



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

December 7, 2020

Attachment 1 – Crew Interview Summaries

OPERATIONAL FACTORS/HUMAN PERFORMANCE

DCA19IA036

This attachment contains the interview summaries of the captain and first officer.

- Captain John Louis Welinski
- First Officer Peter Wesley Van Pelt

Interviewee: John Louis Welinski, Captain, Southwest Airlines

Representative: Stephen Walsh, Condon-Forsyth

Date / Time: December 14, 2018 / 1100 EST

Location: Teleconference

Present: Marvin Frantz, Sathya Silva, National Transportation Safety Board; Patrick Lusch, Federal Aviation Administration; Rich Lee, Boeing; Kevin Fergerson, Southwest Airlines; Greg Bowen, Southwest Airlines Pilots Association

During the interview, Captain Welinski stated the following:

He was 58 years old. He attended the University of Washington and went to OCS. He had started flying in the US Marine Corp. He had retired from the Marine Corp in 2005 after 23 years, during which he had flown and instructed in the EA6B and navigation in the T2. He instructed in the EA6B on Whitby Island until 2005. He had started at Southwest in January 6, 2006 and upgraded to captain in March of 2016. He held an Airline Transport Pilot certificate with a B-737 type rating. He was not instructing at SWA. He had about 15,000 total flight hours, with about 12-13,000 hours in the B-737. He had 2,700-2,800 hours as a captain in the B-737.

He flew into Burbank typically every month and estimated he had landed there 80-100 times. He had never encountered conditions such as the conditions on the day of the incident. It was generally VFR weather when he flew into BUR. He had not landed there with any significant precipitation, though occasionally there would be a tailwind since they like to use runway 8.

He was a commuter and came into Oakland the night before the incident flight, ate, and stayed in a hotel. He got up at 0530 the morning of the flight and took a 0630 hotel van to the airport. He checked in for the flight at 0650 for a 0710 report time. He got to the gate about 0730 for a 0740 show at the gate. The FO was already there and had done pretty much all of the pre-flight checks and paperwork. The flight attendants were there too and had come in from Boise. He greeted the crew, did the introductions and his briefing. He talked with the first officer who was a commuter from Germany. The briefing and airplane loading were standard, and they pushed from the gate ten minutes early, about 0800. The takeoff was at the original push time. The flight was cleared for the CNDEL 4 departure. They were cleared up to 2 or 3000 feet, vectored, then put on the departure direct CISK0 then flight plan route. They completed their 10,000 ft checks, were cleared up to 18000 feet, and finally FL330. It was originally planned for FL310, however ATC gave them FL330 for smoother air. The rides were smooth, and he let the passengers up. The FO got the weather and did the PWB calculations. He briefed the entire ILS 8 approach and the ROKKR 2 arrival procedure. He recalled the runway had a quartering tailwind 280@5 knots. They flew the arrival. Both pilots had flown into BUR multiple times. The PWB landing report said max autobrakes were required which meant that the stopping would be more aggressive than usual. He had the FO brief the passengers, and he briefed the flight attendants about the strong braking they should expect on landing. They were originally cleared to RDHOT, but ATC changed them to HIIHWY. They reprogrammed the FMC and descended via the arrival from 7000 ft to MIKEI.

He briefed the missed approach, and they were cleared for the approach as they approached the MIKEI waypoint. There was a discontinuity in the FMC at that point and he fixed it and continued. As he came to SILEX waypoint on the ILS 8 approach, he began slowing. At BUDDE, the FAF, the autopilot was on and he had the landing checks complete. He made sure auto brakes were set to MAX. At about the final approach fix (FAF) tower reported an aircraft had gone around for a windshift. He and the FO acknowledged. The tower said rain was overhead the field. About 1000 ft, they checked sink rate and speed per SOPs. Minimums were 1007 ft MSL. Pete called "approaching minimums." He saw the PAPI and runway edge lights through the HUD. At minimums, he called "landing," and disconnected the autopilot. At about 10 feet, he pulled the power back and noticed the rain increased a little bit. The touchdown was a little firmer than normal. He used max thrust reverse and heard chattering. He verified the speedbrakes had extended after touchdown and started blending in manual brakes after that. With thrust reversers and MAX autobrakes, it did not feel like it was slowing. It did start to slow, but passing taxiway D3, deceleration decreased and felt like the aircraft was accelerating. He saw the large area at intersection D1 thought he might be able to make the turnoff at D1. He tried to use the left rudder and tiller to turn the aircraft but didn't feel like it was responding, so he continued into the EMAS. He estimated they went into the EMAS about 10-15 knots and the aircraft stopped.

