?

12 MR. HANSON: Jeff is cutting in and out.

13 UNIDENTIFIED SPEAKER: I wonder if I should switch my phone.
14 I can put Teams on my phone and put it on speaker. Maybe that
15 will help.

16 UNIDENTIFIED SPEAKER: You want to take a break?

17 MR. ETCHER: Sure, let's take a 5 minute break and we'll get
18 this technical thing taken care of.

19 (Off the record.)

20 (On the record.)

21 MR. ETCHER: All right. We're back on the record then.

22 BY MR. ETCHER:

23 Q. So I believe we talking a little bit about the FO and his
24 second attempt with you.

25 A. Yes, that right.

1 Q. Or not -- well, not with you, but his second attempt with his
2 checkride didn't happen to be with you.

3 A. Yes.

4 Q. And you had talked to him. So I don't remember --

5 A. We were at takeoff where he had some deficiency and that was
6 one of the areas that Vince had said he was graded a 4. I believe
7 he was CRM/TEM 4 and technical was a 4, and that was where two of
8 them arose from. So he got the eper out cap which is an undesired
9 flight management annunciation state even though he performed the
10 mitigation technique for it that helps reduce that tendency but he
11 quickly asked for flap level change again which fixed it. The FMA
12 mode went into the speed out cap and then with all that change and
13 the power and a little bit slower and retracting the flaps, but no
14 limited were exceeded. He got off on altitude a little. So he --
15 I think he got minus 100 plus 100 and then settled right back down
16 into the altitude. It was momentary. That's the grade I gave him
17 for the takeoff. And then he continued to hand fly it which was
18 good, and then eventually got the automation back on. And then we
19 did departed out. And I believe the scenario that he had was a
20 engine fire or possibly low oil pressure. It resulted in an
21 engine being shut down, the pilot monitoring was the captain and
22 then first officer was the pilot flying, and he managed the
23 aircraft really well I thought. Like I was telling you earlier,
24 some of the new hires, especially come out of the commuter ranks,
25 have a hard time with the proper rudder and engine out and

1 managing that asymmetric thrust if you will. So he did a really
2 good job with the stick and rudder on that, and I give that
3 scenario predominantly to especially the new hires just because I
4 see that as an area of weakness.

5 And he did really well with it, managed the trim, got the
6 automation on. They declared emergency. The pilot monitoring
7 which is the captain, execute all the checklists and the first
8 officer, he kept the airplane safe, flew the airplane, made the
9 flight path first as the priority, and they worked really well as
10 a crew, briefed the approach and came around for the approach.
11 They returned back to Washington Dulles. The weather was -- I
12 know it because it's the standard. We always do it. It's 4,000
13 RVR and about 300 overcast, ILS 1 right, and they take care of all
14 the coordination with dispatch and flight attendants and the
15 briefing. And then the captain performed -- I think he took the
16 airplane and the first officer gave a briefing. His briefing
17 wasn't perfect. He forgot a couple things but they covered them
18 later, single engine missed approach. He forgot to brief the
19 entire profile. The captain reminded him and he briefed it. And
20 I remember that being graded appropriately.

21 And then he flew a really nice single engine approach and
22 disconnected the autopilot. I don't remember what altitude but
23 somewhere along the approach, probably close to minimums, and then
24 landed the aircraft and then the landing was the other place that
25 I gave him a 4 on. He had a slight bounce landing, but maintained

1 the pitch attitude until it settled back down and he was slightly
2 left of centerline. That's what we're mainly grading. And -- but
3 returned quickly to centerline and then stopped the aircraft,
4 exited the runway and was graded appropriately. Like I said, it
5 was sat and short cycle because he had three 4s in the event sets.

6 Q. Okay.

7 A. So.

8 Q. So you said you graded him on his landing, and he bounced and
9 went to the left of the centerline and came back. What gave him
10 the 4? Was it the bounce? Was it --

11 A. Off centerline.

12 Q. Off centerline.

13 A. Yeah.

14 Q. So it's okay -- I'll say it's okay to bounce, that's the
15 wrong phrase to say, but it's not a downgradeable offense to
16 bounce?

17 A. No, there's not a criteria for that. There's centerline
18 deviation and touchdown zone, and we don't have a grade on bounce
19 or not bouncing or firmness of a landing, you know. It's
20 certainly -- it's not heard of to have a little bounce. It's
21 single engine. What happens a lot of times is floating because
22 we're flaps 20, and folks aren't used to that. So we'll get
23 floating a lot. In this case, he was aware of that and didn't
24 flare as much as he should have to mitigate that, and then we just
25 got a slight bounce and then came down. And I don't, you know, I

1 don't remember much else about it except that, but he didn't
2 bounce centerline and then went over. It was -- he landed left of
3 centerline. That's what gave him the event set a 4.

4 Q. Okay.

5 A. But quickly returned, and -- yeah, I don't remember anything
6 else that was significant about it after that. After landing
7 flows, exited the runway, went to the gate, and performed the
8 parking checklist and termination checklist, and then the crew
9 debriefed. That's the standard LOE.

10 Q. Perfect. That helps. I'll let my mind chew on that a little
11 bit here.

12 A. Okay. Okay.

13 Q. One last question, and then I'll pass it around --

14 A. Sure.

15 Q. -- to the other folks because you've been talking with me for
16 a while. You've got to be sick of talking to me.

17 A. No.

18 Q. For this event FO --

19 A. Um-hum.

20 Q. -- when he went with you for his second LOE attempt, if that
21 would not have been satisfactory, what would have been the
22 outcome? Do you know?

