NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

June 4, 2014

Attachment 1 – Interview Summaries

OPERATIONAL FACTORS

DCA14IA037

Contents

A. INTERVIEW SUMMARIES

1.0 Interview: Ron Horne, Southwest Airlines (SWA) Captain

Date: January 16, 2014
Location: Via telephone
Time: 1445 EDT
Present were: Dave Tew, Bill Bramble, Paul Misencik – National Transportation Safety Board (NTSB); Pat Hempkin – Federal Aviation Administration (FAA); Keith Griffith – Southwest Airlines (SWA); Mike Harris – Southwest Airlines Pilots Association (SWAPA); Doug Allington - Boeing
Representative: Antonio Battista

During the interview, Captain Horne stated the following:

His name was Ronald Ollie Horne, and he was 58 years old. His date of hire with SWA was June 1999. His total time was 15,700 hours, with 9,000 hours PIC time. He had 10,400 hours on the B737, and 6,700 hours PIC on the B737. He had never been an instructor or check airman at SWA. Prior to SWA, he was a first officer (FO) at Airtran from March 1998 to May 1999, and was an FO and captain at Corporate Express in Nashville, TN from May 1997 to March 1998 flying primarily out of Raleigh Durham as a Midway Connection. He was in the Marine Corps from July 1977 to May 1997.

When he first came to SWA, he trained in Dallas and Houston, and was then based in MDW. At the time of the incident he was based in Orlando (MCO). He had a first class medical with no limitation. He said since his last medical he had been wearing glasses more than he ever have before, and at night it was easier to get glasses, so he guessed his next physical would have glasses required in close proximity. He was wearing them the night of the incident.

He did not have any failures at SWA or anywhere else. On one particular proficiency check (PC) there was a simulator malfunction but that did not reflect on his abilities. He had never failed a checkride at SWA.

He believe that on one occasion in 2001 he had switched some trips around and neglected to make a positive note on his schedule. At the time, he was living in temporary housing in motor home and he got two trips mixed up and did not show up. He got a call from scheduling. They asked where he was and he was not at home. He stopped what he was doing, drove to MCO to speak to his chief pilot or assistant chief pilot to tell them that he had failed to show for a flight. There was a letter addressing that put in his file.

SWA has avoidance bids, but he was not aware of any pilot who had chosen not to fly with him utilizing an avoidance bid.

When asked about previous incidents or accidents, he said he damaged a small Cessna 172 back in the mid-1980s when he was on recruiting duty at a grass strip in South Louisiana. Other than that and over-torquing a rotor system, he thought the 172 event was it, and it occurred back in 1983 or 1984.

He also had an incident in Atlanta. The FO was flying, and they landed and transferred controls at 60 knots and exited on the high speed. They were getting a number of directions from the tower controller to taxi and follow a757. They were on the outboard runway they had landed. There were a number of aircraft that had stacked up outside the inboard runway. Although the instructions were the 757, he followed the one in front of him and in doing so he crossed an active runway. He noted that those planes were crossing the runway as well, and there were no airplanes landing or taking off. He filed an ASAP and was told there would be a letter in his file for 2 years from the time the letter was put in his file. He could not remember if it was more than 2 years ago.

In a different incident prior to that, he was cruising at FL340 with the FO at the controls. It was a smooth ride, and the seatbelt sign was off. He heard "descend descend descend" from the TCAS RA. The FO did a superb job, disengaged the autopilot, pushed nose over, and put the airplane in the green arc and descended smartly but not erratically. He thought it was extremely professional on his part. The seatbelt sign was off and could have injured people if he overreacted. They descended to FL334 before they were clear of the conflict. He continued to descend, threw the seatbelt sign back on, and started making calls that he was out of his assigned altitude descending with RA. He was talking to JAX center at the time. He was repeating the procedures and he was doing everything. He was looking at and finally spotted the traffic, and it was very uncomfortably close. Shortly after, the TCAS said they were clear of conflict. He called JAX center and said they were clear of the conflict, and climbed back to assigned flight level 340. There was nothing filed against him, but he did call JAX center. They said they had a lot of traffic, and it probably was an erroneous alert. He said no, and would file report. Several frequencies later, he was given a phone number, and several frequencies later he was given another number. He called them and informed them that he had had an RA and they had maneuvered the aircraft and were doing all the paperwork, including the incident report (IR). The near miss that went in with that, and he filed ASAP, not because he had done something wrong but because he thought that was the procedure he should follow. He found out later that the traffic crossed about 500 feet over the top of them.