He had been aware of the EMAS at this airport for many years. He had seen it when he had to hang out at the airport.

As the PF (pilot flying) he monitors and cross-checks landing performance calculations. The FO got all the data. He got the info 20-25 minutes from the top-of-descent. The ATIS was pretty much what was on the dispatch release. The METAR he had said winds were 280/5. He wrote the weather on the cards. After the FO said that autobrakes max was required for the landing, he rotated the switch to max, and briefed the passengers about the expected braking.

He believes the PWB showed 200 or 280 ft stopping margin for the landing on runway 8 with max autobrakes. This was not a normal range. He had only seen autobrakes max a handful of times, usually in BUR, where sometimes they ferry fuel in. Most of the time it was autobrakes 2 or 3 on longer runways.

He looks at both autobrake setting and stopping margin when assessing landing distance. Sometimes, no stopping margin is given, then they would wait to reduce weight or would go the alternate. Any precipitation on the runway requires them to use autobrakes. If the margin was low (100-150 ft) this would require more discussion. He doesn't recall ever coming across a number as low as what he saw during the incident flight. Only a handful of runways would routinely be below a 1,000 ft margin.

The aircraft that went around caused them to discuss and keep an eye on the wind and look for windshear. They did not encounter windshifts. ATC did not elaborate on the term "windshift" which led to the previous go-around, so they didn't know if it was a shift in wind speed, direction, or both.

The forecast for wind was 280/5. There was a slight tailwind coming in on the approach. They were seeing winds of 15-20 knots in the 250-260-degree range. As they approached 1000 ft, the tailwind was in the 5-8 knot range. Tower made a call of winds 270/11 when they passed 1000 ft – somewhere between 500 and 1000 ft. He and the FO acknowledged this call and agreed that the tailwind component was 9-10 knots and it was within limits.

He had flown with the FO on a few 3-day trips within the past 2 years. The FO was awesome to fly with. It was like flying with another captain. He was even-tempered and would bring up concerns if they arose.

The autothrottles were disconnected at the minimums call simultaneously with the autopilot disconnection. They touched down between 1,300 and 1,500 feet down the runway. He flew the PAPIs to touchdown. He was maybe slightly low on the glideslope. His estimate of the touchdown point was not based on runway markings; he was looking at the PAPI and edge lights and estimates the distance based on the timing from being on glide slope at 10 feet to touchdown.

On the Sunday prior to the incident, he had finished a trip and commuted home. He then had two days off. On the 3rd, he ran errands with his wife. On the 4th, the weather was rainy, so they took their dog for walks. The 5th was his commute day and he checked around 1130 for a 1pm flight. There were 40 seats open, so he took that flight from Portland. He arrived in OAK about 1440, got a subway sandwich and left the airport about 1530 or 1600. He set up his uniform and went to bed about 2130-2140. He generally went to bed about 2230 or 2300 and awoke at 0630. He estimates this was his schedule for the days he was home prior to the incident. He typically takes his dog for a walk as the sun comes up. He slept fine the night before the flight. He typically needs about 7-8 hours to feel rested, with a minimum of 6 to 6.5 hours. He typically shoots for 7 to 7.5 hours of sleep. He considered himself to be a morning person.

His normal work schedule was four days on, three days off, typically starting in the morning. He is on an a.m. schedule, reporting between 0430 and 0700 and finishing in mid-to late-afternoon, between 1300 and 1700. He lives in Camas, a town in Washington state, about 18 miles northeast of Portland.