23 A. That's up to the fleet. I know that they can give a third.
24 It depends on his previous training. It's really out of my realm.
25 I don't really know, but he's a probationary pilot. There's a

1 process in place but there is a review board that looks at, you
2 know, I don't know what the parameters are. I'd be -- I don't
3 know. But they do look at unsuccessful events or folks that have
4 problems in training, and it's usually -- it gets cued by the
5 LOEs, trigger those reviews. If someone's, you know, had a
6 problem with it or I think the other criteria is inability to
7 progress. If someone has that, that triggers it as well, but then
8 those mechanisms and what they do is out of my realm.

9 Q. Do you know, does that happen?

10 A. Yes.

11 Q. Often?

12 A. I mean what happens I should say. If there's a --

13 Q. Yes. No, just kidding. No, if there's a review board like
14 somebody's --

15 A. Had problems.

16 Q. -- done it once or twice --

17 A. Yes.

18 Q. -- or not progressing well?

19 A. Yes, yes, and they'll make recommendations or prescription
20 for further training or if they feel that it's reached its end,
21 then there would be termination.

22 Q. Okay.

23 A. I do know that.

24 Q. I have to ask a personal question because you're human. So
25 it's a personal offence. Does that weigh on your mind when you've

1 got somebody on the second attempt?

2 A. No, no. I mean as a human, I feel for them. I feel for
3 their nerves, and this individual certainly had that, but as far
4 as weighing enough on my mind to alter my grading or judgment or
5 evaluation, no, absolutely not.

6 Q. All right. I told you I had two questions. That was my
7 last. So I appreciate it. I'll pass it to Brice and see if he
8 has anything.

9 BY MR. BANNING:

10 Q. Once again, thanks for visiting with us. We really
11 appreciate it. I think I just have a couple of questions and you
12 may have answered them already. So I apologize if it's redundant,
13 but you talked about 4s and the grading, is it 1 through 5?

14 A. 1 through 5, yes, it is.

15 Q. Okay. And then as the examiner here, if there is something
16 that you -- that one were to see on a check but it isn't
17 necessarily -- does the examiner have some discretion if there's
18 something that you saw that isn't necessarily laid out in the
19 standards? Like you said if it bounces, there weren't standards.
20 If there was a really large bounce, is there any discretion about
21 that on the part of the examiner?

22 A. I think it would -- there is, and it falls under the realm of
23 unsafe. If you feel like somebody's unsafe, yeah.

24 Q. Okay.

25 A. Kind of a universal standard, yes.

1 Q. And that's all I have. I sure appreciate it. Thank you.

2 A. Yes, you're welcome.

3 MR. ETCHER: Michael.

4 BY MR. BROWN:

5 Q. Good morning. Thanks for coming in again. I'm Mike.

6 A. Good morning, Mike.

7 Q. ATC side.

8 A. Yes.

9 Q. How involved is your simulator training? Is it pretty basic?
10 Like can you walk me through how it works for United for the
11 communications side?

12 A. Yeah. It's during our LOFT phase of training. I mean we
13 simulate ATC communications back, clear back into the procedures
14 phase at the very beginning when we're in a fix based simulator.
15 We're not wearing headsets, and we're not really changing
16 frequencies at that point. Once we get in the simulator, we
17 really just start with the flying part. We're still communicating
18 and simulating ATC and clearances and pushbacks, ground control,
19 tower, approach, we'll simulate all those changes. But once we
20 get into the LOFT phase, we put on headsets with earpieces and
21 we're tuning frequencies and switching and simulating, you know.
22 In the case of the LOEs, we do that as well. So it's whatever
23 company policy is, sign them, push sometimes with some of the ramp
24 controllers. They're getting (indiscernible) folks, Washington
25 Dulles, it's mid field ramps. So it's a call to mid field ramp

1 for push and then a handoff to ground. Or, in Chicago's case, we
2 do the whole, you know, Chicago ramp control, south port to
3 metering to ground. We try to make it as realistic as we can to
4 tower, to departure, to center controllers. So we take them
5 through all that. And then communications with the company is
6 also handled VHF usually, although we have sat comm, but we
7 usually just do it VHF for the second radio. So we do try our
8 best to simulate the air traffic control environment and the
9 support that's provided from that side and then also the
10 distractions, when there's an emergency going on as well. So that
11 communication -- I think we do a pretty good of simulating that.

12 Q. So on the emergency side though, is it part of the syllabus
13 when you go through training where you know as the instructor
14 what's going to happen that run? Is that graded as far as how
15 they react and communicate to ATC simulator or --

16 A. Yes. Yes, it is. Yeah, it's part of the universal standards
17 of our AQP document grading, yes.

18 Q. Okay. Is it -- so with a hard landing though, it would be a
19 required call on United to ATC?

20 A. No. You know, we -- so we don't have -- I mean you bring up
21 a good point because what is a hard landing?

22 Q. Tell me.

23 A. We don't -- that's subjective.

24 Q. Correct.

25 A. Maintenance knows what a hard landing is. The FOCA (ph.)

1 folks knows what it is. There's a parameter that's exceeded by a
2 "X" via a side touchdown. There's also a G force that's a
3 parameter but we don't have a G meter or we don't know -- we'll
4 get a printout sometimes on the vertical speed, but again no one
5 knows. Okay. We've exceeded that as a hard landing. I think
6 pilots know when they feel like it was firm or hard, but defining
7 hard landing, that the landing maybe you're saying that it could
8 cause damage. It's nothing that I know that we report to ATC or
9 are required to. Not that I know of.