There were no other filed letters against him other than the letter concerning the runway incursion in ATL.

At the time of the incident in Branson, he was in good health. He was taking 20mg/day of Lisinopril for hypertension, and it was documented on his flight physical. He also rarely took an aspirin. He last consumed alcohol when he had two 12-oz beers in Manchester starting at 0130 on the 12th. On arrival in Manchester, the FO and he went in to the bar, had another 12 oz. bottle and a bag of chips and clam chowder, and then watched the football postgame highlights. He was drug and alcohol tested at 0300 CDT on January 13.

He felt rested morning of the incident. He ate plenty of food and dessert at the breakfast buffet and was fed and rested on the way to MDW. When he arrived at MDW, he was a little early and the scheduled flight had been delayed an hour. When he stop and waited 2 hours before going again it was a bit of a drag, but he was in no way hampered by his physical conditions. He had to regenerate his energy after sitting for two hours, so he had a sandwich while waiting. He said he was not fatigued or tired.

He had previously flown with the FO for at least one 3 or 4 day trip 3 weeks, months or a year ago. On January 10, he began the trip with the FO from MCO to St. Louis. He was on a reserve block so the FOs day had started much earlier than his so the FO was not legal to fly the rest of the day and was removed in St. Louis, and he picked up second FO and flew to Denver. He picked up third FO in Denver (DEN), and flew to San Francisco (SFO). The next morning he flew to Manchester and Chicago, picked up the incident FO again in Chicago.

When asked if it was a distraction flying with different FOs, he said it could be, but having flown with the incident FO and the third gentleman before, it was only the second FO that he did not know beforehand, but he performed quite admirably. He just felt like it was not uncommon for that to happen.

He had no sleep disorders or apnea.

There were two MELs on the airplane. He did not have the number of it in front of him, but one of the extendable landing lights was extended and would not retract so he took a penalty for that, and the #2 right main tank aft fuel boost pump was inoperative, and they took a penalty for that based on the MEL.

The incident airplane was preflighted by the FO prior to their departure from MDW. The FO also loaded the FMS for the flight to Branson. He entered things in the FMS, but not until much later. He said he checked all the information the FO entered into the FMS. He entered the information, and he would look at the CDU and he read off the items we would be flying. He verified the route and legs page prior to departure from MDW. He did not think the approach to Branson was entered in the FMS while they were in MDW.

The scheduled departure from MDW to Branson was 1545 CDT, and the actual departure was about 1640. The reason for delay was the inbound airplane landing an hour late at MDW. They did the checklists, including the originating checklist since the airplane was new to them. There

were no problems during taxi, takeoff or climb. During cruise, he noticed a fuel split between the #1 and #2 main fuel tanks, and he noted that to the FO. He might have also mentioned it to the jumpseater. They crossfed the fuel from high side tank until they got a difference in the opposite direction, and then turned pumps back and crossfeed off. It did not cause a distraction to him. It was a concern, but he could not say it was terribly distracting to him from any other primary duties, other than to ensure fuel was somewhat balanced prior to landing.

He said the jumpseater was not a distraction, and the man was a perfect jumpseat rider. Managed the sterile cockpit without any comments from him or the FO. He was eager to learn and know things, and was just taking it all in. In his mind, they had sterile cockpit up to 10,000 feet and from 10,000 feet to the ground.