The last ATIS they received was about 30-35 minutes past the hour (1630Z or 1635Z). It was information hotel. Winds were 280 at five.

He was using the HUD in the primary mode, not AIII mode.

The crew would get the weather, then to use the PWB program, the crew would enter the runway, braking action reports, and computed fuel weight (if needed), then hit “send.” The information would then come back. PWB weather is based on the METAR or ATIS. The report the crew receives back has the weather. It is usually identical to the ATIS. There are different pages of the response. The second page of the report tell if autobrakes are on or off. The third page has speeds and autobrake settings. The stopping margins are also on this page.

He tries to do the PWB process before the top-of-descent, about 20-30 minutes before landing. If conditions change, update is required. He updates it if the runway condition goes from dry to

wet, or a runway changes. They can request multiple PWBs. If the winds change, the crew may get back the same information if the weather the PWB uses (METAR/ATIS) has not changed. He did not believe there was functionality for the crew to change the wind input to the PWB. If conditions change, a flight could hold and wait until the ATIS/METAR is updated.

His definition of touchdown zone was 1,000 – 1,500 feet down the runway.

PWB is the only source of landing performance now. The OPS system stopped being used about three years ago. It was phased out over a 6-12-month period.

PWB is determinate of autobrake use, and Southwest requires the use of autobrakes on a wet runway. A message on autobrake requirement comes through if they are required.

When transitioning from autobrakes to manual braking, the lower the autobrake setting, the longer you can wait to transition. In this event, he started manual braking probably 3-4 seconds after touchdown, after all three landing gears were down and the reversers had been deployed. It took about 1 second for the nose to come down and about one second for the thrust reversers to deploy to maximum. He lands with his feet on the brake pedals. He didn't jump on the brakes when they landed. The deceleration almost felt like the engines were at idle with no thrust reversers. He felt a little chatter through the pedals from either the autobrakes or anti-skid system. He ramped-up manual braking at a pace in between quick and slow. For 3-5 seconds, he felt no deceleration, even after the speedbrakes and thrust reversers deployed.

Around 400 ft AGL they broke out of the clouds he had a clear picture of the runway. He noticed that the aircraft was pointed slightly left. It was a normal sight picture. The FO had called "approaching minimums" at 380 ft. He started making out the edge lights and PAPIs prior to this call. When the approach became visual, everything was right on: airspeed, glideslope, and throttles. He had an awareness of the 1000 ft- markers as he crossed the threshold. At the threshold, he estimated he was between 131-133 knots.

He would fly V_{target} all the way down to the landing-zone/flare. V_{target} was V_{ref} plus 5 knots. He had no perception of anything out of the ordinary with the glideslope. The only thing out of the ordinary was in the flare (about 5 ft), rain intensity picked up and visibility decreased a little bit.

He was required by his medical to wear corrective lenses. He was wearing his glasses during the incident approach. His vision was 20/20 in his right eye and 20/25 in his left eye.

He did not remember seeing the distance-remaining markers. He did remember crossing runway 15/33, then passing taxiways D2 and D1. He was looking at these. He had no explanation for the decreased deceleration in the final seconds. He had pushed full on the pedals and the thrust reversers were in max the whole way down. He has felt the brakes modulate before and estimated about 1-2 times when he was an FO and 1-2 times when he was a captain. He didn't feel any chatter through the brakes except maybe the first 2-4 seconds after touchdown before manual braking started. It was smooth afterwards.

There was no specific test on the antiskid system before flight. He would set RTO for takeoff and an autobrake warning light should go out. Then once airborne, he would set 1, 2, 3 or max on the autobrakes.

If the PWB system failed, there were back-up charts and tables in the crew's tablets. The crew could also request information from the company through ACARS. Southwest does not have a minimum number allowed for the landing margin. It must be a positive number, and use only autobrake setting 2, 3, or max. They never use autobrakes 1.