10 Q. That's what I thought, yeah. That's really all I have.

11 Thank you.

12 MR. ETCHER: Ryan.

13 BY MR. HURLING:

14 Q. Yeah, just overall, Jeff, do you know with LOEs, is there any
15 airports -- I mean is there certain airports that are usually
16 scheduled for LOEs? Is there any that are off limits where you
17 don't want, someone that's maybe had challenges in the seat,
18 saying, okay. We're not going to send them to O'Hare but let's
19 have them go here. Is there any scheduling concerns with that do
20 you know when you take them back out for a second or possibly a
21 third ride?

22 A. In the simulator or --

23 Q. On line.

24 A. On the line. The second or third ride on OE, like if they've
25 had problems with an OE?

1 Q. Yeah, right.

2 A. Not that -- you know, we have special call airports.

3 Q. Yeah.

4 A. So they're not, you know, they're not probably going to go
5 there and, you know, we've got limits on crosswinds. These limits
6 don't apply during the OE. So it's really up to the discretion of
7 the line check pilot.

8 Q. Gotcha.

9 A. But they apply once they're released out to the line, yeah.
10 That is a new first officer -- there's new first officer minimums
11 where some of these limits apply. And then it's really up to the
12 captain's discretion at that point.

13 MR. HURLING: That's all I have.

14 MR. ETCHER: Thanks, Ryan. Captain Demko.

15 CAPT DEMKO: Well, thank you Captain Etcher.

16 BY CAPT DEMKO:

17 Q. Some of the questions I have I think they're more -- they're
18 not even questions per se. They're kind of to give them a better
19 understanding, the NTSB. That's one of the reasons why they're
20 here as Shawn described in the very beginning of the interview
21 process, that he's here to learn and understand.

22 A. Right.

23 Q. So a lot of these are not, you know, I think it will give
24 them a little bit better understanding of what happens. As you
25 know, I obviously fly the aircraft. I am the recipient of a lot

1 of new pilots that come out of IOE, and they go out on the line.
2 So I see some pretty interesting things. But as an evaluator, in
3 the simulator, do you see issues with the differences in the fleet
4 between the 757 versus the 76-300 and the 76-400 because those are
5 the sims that we have? I don't believe we have a 300 -- 75-300
6 sim.

7 A. We don't.

8 Q. And what I mean with that is the differences, the issues
9 where they're transitioning between those simulators. So one
10 training event, they're in a 757 and then the next one they're in
11 76-3 and then they're in a 76-4. And do you see any issues with
12 the pilots and the differences in pitch? I think that's one of
13 our main concerns here, is the actual pitch of the landings with
14 tail strikes, hard landing, soft landings with excessive
15 derotations.

16 A. You know, I don't see, I don't see a huge problem or -- you
17 know, with guys going back and forth. It's something they
18 definitely have to be aware of its control force especially going
19 to the 67-3 because it's so light and pitch sensitive. But I
20 don't see like an ongoing problem. You know, if someone's taking
21 their LOE, ideally it would be nice if they were in the 67-3 the
22 day before, had some of that recency. Not always the case.
23 Sometimes they've been in a 57 two days before or one day before,
24 and then they're in the 67 with me for the LOE or vice versa.
25 And, they seem to be cognizant of that, but there may initially be

1 a little slower rotation because they're now in a 57 and they, oh,
2 yeah, I've got the feel of this now. So there's -- it's
3 definitely an adaptive thing. And I don't know if I'm answering
4 your question correctly. But if I see it, I really have a
5 problem. Is that what you're asking?

6 Q. No, just the issue. So in -- you're going into my next sort
7 of question, and you describe feel. You know, also with the
8 sensitivity of the differences in the aircraft, and if you can
9 explain to the Board and for the question, to answer these
10 questions as far as what are those differences because there are.
11 Flying the 757, and again, I'm not leading your question -- your
12 answer.

13 A. You're asking --

14 Q. They're heavier --

15 A. Yes.

16 Q. -- where you have different controllability in the 767
17 aircraft, specifically the 76-4s. Describe to them how some are
18 heavier and some are lighter.

19 A. So to me it's in a way kind of opposite. You'd think the
20 smaller, lighter airplane would be lighter and the heavier one
21 would be heavier. It's the complete opposite. 57-200-300 are
22 like driving a manual steering Ford truck, you know, that '65
23 F150. It's more of a sports car though. It's the Porsche, and
24 the 67-300 is more like the Cadillac. It's power steering,
25 lighter on the control. There's a lot more power back to those

1 controls. It's assisted. The 67-4 I always called Goldilocks.
2 It's kind of right in the middle. It's got the heavier feel than
3 the 67-3 but not as heavy as the 57. So -- and then, you know,
4 57-300 a little different, too, because it's 22 some feet longer
5 than the 57-200. So it's got a little different moment out there.
6 So it has a little different feel as well. So, yeah, there's some
7 marked differences in the aircraft for sure.