As they neared Branson and they were turned over to tower, the tower called out helicopter traffic in the distance and that they were cleared to land. They looked for traffic, but neither of them saw it. The tower eventually said it was no longer a factor. He did recall that the traffic had them in sight. He said it technically was a distraction in as much as they were obligated to look outside to try to find the traffic, but he could not say it caused him great concern on that particular evening.

There were no problems with the navigational aids they were using. It was dark outside the airplane when they were descending, and it was his perception that it was a dark night. The FO briefed a visual approach backed up with the RNAV GPS runway 14 to Branson. After the FO loaded that in box the approach, he (captain) tuned his navigational aid to the LOC or ILS DME for the opposite runway at Branson for DME reference, and he inserted 5 and 10 mile rings around runway 14 at Branson. He repeated that he took the last fix on the runway in fix page in the CDU and put 5 and 10 mile rings around the runway. He did not always do that, but "almost always" for situational awareness. They had Branson as the destination in the FMS. The distance to Branson was displayed on the progress page, and it should show the distance to the destination. He did not think it would be on any of his instruments unless there was a nav aid dialed up.

He did not specifically recall if the airport lighting was included in the FO's brief, but thought they talked about the lighting associated with the approach and the lighting on that runway. The descent was done manually when they were cleared for the visual approach.

They did not request direct to VUCUG. The approach controller asked if they had the airport in sight, they said yes, and he cleared them for the visual approach, switched them to tower, and they headed for VUCUG. Prior to that they were navigating to BBG. He was not sure when they got the call asking if they had the field in sight or not. When ATC asked them, they said they had the beacon in sight when we were asked if we had the airport in sight. He did not recall who saw the beacon first. They noted there was a beacon out ahead of them, and when the controller asked if they had it in sight, he looked in and asked the FO if they had it in sight, he said yes, and he told the controller yes. Both of them felt they had the Branson airport in sight.

After they checked in on with the tower, they were cleared to land on runway14. Sometime around then, tower called helicopter traffic. After they were cleared for the visual approach, they

went direct to VUCUG. The FO put VUCUG in the FMS. At that time, the autopilot was still on. He did not recall either of them noting the distance to that intersection.

Initially, they continued direct to VUCUG. Some distance away from VUCUG, they were both looking at the runway and the FO stated "we're high." At that point, the FO disconnected the autopilot, and turned the airplane right or northwest away from VUCUG and airfield. They continued to slow and configure and as they went to 30 flaps, and they turned left back to the runway and they were going to the runway and were no longer going to VUCUG.

He said the entire runway was lit up like an operational airfield. It was a clear dark night and the runway appeared very bright. It was hard to tell from that far away if the runway had centerline lights, but he believed it did have centerline lights. He said he normally extends the runway centerline, but he did not extend it that night. He did not recall seeing a VASI or PAPI, but at that time he had the HGS down and set up on VMC. In that mode, he had data in HGS that allowed him to see a dashed line on the approach end and know that if they were configured they were on a 3 degree glidepath to the runway. The touchdown zone at Branson and length were dialed into HGS box and a 3 degree glideslope. He believed the distance to Branson was available to him on the instruments in the airplane, but he was looking through the HGS at that runway and was concerned about ensuring that we were on speed and glidepath to that runway, and he was no longer cross-referencing anything other than looking at the airspeed.

There were some gusty winds. He made airspeed calls on final, but did not recall seeing DME or distance to the airfield, and could not recall seeing his 5 mile ring. He did not know how it could have not been visible. He adjusted the distance on nav display to a lower range, but the ring should have stayed there. It did not show up on HGS.

When the FO turned away from the airport, he just looked at the airport and agreed with the FO that they were high on the approach. He said he normally compared distance and altitude during approaches. He said the HGS did have distance to Branson, but he did not reference it after they proceeded visually to that runway. It was there based on the LOC DME at Branson he had dialed up.