From the FAF to the landing, there was no crew discussion of going around. Prior to the FAF, they had talked about it based on not seeing the runway environment. The last possible time for a go-around is just before thrust reversers or speedbrakes deploy.

The pilot flying deals with discontinuities on the FMS. The PWB provides the wind additive to Vtarget. For a tailwind the additive is no larger than 5 knots. He did not notice when the autobrakes disengaged or when the "autobrakes disengaged" light came on. He was focused on tracking down the runway and completing his steps.

The dispatch release was straightforward. They were taking more gas because of weather and alternates. They had 17,500 in gas where normally they would have about 10,500 or 11,000.

The HUD he used was the older model, 2350. After landing he did not use the deceleration cue. The runway lights were definitely visible from outside the missed approach point, about 1/2 to 3/4 mile. Their intensity, and the intensity of the PAPI, were good too. The speedbrakes deployed normally with no delay. He deployed thrust reversers, then reached down and verified with his hand that the speed brake lever was up. They were fully out and he returned to keep his hands on the thrust reversers.

He was slightly low during the hand-flying part of the approach after minimums. The HUD showed he should bring the nose up just a little. The PAPIs were 2 and 2, so he stayed with that. His concern during the final phase was acquiring the runway and reviewing the go-around procedure, not the PWB.

In the past, he had requested new PWB data, usually for a runway change or a change in precipitation.

His workload was normal coming in for landing. They were not kept high or fast by ATC.

At the runway 15/33 intersection, he became concerned about stopping. They felt much faster than normal. On a dry runway, you can stow the reversers and ease off the brakes just past that point. Their speed was significantly higher there. He started looking at D1 or D2 as a possibility. He tried to turn but felt no change. He felt that it was almost as if the nosewheel was just skidding during his attempt at lateral movement.

He saw the ACARS field condition report around 1550Z.

On becoming visual, he didn't observe any standing water. The wipers were on high. He saw the PAPI and runway edge lights. He never focused his eyes on the runway surface. They were at a slow taxi speed, maybe 15-20 knots, when they entered the EMAS.

He had had no prior accidents or incidents. He had no abnormal situations or emergencies while flying at Southwest. He had received no commendations from the company but had received commendations from passengers for landings and that sort of thing. He had no major changes in his life in the past year. He described his health as excellent and stated he had never taken a sick day. He had no issues with color vision and described his hearing as normal. He took no prescription medications. He did not drink alcohol, smoke, or use illicit drugs. He had taken no medications in the previous 72 hours that could have impacted his performance. He had no history of sleep disorders.

The workload for the flight was 2-3, average to pretty low until they entered the EMAS. He said that there wasn't a change in workload because of weather. Most of the time the approaches into BUR were visual, but they had plenty of time to brief the approach.

The PWB is interfaced with a line select on the FMC through ACARS. Responses came through the FMC as well.

He had about 2700 to 2800 hours as captain in the B737.

When transitioning from autobrakes to manual, it is pedal pressure that disconnects the autobrakes. The pedal pressure required to disconnect the autobrakes varies based on setting. A smaller number setting for the autobrakes takes less pedal pressure to kick them off.

Vref and Vtarget for the approach were 126 and 131 knots.

He passed the crossing runway during the landing roll. That point is generally (on dry days) where you were reaching the 60-knot range and can come out of reversers and look for a turn-off point. He guessed they were about 70-80 knots at that point during the incident approach.

After the FAF, he only thought about going around if he didn't see the runway environment at minimums. He had done 3 to 4 go-arounds at Southwest. All were VFR. One was from OAK tower, the others were conducted due to not meeting stable approach criteria. They were all begun before he had crossed the runway threshold, when he was around 1,000 ft. He had never done a go around after crossing the runway threshold. They were not required to report go arounds and he had not made any reports to Southwest on previous go-arounds. The company never asked about them. The only call he got about a go around was once when he was called by the assistant chief pilot to get the story on a go-around he had observed while riding on the jumpseat because there was some confusion from the captain and FO reports.