8 Q. And with that going -- continuing on with this
9 controllability and the feel and the sensations, we're talking
10 obviously in sims. The last answers to our questions. In the
11 real aircraft, obviously these are the same, controllability, you
12 would agree with that --

13 A. Yes.

14 Q. -- as the sim?

15 A. Yes.

16 Q. Third question I guess would be have you personally, doing
17 your LOE qualifications, so you're on the line now. You're acting
18 as an LCD, and now they're to the IOE environment. And these
19 obviously wouldn't be specifically students that you've seen given
20 probably their type ride. So now that they're in the real
21 aircraft versus the simulator, do you see any issues with some of
22 the students that come out of the regional jet aircrafts such as
23 the Embraer Air product which would be the 145 series and also the
24 Bombardier CRJs which the CRJ specifically has the extreme nose
25 down attitude. Have they -- have people within our training

1 corps, have they identified that there are some rogue (ph.)
2 memories in that where landing the Embraer Air product requires
3 extensive pushover of the controls upon landing. It's a normal
4 process and with the CRJ, with the Bombardier, you have that
5 extreme nose down attitude and you're basically landing near 0
6 pitch to a relative low pitch. Is that brought up to you as an
7 evaluator and then do you see that on the line as a LCP?

8 A. I personally haven't seen it, but I've -- it's widely
9 recognized. I've talked to my other colleagues that have
10 experienced that.

11 Q. So our Company has identified that -- or within our training
12 realm that there are potentially rote memories about that.

13 A. Yes.

14 Q. Okay. Let's see. And then we talked about pull back
15 rotation and control forces. And then lastly as a LCP on the
16 line, have you seen -- have you had any experiences with students
17 in the simulator having landing issues such as extreme pitch
18 variances? And what I mean by that is you have a pilot who
19 potentially has flown extensively, and I'm talking about your
20 normal line operations, where you've gotten them later on in their
21 IOE experience. So they've flown a lot of 767 aircraft or vice
22 versa and have flown a lot of 75 and 76-300 where they're flaring
23 at different attitudes or different heights. So I have seen where
24 somebody's spent a lot of time in 767 product and now they're
25 coming to the 75 and they're flaring the aircraft at 30, 40 feet

1 and basically leveling the aircraft off thinking that their pitch
2 or their sight viewpoint is actually roll memoried (ph.) into the
3 767. Is that something that you do see?

4 A. I've experienced that. Yeah, I've experienced that. I don't
5 know I would say quite often but I have experienced it. And, full
6 qualification, I don't do a ton of those because they keep me
7 here. You know, they let me go here, and they're, well, we can't
8 let you go. We need you for checkrides. So I don't do as much as
9 your normal full time line LCP.

10 Q. And during landing classes, would you happen to see that --

11 A. Yes.

12 Q. -- as potentially sometimes an issue?

13 A. Yes.

14 Q. Whereas they're having this sight picture of an aircraft
15 that's not specific to the aircraft they're flight --

16 A. Yes.

17 Q. -- at the moment in time?

18 A. Yes. They make mental recognition of that. I get a lot of
19 crews even on LOEs that they say, I haven't seen the 57. I see it
20 once every 9 months in the year. They fly in that year the 67.
21 So they have to make that transference or vice versa.

22 Q. And that leads me to another -- not -- an answer from you but
23 is how often do your students or candidates that come back here
24 through the QCL process use the verbiage, I haven't been in the
25 767-400 since the last time I was here?

1 A. Often.

2 Q. Very often?

3 A. Yeah, very often. Yeah. Depending on their seniority, yeah.

4 Q. Yes. And then let's see. So I've personally -- I've --

5 A. No, it's interesting.

6 Q. Let's go now back to the speed brakes. This is something
7 that I think had come up with this event. Do you see in the real
8 aircraft during your normal landing operations and flight in the
9 real aircraft speed brakes that don't deploy into the open or from
10 the on position into the fully deployed position on touchdown?
11 Has that happened to you or have you heard about that where an
12 aircraft will touch down and the speed brakes do not deploy?

13 A. I've heard of it. I've seen write ups, yeah. And
14 occasionally it'll be deferred, but it's been a while since I've
15 seen that.

16 Q. And obviously that requires you to deploy it yourself, and do
17 you see any reactions if you are the pilot monitoring versus the
18 pilot flying that when you do deploy those E brakes that
19 potentially that gives the person -- so if you're the pilot
20 monitoring, when you bring that as the captain, and you bring that
21 out, is there any variance in how the pilot reacts to that
22 sometimes or --

23 A. You know, on my operations, I really don't know. I can't
24 remember the last time I had that. It's been a while.

25 Q. That's fine.

1 A. It's not that common but it does happen.

2 Q. And then other than the sim, have you ever -- has that ever
3 occurred where actually the speed brakes don't deploy.

4 A. It happens a lot in the sim.

5 Q. It does?

6 A. Yeah.

7 Q. Okay. Interesting. That would be interesting. And in your
8 experience as well, do you sometimes feel that you haven't --
9 specifically in 76-300, I noticed this as well. Do you feel that
10 it's not in -- the D-10 seem to be one up, for lack of better
11 words, that actually finding the sweet spot that you think it's
12 on, because there is not light, correct, to say --

13 A. There's no light. It's a position, yeah. And it definitely
14 takes a cognizant effort to observe that and make sure it's there
15 from the pilot monitoring and, you know, the captain usually can
16 feel it pretty easy just because of physically where it's at but
17 if you're in the right seat monitoring, you definitely, which I am
18 a lot, you know, will look over and make sure it's in that detail,
19 yeah. But, you know, I think most of our sims, it works pretty
20 good, but there's a couple that just seems like it a ride up and
21 you see a lot that's not deployed on touchdown.