At 1,000 feet, the FO said "1,000 feet sink, airspeed," and he the captain responded "1,000 feet." He noticed that they were on a stable approach, and were within +/- 10 knots airspeed. He called out 500, 100, 50, 40, 30, 10, and he thought he may have said "5,4,3,2,1" from the HGS as they touched down. He did not know if he called out that they were on glideslope, but he believed he stated to the FO that the glidepath looked good because he had the indications in the HGS. He said when the runway was out in front, a dashed line goes across the HGS. If the line is at the top end of the runway, he knew they were extremely high. If it was off the approach end toward the aircraft, they were too low. If it was right on the numbers, that was where the airplane was going to touch down. In VMC mode, he believed the DME was still indicating in the HGS, but just showing the glidepath, and it was based on descent rate. It did not matter what airport you had dialed up.

They had a company procedure for confirming correct runway and airport, and on a visual approach, the ultimate guiding factor was at 1,000 feet have to be set up straight into the runway,

airspeed and configuration completed, and be on stabilized approach to the runway. Normally, if they were going to any runway at all, they would have the ILS, LOC, or in this case the RNAV GPS 14 nav aids dialed up. In this case, they had the RNAV GPS 14 in the box, and the fact that they saw the runway, made the determination we were high and turned away from the airport, and configured for landing, it caused them to lose situational awareness.

When asked if Branson should have indicated to the right when they turned back in, he said yes, he was looking at the HGS and focusing on a stabilized approach to that runway and did not see that. The wind was gusting to 23 knots. They were not tremendous gusts, but they did cause some variations in the approach speed which caused him to say airspeed more than once on the final approach. He was focused on airspeed, and not paying attention to RNAV indications. He said they had the RNAV in there, and if they had just flown that, he would not be having this conversation. They were stable by 1,000 feet, and there were no alerts during the approach.

Nothing about the runway seemed abnormal as they got closer. They realized they had landed at the wrong airport afterward. As they touched down, he made the required callouts, extended speedbrakes and deployed reversers, and as he looked up in full reverser he felt something was terribly wrong because the end of runway was very close. He said “max brakes” or “brakes” and added as much pressure as he could on the left side and pushed the brakes as far as he could push them. That was when he figured something was terribly wrong.

Eventually they did check the brakes, however after they came to stop, the first call was to Branson tower. He informed Branson they had landed at the wrong airport. He told the FO they were not going to set the parking brake because they had stood on the brakes hard to stop. At that point, they started to try to accommodate passengers, get everybody settled, and arrange for transportation for passengers and crew to make sure no one else came in and landed. Once they had passengers off the airplane, he went out and inspected the aircraft. Up until that point, he did not have any access to the ground.

He guessed the range on the navigation display was a 20 mile or 10 mile range when they were cleared for the approach. He recalled adjusting the range after when first cleared for the visual, and he could see both his 10 and 5 mile rings. He thought he reduced it from there, but once they saw that airport and the FO disengaged the autopilot, he was busy doing PM duties; gear handle down, adjusting flaps to landing position and ensuring that as they turned back to runway they were stabilized, and he was no longer referencing the navigational display. He was looking out the HGS because he had no other reference for a glideslope. He did not notice the absence of a VASI or PAPI.

He flew the Huey for 20 years with the Marines. He also flew the UC-12B, and was qualified to fly front of cobra. He also flew the DC-9 for two years out of Cherry Point, NC and all over the world. Primarily, he was a Huey pilot. He was aircraft commander on DC-9,for probably the last 6-8 months of his active duty.

He said he found the FO to be a conscientious, professional aviator striving to do the very best he could and following the rules as close as he could possibly follow them. He understood that the FO had been to the airport before and he thought subconsciously or otherwise that meant a lot to

him, having never been there before himself. He said he was not a corner-cutter, and very straightforward, level headed and competent. That was his perception. That was his perception before and even today. He (captain) restated that he had never been to Branson before.