The wind information on the navigational display is monitored. It is in his scan. He looked at it just past 1,000 ft. It showed a 7-8 knot quartering tailwind.

He was monitoring the radar on the captain's side from the top-of-descent on approach to about 20 miles out. He saw some radar returns over the field. Closer in, they started to get some ground clutter. The radar was set during the approach to 2 degrees tilt up. Closer in, he set it 5 to 6 degrees tilt up. The radar still showed green returns.

The interview concluded at 1242.

Interviewee: Peter Wesley Van Pelt, First Officer, Southwest Airlines

Representative: Stephen Walsh, Condon-Forsyth

Date / Time: December 13, 2018 / 1330 EST

Location: Teleconference

Present: Marvin Frantz, Sathya Silva, National Transportation Safety Board; Pat Hempen, Patrick Lusch, Federal Aviation Administration; Rich Lee, Boeing; Kevin Fergerson, Southwest Airlines; Greg Bowen, Southwest Pilots Association

During the interview, Mr. Van Pelt stated the following:

He was 53 years old. His title was first officer. He was based in Oakland. He joined Southwest in January of 2012. He was in the military for 25 years. He flew KC135s for 4.5 years, U2s for 19 years, and T-38s. He left the military in August of 2001. He joined American Airlines and 9/11 happened three weeks into training. He went back into the service and spent 10 more years in the military. He never flew the line with American Airlines. He has flown the Boeing 737 model 300, 500, 700, 800, and max. He held about 10,000 – 11,000 total hours, 5000 hours in the B737. The majority of his 737 time, about 3000-4000 hours, was in the model 700.

There was no one in the jumpseat of the aircraft during the incident flight. The only MEL on the aircraft was regarding a forward lav faucet that was running continuously.

He checked the weather on the way to the airport. The winds were out of the NW. He was aware that conditions were not optimal. He knew it would be wet. The preflight was normal. They were ahead of schedule. He was well rested. The ride was uneventful and relatively smooth. They had anticipated turbulence on the arrival. They had originally been assigned RDHOT for the transition, and then were assigned HIHWY. They began the descent, did the checklist and checked landing data. The winds were out of the northwest at 5 knots. It was a wet runway and required max braking. Runway conditions were 5-good. The captain requested he brief the passengers on maximum braking. Nothing was rushed on the approach. At MIKEI, they were cleared for the ILS rwy 8 approach. They got a call about an aircraft experiencing a 10 -15 knot loss on final. They were anticipating some turbulence but there wasn't much in actuality. They were on speed and fully configured. The wind started to decrease in velocity but was still out of the northwest. At about 1000 ft agl, they got a call from ATC about winds being 270 at 11 knots. That was right on the edge of the limits and equated to about a 9-10 knot tailwind. Around that time, they were starting to break out of the clouds. The cloud floor was ragged. At 1300 -1400 MSL, they started to see lights. The FO saw the rabbits, stated "approaching minimums" and "minimums" and was focusing on the landing. The captain disengaged the autopilot and started a slight left turn to line up on the centerline. They were slightly high and the captain corrected and the aircraft was slightly low. The FO was concerned about crossing the threshold at the proper altitude. He heard the 50 ft call and the 30 ft call. They began to flare at 10 ft and touched down about 1500 feet down the runway. It was a firm touchdown. The speed brakes and thrust reversers were all out. Initially, he didn't feel like the aircraft was braking. They weren't quite to the red/white alternating runway lights. As they aircraft approached the red/white runway lights, the aircraft started to slow. He recalled hearing the autobrakes cycling. About 500-1000 feet

from the end, he was confident it would stop and then the aircraft stopped decelerating. They eventually went off the end of the runway and the EMAS worked as advertised. The deceleration in the EMAS was smooth and soft, not jerky. The thrust reversers were still out and blowing stuff onto the plane and he couldn't see outside. There were no fire lights in the cockpit. He started the APU, shut down the motors, and switched the aircraft to APU power. The captain told the passengers to remain seated. The last ATIS they had was hotel at 1553Z.