22 Q. Interesting. All right. And my last -- it's not really a
23 question but if you can describe to the Board our process here. I
24 think it's very important that they know what the initial IOE
25 process is. So a student has graduated through the training

1 center here in Denver. They have passed their ride, and now
2 they're going to go out to the real world and they're on the first
3 trip. What do we do in the air as far as -- you being an LCP,
4 what do you do as far as -- are you the flying pilot, are you the
5 pilot monitoring, because I'm sure they should know this, what we
6 do now, and I think in the past, we did a little bit different but
7 what are the procedures.

8 A. Yeah. So we'll get contacted by training ops, scheduling,
9 that they've misscheduled for OE. We have information exactly
10 what it is, if it's just a brand new OE, OE refresher. We've got
11 all these different codes depending on what their lack of currency
12 is, but for the most part, brand new hire, coming out of our
13 training program for LOE. We'll make contact with students of a
14 time and place to meet. We'll brief ahead of time, usually 2
15 hours, 2 1/2 hours before the flight and we'll go over just some
16 ground rules and safety flight type things and transfer of control
17 and intervention levels. We make sure that we have some of those
18 ground rules up front and, you know, that if there is something
19 that needs corrective action, that we'll say, I have the airplane,
20 you have the airplane and they're off the controls if that happens
21 which is pretty rare. I haven't had to do that. So -- but we'll
22 go over that.

23 And then we'll get briefing into the normal weather, NOTAMs,
24 pilot bulletins, flight plan, we'll do all that normal briefing
25 ahead of the gate early where they get -- what I actually do, if

1 it's -- it depends if it's a first officer or captain. So, I
2 guess if it's a first officer, I usually get them to the cockpit,
3 and let them start that, and I'll go do the walk around just to
4 unload them a little bit, let them concentrate on that part of it.
5 And that's where they're comfortable. That's where they've been
6 in the sim, and then if it's a brand new hire first officer, I'm
7 the pilot flying by our regulation, by our policy now, and the
8 first officer is the pilot monitoring on that first leg. If it's
9 a new captain, we don't have to do that. They can be the pilot
10 flying on the first leg and it just depends on the situation.

11 So, they'll perform PM duties, wherever we're going, and then
12 that next leg, they'll be the pilot flying usually. So that's
13 kind of the process. And our -- you know, our fleet, there's
14 going to be two different OE LCPs usually because just of time
15 constraints, we'll get a couple of people that work with them a
16 lot most of the time just because there's a 67-400 requirement,
17 that they see the 67-400 and that they do a landing qual. So
18 usually we'll get that on one pairing 3 day trip, 4 day trip, and
19 then they'll get a domestic 4 day usually. What they need is a
20 minimum of 25 hours, hard hours, as an initial first officer or
21 captain. And, they'll get to see -- the requirement is they see
22 57 and 67. So those boxes all get checked and, you know, it's
23 kind of building block grading, and at the end of it, their last
24 leg of the pairing with the last LCP that they've seen everything,
25 that's their qual line check if you will, and then they're signed

1 off for solo. That's kind of how the process works.

2 Q. And your -- you described they get the minimums in the 757
3 and 767.

4 A. Yes.

5 Q. Now, again how often will they get 767-300 versus 200? I
6 know you're not going to have an exact here and, of course,
7 obviously we have differences between the 767-400 and 300. Are
8 there potentials that they only 76-4 with no 767-300 OE experience
9 and do eventually get on normal line flying?

10 A. That happens.

11 Q. That happens.

12 A. Yes.

13 Q. And in your opinion, would you -- this is your opinion. Is
14 there a little difference or a major different, minor difference
15 between the 767-400 and the 300?

16 A. There's a big different. Yeah, I think there's differences
17 that are important. It's a different feel. Like I said, 67-4,
18 it's PFD/ND display. That's a big difference, and then the feel
19 of the aircraft is different. It's a longer aircraft. It's
20 heavier. The 67-3 is the lightest aircraft we have in terms of
21 control feel.

22 Q. And one other question or if you can describe the 767-400
23 landing gear configuration as far as tilt versus the other
24 aircraft? And in your experience, has that been maybe a
25 consideration of letting the student know that we have a different

1 tilt of the landing gear?

2 A. Yeah, it's definitely a tilt this way. So you're prone to,
3 at least I am, I'm speaking, you know, I know not as good as you,
4 Steve, but --

5 Q. You know I'm (indiscernible) with all these questions.

6 A. Yeah. You definitely -- the 67-400 is one of the more
7 difficult aircraft I've flown to be consistent landing. Not that
8 there's bad -- you know, that there's firmer landings and then
9 there's some, you know, it's -- I've heard some that's landed it.
10 I said, I don't know what the problem is with you guys. I landed
11 in Zurich and it was just a grease job and then I quickly got
12 ameliorated when we went back to Newark with a crosswind. And the
13 other thing with the 67-4, the length of the aircraft and the
14 geometry, it doesn't like any side loading at all. You can have a
15 really nice touchdown and then your rudder forces on you with that
16 side loading is greater than any aircraft I've flown, and I've
17 flown pretty much all of them here at United except the Airbus.
18 So. Yeah, there's differences between the 67-3 and that gear
19 geometry and trajectory all make differences.