He did have a copy of the Branson airport pack, and had gotten a number of packs for new airports, and had them in a stack in his bedroom on his valet stand. He did review the Branson pack "some time ago." He did not have it in his flight bag.

He had three children that were grown, was married to first wife of 35 years, and had a blind near-dead 15 year old Yorkshire terrier. The dog only occasionally caused him stress, but had no great ill effect to him.

On Friday, January 10th, he woke about 0900 or 1000 and did routine activities at home. He ate a full breakfast. Around 1230 or so he drove from Tampa to Orlando. It took about 1.5 hours to drive there , and was about 88 miles. He always gave himself 2.5 hours for the 1.5 hour drive. The showtime was 1500. He began a trip with the incident FO from MCO to St. Louis. It was scheduled out at 1505 EDT, and left at 1628 EDT. He thought they were delayed less than 1.5 hours. The FO was on a reserve and his day had started much earlier than his, so he was not legal to fly the rest of the day and he was removed in St. Louis. He picked up a second FO and flew to IAD. He then picked up a third FO and flew from IAD to SFO, and arrived at 0059 CDT. He got to the hotel about 0130 CDT, and was asleep no later than 0230 CDT. They stayed at a Hilton, and he did not recall doing anything with FO.

On Saturday, January 11th, he probably woke up at about 1000 local or 1300 in MCO (he said he never reset his watch) and got on the van by 1130 local. That gave him1.5 hours to get ready and have a meal at café. The van time was 1205 local in SFO or 1400 CDT. He might have gone a little early there so they had lunch prior to departure. About 1130 local time, he caught a shuttle to employee café at airport. The special was chicken pasta. Since they were late getting in the night before, he did not think it would be smart to get up early to work out and fly over 5 hours to get to Manchester, New Hampshire. He usually did a 30 minute aerobics workout and threw some weights around. He did not feel he had time to work out, get a nice meal and fly to Manchester, so he skipped it. He flew from SFO to MDW, and it was his leg. He then flew MDW to Manchester with the third FO. They arrived about 1.5 hours late at 2236 CDT or 2336 local. That put them at the hotel about 0100 local. The FO and he went to bar and he got sandwich, and there was nothing he wanted, so he chose the chowder and went up to their rooms and changed clothes. At about 0115 local they met at the bar and both had a beer. He had his sandwich and the FO had chowder. The bar shut at 0130 and they barely finished eating. He went to a SWA room, sat on sofa and chair, and had one more beer while watching ESPN or some other sports program with highlights of playoff games from earlier that day. By 0200 they both retired for the evening. He was not up much longer after that, and was sound asleep by 0230.

On January 12th, he woke up about 1000 local time. That gave him about 1.5 hours to be ready for the van, which came at 1145. He went down to restaurant, and had the buffet. He was probably in the restaurant by 1100. He ate well at the buffet. The showtime at Manchester was 1120 CDT or 1220 local, and they were there way early. It was a weekend and traffic was not

heavy. The flights were MHT (on time) to MDW (arrived early). The inbound airplane that they were to fly to Branson was at least an hour delayed getting to MDW.

Normally he tried to give himself 8 hours of sleep each night. Sometimes he did and sometimes he did not, but whenever he got to sleep, the lights were out and TV was off. That gave him 8 hours of rest. The two nights prior to incident he went to sleep fairly quickly. He felt like he got adequate rest on the two nights prior to the incident. He did lose a little bit of gas when sitting in airport for over an hour, but in no way did he feel fatigued or exhausted or unprepared for that leg or the next two legs to Dallas and New Orleans.

His last meal before incident was a chicken sandwich during an hour delay in MDW. He considered himself an evening person, however he did not sleep all morning long either. When home he was up by 0800 or 0900, and even if he had been up until midnight. He did not spend more than 8 or 9 hours in the rack. Obviously there some exceptions from sleep deprivation. He did not feel that the first two days, but he did after the incident.