The performance calculations were made with ANTI-ICE on and wet runway. The computer returns the results based on its weather via ACARS. The results show stopping margins and speeds. The aircraft does not have ACARS printers.

As pilot monitoring, his role was to put the details into the PWB. The winds/temps come from PWB. He crosschecks the PWB weather with the ATIS. He was certain that if there was a difference, he would have said something. The pilots do not put the weather into the system. He writes down the speeds from the results and that's it. He puts flaps into the PWB request. They always land with 40 degrees at Burbank. He doesn't remember the winds on PWB but recalls the ATIS reported winds from 280 at 5 knots, and the PWB should have used this wind. ATC reported winds were 270 at 11. Ten knots is the tailwind limit.

The book says account for changing conditions. The wind velocity was coming down as they descended. The trend was toward the winds in the landing data. He thought the wind was transitioning toward the north. He could not recall what the PWB distance was for the landing. The number on the program is how much runway you have left after stopping. He recalls it was low, below 500 feet.

When they broke out of the clouds, they were slightly right of course by less than half a dot. The captain corrected from slightly high on glide path to slightly low on glide path. They crossed the threshold between the 50- and 30-foot calls (closer to the 30 ft call). The Vref airspeed was 126 knots, Vtarget was 131 knots with flaps 40 degrees. The aircraft was stable by the FAF. The airspeed didn't vary by more than 1-2 knots. He did not know when they transitioned from Vtarget to Vref. They aimed 500-1000 feet down the runway and the aimpoint looked normal. He believed they touched down in the touchdown zone, which he defined as between 1000-1500 ft down the runway.

When asked if Southwest had a policy on using max brakes, he stated that the only policy was that they have to use autobrakes on a wet runway. He does not know when the captain started manual braking. He didn't notice when the autobrake disengage light came on. He knows it was illuminated when they were sitting at the end of the runway.

There is a wind speed shown on the MFD. He was not aware of any guidance on using its information. He noticed that when they were on the dogleg and at high altitude the winds were northwesterly. They were 20 knots and started decreasing. The winds maintained a direction from 270 – 290. The winds seemed to be dropping off. He was glancing at the winds during the approach. He was not looking at the wind during landing. Everything felt solid coming in on approach and during touchdown. He did not feel any forces or sense any groundspeed issues. He didn't feel the pushing typical of a tailwind. The crew discussed the wind during preflight. They

were aware of the weather. They briefed winds, landing data, approach, and go around. He looked over the nose at runway markings and estimated a 1500 ft touchdown based on runway markings.

The EMAS is noted on the runway data and he knew about it and it was discussed during training.

He had flown into Burbank at least 100 times. Not many of those times were in weather like what was encountered during the incident flight. He has landed with a bit of a tailwind and has landed in the rain at Burbank. He estimated the weather at Burbank isn't optimal (including smoke/haze) about 30% of the time he lands there. He estimated encountering conditions with tailwinds or rain at 5-10% of the time.

He was aware of the stopping margin. Burbank always has a low number for stopping margin. Its concerning but not a significant issue. A less than 500-foot margin concerned him.

They received the report on the 10-15 knot loss a ways out, before they were on final. He was looking for the wind loss and any turbulence associated with it. They didn't feel or see any loss in airspeed. The captain was using the HUD. The autothrottles were turned off with the autopilot per southwest policy.

Three days prior to the incident was Monday and was the last day of a trip. He got back around 3-4pm which was standard. He had two days off and on Monday, drove up to Richmond and stayed with friends. On Tuesday, 2 days prior to the incident, they tried to go sailing but there were no winds. On the day before the incident, it was rainy, they looked at sailboats for sale and looked at the boat his friend was buying. He was in bed by 9pm. He slept "great" most nights. He awoke on the day of the incident about 0500 and drove to the airport. He got breakfast and coffee before the flight and got to the aircraft about 30 minutes before show time. Two nights prior to the incident, he went to bed about 1000 or 1030 and awoke about 0700. He felt rested and alert on the morning of the incident flight. He needs between 6-8 hours of sleep in order to feel rested. He aims to get 8 hours of sleep. He describes himself as a morning person. He tries to fly AMs for that reason. He had no history of sleep disorders.