20 CAPT DEMKO: That's all I have. Unless you would like me to
21 go on for another hour.

22 MR. ETCHER: I'm not putting any restrictions on you. Okay.
23 Well, that's the end of round 1. Round 2 always goes quicker.
24 Are you doing all right? You need a break?

25 CAPT ARNOLD: Doing good.

1 MR. ETCHER: Okay.

2 CAPT ARNOLD: Doing good.

3 BY MR. ETCHER:

4 Q. I only have like 14 pages of questions. I only have a few.
5 You really helped --

6 A. Good.

7 Q. -- and you've followed up with what others have asked. Since
8 we were talking about the geometry and all that, maybe it's your
9 opinion, maybe it's fact, I'll let you decide which you want to
10 give me. Is the 75-76, being in kind of the same fleet, is that a
11 good thing or should they be more separated? I know they're
12 similar, same type rating, but should they be in the same fleet?

13 A. It's an age old question, right. It's been going on 35 years
14 or so.

15 Q. I thought I just came up with that.

16 A. Yeah. No, it's been a -- I don't know. You know, the
17 airplane's been around and it's been a -- it's common type ratings
18 since whenever the 57s got here in the late '80s, 67-200-300 or
19 67-200 first and they went common type. So just because it's been
20 that way for 35 years, doesn't mean it's -- it has been a combined
21 fleet at all the carriers. I think it's manageable, I think it is
22 but, you know, we do have -- it's got to be managed properly. I
23 think that's the answer.

24 Q. And do you feel like training here helps the crews manage the
25 difference properly? Are there improvements that should be made

1 at --

2 A. Are you asking my opinion?

3 Q. I'm asking you a loaded question. I just --

4 A. Are you asking my opinion?

5 Q. Whichever you wish.

6 A. Yeah. I think the training curriculum has been satisfactory
7 over the years with the experience level of the pilots, not to put
8 all of that on that, but with a changing environment, perhaps
9 there could be changes in it. And I think the OE, having that
10 time that you need to have in each aircraft type, 67-300, 57-300,
11 57-200, 67-4, I think that would be the ideal solution when you
12 have a line check pilot with that student to see all the aircraft.
13 I think that's really where -- because we don't have, we don't
14 have a 57-300 sim. We just don't, and it's similar enough to 57-
15 2, that it's probably not necessary, but the aircraft flies
16 different. So the only way we're going to get that is to see that
17 and 67-3 and the 67-4, we have the sims and the pilots are exposed
18 to it, but I think exposure on OE would be really helpful with the
19 LCP. So.

20 Q. Okay. Since you're talking about OE, and I know you said a
21 new hire FO is 25 hours is the minimum. How many -- have you
22 heard of any FOs hitting that 25 hour minimum and being good to go
23 or is there usually a lot more time than that?

24 A. No, I think, I think a lot of our guys really do well. I
25 don't have data on it. Our line training managers would be the

1 ones to ask about that, but I know folks are release, you know,
2 with close to the minimum time, and they do well.

3 Q. Do you, do you -- and I don't mean you, I mean you in
4 training, do you guys get feedback from line check airmen on OEs,
5 like, man, you guys are sending us people that are awesome or
6 you're sending us people that, wow, maybe you should have kept
7 them a few more times?

8 A. We do in a general sense. We have bimonthly line check pilot
9 calls. Line training managers are on that call and they'll
10 address trends and get feedback back to the line check pilot
11 group, you know. So, yes, we do. And then that eventually comes
12 back to the training department, and then gets disseminated onto
13 the evaluators and instructors. So, yeah, it's not a direct like,
14 hey, this student you had, it's not that direct, but it's in
15 general terms.

16 Q. And when you get that feedback, does it usually require you
17 guys to make some change? Is it just okay, there's a data point.
18 Kind of help me understand what you guys do with that feedback.

19 A. Well, there's some feedback going now and it usually results
20 in a training bulletin or a pilot bulletin and I believe we have a
21 hot item now which is derotation, landings in the 757 fleet. So
22 it's an awareness thing on tail strikes that we've had. I just
23 did a -- like 2 weeks ago, a Flight Safety investigation. It was
24 a tail strike on takeoff -- or excuse me, on landing in Dulles and
25 again Dulles. And so with that pilot bulletin in place, we've got

1 a lot of areas that we can address and we did additional training
2 to try to help mitigate that incident. Landings is where we have
3 historically seen more of the tail strikes. So we've got -- and
4 again, that derotation or pitch changes and pitch management in
5 landing is definitely a hot item right now because of some of the
6 trend that we're seeing. And, that's, that's come out of Flight
7 Safety investigations and FOCA data and it's some of the feedback
8 from the line check pilots to the fleet.

9 Q. Okay. I know you just mentioned tail strikes, and I know
10 Mike had asked about derotations. Do you report anything of a
11 hard landing or whatever to the ATC? Do you guys have any
12 requirements for pilots to report tail strikes to the ATC?

13 A. We have a company reporting. It's a pilot report. It's IOR
14 we call it, and it's a write up. As far as ATC, if we have
15 aircraft damage, then, yes, but I don't know of a requirement to
16 report that to ATC. I don't know.

17 Q. So if I'm flying and I crack the tail, there's no guidance in
18 the manuals that says, hey, if you think you struck your tail,
19 notify ATC during taxi in or whatever so they can make sure you
20 didn't leave parts of the airplane out there.