Regarding his work schedule, he generally liked to fly PM trips, and this was one. They were scheduled back into MCO at 2143 local. There were some changes going on with Part 117, but he had worse and better schedules. He did not feel his trip was out of the ordinary in any way as far as the schedule, and what was presented to him prior to departing on the trip.

He could not think of any health issues offhand in the last year, or any financial issues other than he recently paid his house off. There were no significant changes in personal life. He had a five year old and one year old granddaughter, and his kids were 24 and 38. There was nothing significant other than this event.

He said it was quite busy once they started configuring for landing, and a real distraction for him, as much as he failed to recognize that he was not going where he should go. It got busy. His focus was primarily to ensure they were configured and stable to runway.

His workload the day of the incident was normal, other than just general frustration with plane changes and delays at airports, but nothing out of the ordinary. It was routine to change planes once or twice a day, and was kind of aggravating, but not something that could not be accomplished in a safe manner. It was just like the MELs; kind of aggravating, but not something to keep him from flying or performing the way he should have.

He did not recall if the FO got a wrong altitude clearance or heading when climbing. In that case, they thought different things, called it, and verified the proper one. He said "I believe [the FO] was correct in his determination of clearance." Captain Horne politely agreed. It was a fairly routine thing. Captain Horne recalled that they were filed to FL380 and cleared FL400. They determined FL400 was in the window and alt controller, but the FO neglected to push the altitude intervention button to the right of altitude alert window, and the aircraft leveled off briefly at FL380. They noticed that and climbed to FL400.

He said people were getting more comfortable putting the additional altitude in and pushing the button, and he was a little frustrated by it, but it was dealt with in a timely manner. He figured

no harm done. He did not like it, but they made the correction and moved on. He believed the FO to be a competent pilot and first officer. He was in a different place today than he was a week ago, but he can only state what he said that the FO was a competent pilot.

He said he just recalled a brightly lit runway that he thought was Branson, and failed to recognize the other cues that were there. The pattern of ground lights co-located with the airport helped made him think that was the Branson airport.

He said he felt truly blessed to fly for SWA. When got out of USMC, he wanted nothing more than to go to work for SWA. He took a job at commuter just to get the 1,000 PIC turboprop/turbojet hours. As soon as he got it, he applied for SWA. He felt like he won the lottery getting the job, and was more than a little disappointed that he let SWA down.

There were no external pressures from company to fly when tired or push flights. He had found a number of people in system who were under stress or pressures, and he had routinely told the ops agent who was under some great pressure to turn his airplanes in efficient manner that if for some reason they went over the allotted time, to put the delay on him for pilot duties. He had done that the whole time he had been a captain, and he had never ever received a call from a chief pilot or any administrator asking him why he did not do something quicker or faster.

He had not heard anyone complain about flying with the incident FO.

He said he routinely flew as PM, and routinely put final approach in and extended the centerline and let the autopilot and navigation systems to fly him to the FAF, and even allowed the plane to turn toward the intended point of landing and then punch off the AP and fly to the runway. They routinely got 31C circle to land at MDW, and he would program the box to a 3-4 mile final and depending on how crazy the winds were, the autopilot did a magnificent job to where he could set himself up for stabilized approach no less than 3 miles from intended runway. He said there company procedures relevant to visual approaches, along with personal strategy.

He used the radar altimeter when he made the 1,000 and 500 foot callouts. It would work pretty well at Branson if established straight in to the runway. He could not do it at ABQ in the mountains, but inside 3-5 miles it would work every time. The company procedure was to reference the field elevation and RA for callouts.

Generally they would alternate legs, and he had flown the previous leg into MDW. To the best of his knowledge, the FO had not flown his previous leg, and he believed it was the FO's turn to fly.