He had a few incidents when he was in the service. One incident occurred while flying U2 operations in the middle east where a 10x10 ft hatch swung open and hit other parts of the aircraft. It took out half of his horizontal stabilizer. He recovered and landed. The other incident occurred during a T-38 flight while flying with an incentive rider. The rider pulled too aggressively for the loop, pulled 9.5gs and the aircraft lost 3 feet of wing on one side. He was able to get the aircraft under control and land. At Southwest he has received commendations on passenger service.

He describes his health as good. He wears reader glasses during the day and glasses for distance during flight. He was wearing his readers at the time of the incident. He reported no issues with color vision. He has slight hearing loss in one ear but it does not affect his performance. He takes prescription Popaxium for multiple sclerosis and has a special issuance waiver for his medical. He drinks alcohol occasionally and the last time he drank was one glass of wine the night prior.

He did not smoke tobacco or use illicit drugs. He did not take any medications in the 72 hours prior to the flight that would have affected his performance.

He described Southwest as a great company and enjoys working there. His favorite part of the job is the people. They have a good attitude and are fun. There wasn't anything he would change about the job. He had never felt any external pressure from the company to fly and said that Southwest is very good about not doing that.

He had flown with the captain twice before. Both times were within the past year. They were two 3-day trips. He described the captain as a fantastic guy and enjoyed flying with him. He described the captain's CRM skills as "top notch" and said he'd have no problem bringing up concerns to the captain and felt that the captain was open to his suggestions as well. He described the captain's proficiency as that he flew "a really great jet."

They practice approaches all the time. He does not recall training in a tailwind. They do train in low visibility and in computing landing data.

The anti-skid system appeared to be working fine. When he said the brakes were cycling, he was referring to the anti-skids "going nuts." About 1000 ft after touchdown, it appeared to grab.

The last wind from the tower was about the time they were starting to breakout of the weather. Tower had said that someone had to go around for wind. This was relayed to them before getting established on final.

He looked at the weather package in Oakland. It confirmed what he saw before on his Airweather app. It was "beautiful everywhere except where we needed to land."

He said that his workload was not really high except for when they discussed the wind call on final. At that point, they were breaking out of the clouds, he was making calls to the captain. The flight did not feel rushed. He did not apply any braking from his side.

He used the field condition report for runway condition. The RCAM was 5-Good. He has experience landing in a lot more rain than what was seen during the incident flight. He didn't recall seeing the field condition on the ATIS. He had requested the PWB landing information at top-of-descent. The flight was planned for 57 minutes flight time, and actual flight time was about that.

He was pretty confident that they touched down at 1500 feet. The AIII mode was not in use on the HUD.

Pilots do have the ability to put winds into the PWB. Normally the (PWB) computer grabs the winds when it does its calculations. He said that any number greater than 0 on stopping distance is acceptable. He was not aware of any guidance on acceptable stopping margin or any Southwest limits.

The captain and he discussed going around when they briefed the go-around. He had done about 10 go-arounds at Southwest. He was not aware of any requirement or guidance on reporting go-arounds to the company. There were no follow up questions regarding his previous go-arounds.

Large changes in conditions after the PWB report was received could be handled by sending in another PWB request with updated data. The manual says, "monitor changing conditions."

When asked if there was any guidance on transitioning from auto to manual braking, he said that during IOE, they do one landing with max autobrakes on a dry runway. The book tells them when they have to use it. He did not recall any information specifically on how to transition between auto and manual braking.

When asked if he had at any point on the approach, considered a go-around, he said that when they got the report of winds 270@11, he knew the winds were right on the edge and elected to continue because the winds were within limits and they were stable. After wheels touchdown, go-arounds can be conducted until thrust reversers are deployed.

The interview ended at 1511.