21 A. Yeah, I would say if we thought there was damage or we
22 scraped a tail, I would think that would be the prudent thing to
23 do, but I don't know the exact verbiage or requirement. I'm not
24 clear on that. Report to the company, report to the -- and if I
25 did think it was a -- we caused damage or something like that,

1 then, yeah, we report it to ATC to check the runway.

2 Q. All right. I know you had said -- Captain Demko was asking
3 you questions about speed brakes not deploying in the sim. You
4 said it happens a lot.

5 A. You know, I should rephrase that. It -- there -- I was
6 thinking of one sim and one little period of time that was like,
7 that thing's not deploying again and we've got to write that up
8 again. So I would say, no, it's not a lot. It's just going back
9 to that one simulator that was a repeat offender if you will, but
10 I have not seen that happening as much lately, but it was -- there
11 was a period, maybe a couple of months ago that it was written up
12 and maintenance had corrected but it still was happening. I think
13 they finally got to the bottom of it though.

14 Q. I know this is a sim, but do you know what they did to
15 correct it?

16 A. No.

17 Q. I wasn't sure if they're like, oh, we found the missing wink
18 or something. I wasn't sure.

19 A. No, I don't know what they did.

20 Q. Okay. I know my questions are all over the place. So my
21 apologies.

22 A. No, really.

23 Q. When you do a LOE, an L-O-E, how many choices do you have?
24 Like who? I can go test this route, I can this route or this
25 route? It's kind of your choice. You do what you wish.

1 A. There's three choices, and we have a calendar code to try to
2 get an equal number of events per each evaluator. But we have our
3 discretion, too, if need be.

4 Q. So you can't just say, well, this guy has trouble with
5 whatever, so I'll give him this because it's more challenging.

6 A. Well, you know, the -- you do have that discretion, but it
7 depends on the crew makeup. So if it's a paired crew, I've got
8 three choices. It's a Chicago to Dulles, excuse me, LOFT, and if
9 it's a, if it's an unpaired crew but one of -- neither one of them
10 are new hires, then it's two segments, Chicago-Dulles with one of
11 three scenarios, and then there's a second segment, Dulles-Boston
12 with one of three scenarios. And then if it's two first officers
13 and either one of them is a new hire, then it's a different flight
14 number, Chicago-Boston with some three different scenarios. So
15 it's -- does that tell you. It's confusing. Someone's always
16 trying to figure it out, but it depends on the crew combo. And so
17 -- and we are, you know, given discretion but as a general guide,
18 we'll follow that calendar day. I tend to -- I do look at the
19 look back. It's part of my requirement to look at the grade sheet,
20 look back and if I see -- what I typically find and I think
21 earlier was some problems with rudder trim management with engine
22 out operations. So I more often than not give that scenario just
23 because I think I get a better look at their safe airmanship with,
24 you know, one of the more challenging events.

25 Q. And how often do these LOEs change, the L-O-E-s?

1 A. We've not changed ours in quite a while. I can't say for
2 sure, but I would, I would say it's probably been 7 or 8 years
3 since I know of. Yeah. The CQ events change every year and a
4 half.

5 Q. Right.

6 A. But the qual LOEs, that's been the same for -- I mean but
7 we've got so many different variables, so many different
8 components that it's --

9 Q. And that makes sense with all those variables.

10 A. Yeah.

11 Q. That's why I was curious how often you --

12 A. Yeah.

13 Q. It would be hard to come up with that many variables every 18
14 months or so.

15 A. Right, right.

16 Q. All right. I know it's been mentioned several times
17 experience level of crews and how they train and all that.
18 Considering the -- I know everybody in the news calls it the
19 shortage of pilots or various things. I'm sure you're gaining
20 some experienced pilots and maybe some not as experienced. Is
21 there any discussion that you're aware of to increase training to
22 the training footprint because maybe you're getting more
23 inexperienced pilots versus experienced than typical?

24 A. Not that I know of. I mean, on an official level?

25 Q. Right.

1 A. Yeah. Not that I know of.

2 Q. Is that something that -- and I'll ask for your opinion here
3 so you don't -- you're not held to anything since it's your
4 opinion. Is that something that could be done, should be done, no
5 need to?

6 A. I think there's always room for improvement. I think it's
7 something that United would look at and then they may be looking
8 at. Again, it's above my pay grade, not to use that term, but I
9 know United runs a safe operation and safety's paramount. And
10 we've got a great safety record, and I know that it's something
11 that they're going to look at if the need arises. And I -- and
12 based on some of the qualifications and background of the
13 students, I think it would make sense if you want my opinion to
14 change the footprint or add a day or, you know, just for
15 comfortable level if they're seeing a need and a trend. And I
16 don't have that data but, yeah, I think it would make sense.

17 Q. Perfect. And my last question, believe it or not, you're
18 almost done with me.

19 A. Okay.

20 Q. In training, how often do you see the FAA come through?

21 A. Fairly often. Fairly often. Yeah, I'll see them a couple
22 times a month, you know, and they're here more than that but just,
23 you know, if I see them in the hall or on my events, they observe
24 me at least once a year. And then we have our own QC, quality
25 control process in house where QC evaluators observe me at least

1 once a year. So we have an internal quality program, but then we
2 have two FAA air crew program managers if you will that are
3 assigned to our fleet, and they're here pretty regularly on
4 different events and different certifications and observations and
5 qualifications. So -- and then their own currency, they have to
6 stay current once a year as well. So we've got a good couple
7 individuals that have previous airline time like you as well that
8 are here. So we've got a good crew.