He thought they had the manuals and training to do things properly. He believed, having failed miserably in this situation, that it should be made a requirement to go to that specific point because of visual cues to the runway. They did not utilize the VUCUG intersection the way they should have. It was visual, so they did not necessarily have to use it. If flying downwind, it would not hurt anything if that was a requirement, and it might have turned out a little differently in his situation.

They were only required to use the HGS system on low minimums approaches. There was a wealth of info in the HGS. In addition, there was not wealth of information outside without having to take head down. Sometimes he would push the HGS up to relax a bit a cruise altitude. During training, instructors would have him stow it to be able to do it without it. It seemed like not using something that was there did not make any sense. He would be remiss not to use it if it was there. In this case it may have contributed to being more focused on having stabilized glidepath to runway rather than looking at the other info that was available.

When asked if he found comfort in the fact that the FO had been to that airport before, he said it was noted in his mind.

There were no spacing issues with the helicopter other that they looked out and tried to see it with their eyes.

He flew RNAV approaches maybe once a trip, or twice a month. Often times they end up doing visual approaches and have ILS DME available, and that was more accurate in his mind. He said why use RNAV when you could use a more precise approach. On other hand, often to do a full RNAV, it was a little more difficult to get a clearance for it. On other hand, he had great success with the RNAV, and if they had flown the RNAV, the plane would have flown right to the runway.

He considered his training more than adequate to allow him to do an RNAV approach. The fact that they did not do them routinely was certainly a factor that diminished the effectiveness from a unfamiliarity standpoint.

He said it could not hurt having Clark County listed in the Branson airport packet.

As best as he could remember, the aircraft gave the auto callouts. The vertical scale shown for RNAV was a reference for vertical path. Once he went outside visually, however, he was not referencing back in on that.

2.0 Interview: Kenneth Langford, Southwest Airlines First Officer (FO)

Date: January 16, 2014
Location: Via telephone
Time: 1200 EDT
Present were: Dave Tew, Bill Bramble, Paul Misencik – National Transportation Safety Board (NTSB); Pat Hempkin – Federal Aviation Administration (FAA); Keith Griffith – Southwest Airlines (SWA); Mike Harris – Southwest Airlines Pilots Association (SWAPA); Doug Allington - Boeing
Representative: David Walsh

During the interview, First Officer Langford stated the following:

His name was Kenneth Langford. His date of hire with SWA was June 2001. He had 25,130 total flight hours, 8,300 hours PIC time, and 9,880 hours on the B737. He had never been a captain or instructor at SWA. His previous experience before coming to SWA was with Atlantic Coast Airlines for 11.5 years, where he was based at Dulles Airport (IAD) but lived in Knoxville, TN (TYS). He left there before they turned into Independence Air. His wife made more money than he did so she was not going to move. After ACA, he was hired at SWA. Before ACA, he worked for Hewlett Packard as a hardware service engineer, and did GA flying and instructing and 135 charters part time on the side. ACA was a career change for him. Asked about his high time, he said "yeah, regional airlines will do that to you." He was based at MCO with SWA.

He held a 1st class medical, with a limitation to wear glasses for near vision. He was not wearing them during the incident.

He previously had training difficulty trying to upgrade to captain at SWA when he did not do well on the LOFT portion, and requalified back to the FO seat. That was December 2011. He got a second attempt at it during the Christmas season, but there were a lot of things were going on, and he didn't do too well in the second attempt either, so he chose to go back to the FO position. SWA offered that to him. That was the first or second week of January 2012. He had the option of bidding back to captain again, but had not done so. He had no training issues at ACA, but he had to re-do an issue on his private pilot license exam back in 1980. He also had to redo one little short issue on his instrument checkride, but that was it. He had no other training issues at SWA. He had passed the captain's PC, just not the LOFT portion. He had no disciplinary actions at SWA, and no previous accidents or incidents or violations. He had no illness prior to the incident, and was not taking any medications. He had not consumed any alcohol prior to the incident except for a couple of glasses of wine at about 7pm CDT the night before, and was drug/alcohol tested after the event at the hotel at about 0200 in the morning.