9 Q. So -- I told you that was my last one. When's the last time
10 they sat in on one of your checks? The FAA that is. I'm sorry, I
11 need to be specific.

12 A. Probably about 3 weeks ago.

13 Q. Okay.

14 A. It wasn't my -- I shouldn't say -- it wasn't my check but it
15 was one of our line training managers getting checked out as a
16 line check pilot, and I was sitting left seat for him and our FA
17 was in the sim observing, but once a year typically is my -- is
18 the observation requirement. So that's what they did.

19 Q. Perfect. You've helped a ton educate me. Now, if the brain
20 could just retain it, it would be great, but that's why we record.
21 So it helps me retain it.

22 A. Good.

23 Q. So I appreciate it.

24 MR. ETCHER: Let me go around the room. Brice, you've got
25 any questions?

1 CAPT ARNOLD: Do you have a -- as I was going to say, the
2 only thing I'm going to ask for is a quick bathroom break.

3 MR. ETCHER: Oh, do you need a break?

4 MR. HURLING: And we've got a sim starting.

5 CAPT ARNOLD: Okay. Okay. So perfect. Okay. I can do
6 that. I can do that. I'm starting to get the -- look what you
7 did here. Coffee.

8 MR. BANNING: I don't have any questions. Thank you. I
9 appreciate it.

10 CAPT ARNOLD: Thank you, Brice, appreciate it.

11 BY MR. BROWN:

12 Q. I just have one.

13 A. Yes, sir.

14 Q. You said earlier you pull up safety bulletins. How are those
15 disseminated?

16 A. They're in our electronic flight bag. So they're in our
17 iPads, and then we'll usually get an email as well to alert
18 people. And then we disseminate them in Pilot Mobile as well for
19 the line pilots. So that's our, that's our app that all the
20 pilots go to, to check in for their fit for duty. And then we've
21 kind of got a safety net. It's kind of a great system because you
22 can't download your flight plans until you've read all your --

23 Q. What is it called again?

24 A. It is called Pilot Mobile. So that's really the go to app in
25 the electronic flight bag or iPad. And so the pilots have to view

1 those --

2 Q. Okay.

3 A. -- pilot bulletins before they can get their flight plans.

4 And then here in the training center, they're disseminated as
5 training bulletins and pilot bulletins. We get both of those.

6 And then we also disseminate them to the crews via hot items.

7 Q. Are those shared among the carriers or just United specific?

8 A. Those are just United specific.

9 Q. So you don't get from other carriers as well per se, hey,
10 we're seeing a trend in this? Do they share that with you or you
11 with them?

12 A. I'm guessing they do, but I don't --

13 Q. (Indiscernible).

14 A. Yeah, it would be re-disseminated in a pilot bulletin to us,
15 not from -- separately from that airline, yeah, that data.

16 Q. That's all I have. Thank you.

17 MR. ETCHER: Mr. Ryan?

18 MR. HURLING: No, I'm good. Thank you very much. Thanks
19 again, Jeff.

20 CAPT ARNOLD: Yes, you're welcome. It's been my pleasure.
21 Hope it was helpful.

22 CAPT DEMKO: I have nothing. Thank you much as well.

23 CAPT ARNOLD: Yeah. You're welcome. Thank you.

24 MR. ETCHER: I appreciate the education, and it helps me a
25 lot. So I appreciate it. This way, I don't have to keep calling

1 you and going, hey, what about, you know?

2 CAPT ARNOLD: Yeah. Well, you can call me whenever you like.

3 MR. HURLING: Hey, John, we're done with our questions. Do
4 you have any questions for Jeff before we close it out?

5 MR. HANSON: No, I don't think so.

6 BY MR. HANSON:

7 Q. I guess I just might add Jeff had a really good recollection
8 of the LOE that he administered for the first officer in this
9 investigation. And I just wanted to ask you, Jeff, if you looked
10 at anything prior to the interview to kind of brush up your
11 memory?

12 A. Yes, I did. I looked at the grade sheet.

13 Q. What did you look at?

14 A. I looked at the grade sheet, looked back, so I was able to
15 look at the LOE and the grades and his entire grading, training
16 record here.

17 Q. And there's nothing wrong with that. I just wanted to kind
18 of note that you would have an incredible memory if he could bring
19 forth that level of detail --

20 A. Yeah.

21 Q. So I just wanted to get that on there. Thanks.

22 A. Absolutely. You bet.

23 MR. HURLING: Thank for the support, John. We appreciate
24 you, sir.

25 CAPT ARNOLD: Thank you, John.

1 MR. ETCHER: We will call this interview completed at 9:55
2 a.m.

3 (Whereupon, the interview was concluded.)
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CERTIFICATE


This is to certify that the attached proceeding before the
NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: BOEING 747-322 ACCIDENT WHILE
 LANDING AT THE GEORGE BUSH
 INTERCONTINENTAL AIRPORT IN
 HOUSTON, TEXAS ON JULY 29, 2023
 Interview of Jeffrey Arnold

ACCIDENT NO.: DCA23LA384

DATE: February 13, 2024

was held according to the record, and that this is the original,
complete, true and accurate transcript which has been transcribed
to the best of my skill and ability.



Kathryn A. Mirfin
Transcriber