On Sunday, January 12, the day of the incident, he got up about 0630 for a 0715 van. The actual departure time was 1643 CDT, though they were originally due out about 1600. He thought there was a fuel pump MEL, and the captain handled most of that. He was informed by the captain about the MEL.

He had flown with the captain on a previous trip 2.5 years ago, and had seen each other a lot in the crew lounge. That was the only previous trip, and he said the captain was a great guy to fly with, and they communicated well together. He described the captain's CRM skills as very good, as well as his flying skills. He had no suggested improvements for the captain.

He said he was the PF and the captain was the PM. He did the preflight and set up the FMS , and there were no problems. He preflighted the exterior and his side of the cockpit, not captain's area. He also set up performance numbers based on calculations in the OPC (operations performance computer). He entered the temperature, winds, and MEL. He said it gave the Vspeeds and so forth, which was standard for every leg. The captain handled the legalities of MEL, briefing FAs, himself on NOTAMS and MELs, dealing with gate agent, the jumpseater and his documents. He said he briefed the captain on the FMS setup and they both verified the

waypoints and fixes. He said it was very rare that the captain would make inputs, and the captain did not on this leg.

He said he entered the arrival to Branson in the FMS based on the pre-programmed flight plan that was in the database. He then verified that with the dispatch release. The flight plan was in the database, and the database was updated by the mechanics. On the route page he selected MDW, and in this case BKG and 01 is the memory location, and it loads it. When asked if there was more than one choice, he said he thought in initial training that they said there were others, but they have never used anything but 01. Every once in a while in the dispatch paperwork, you would see a nonstandard route due to weather and you have to build it manually, but that was only seen 5% of the time and that was not an issue in this case. It did not program in an approach, and he had to select that after they were enroute. Sometimes a captain might enter a runway for an approach, but not this time.

He said he had flown into Branson once before on a VFR day. He was the PF that time as well, but could not recall where they flew in from, but remembered that the arrival was from the south.

On the day of the incident, he had a report of 0835, with a 0715 van at the hotel. He had gotten re-routed the day before, so they were deadheading him back to MDW. He took a flight from Milwaukee to LGA. The incident captain was not with him, and they did not explain to him why he was being re-routed. He sat on the ground at LGA for 2 hours 17 minutes, then deadheaded LGA-MDW, and arrived at MDW at 1533 CDT. He then took the flight to Branson which pushed from the gate at 1643 CDT. They were a little bit late on the push because they had to wait on the inbound aircraft.

He said it was night conditions when they descended into Branson. There were no other problems with the airplane that he could recall. He remembered that they conducted all the required checklists leaving MDW, and there were no problems during the taxi out or takeoff.

There was one problem during climb out. They were cleared to 16,000 feet, and he looked at the captain and said he thought it was 6 and they verified with ATC and he was incorrect it was 16,000 feet. There were no issues in cruise and no distractions.

He said the jumpseater was "as quiet as a mouse," and they had to press him to get him to talk. There were also no issues with the navigation equipment.

He said he briefed the approach to Branson. Since it was VFR, they briefed a visual to runway 14 and he said he would use the RNAV GPS 14 as a backup. He briefed the touchdown zone elevation, the flap setting of 30 degrees, and said "that was pretty much it since it was a visual." He did not brief the approach lights, though he reviewed them in his mind. He noticed that the PAPI was on the left, but did not recall briefing that. When asked if that was normally done, he said yes, but he just overlooked it this time. The PAPI was on the left based on the chart, and it was in the back of his mind all the time, but he did not brief it, though he usually did. He did not know why he did not brief it, he just forgot it. He thought it was required on an instrument approach or low ceiling, but not sure about nighttime, and it was not required in the daytime.

The weather was also covered on the brief prior to descent since they use the weather to enter performance data in the OPC.

He said the airplane was set up to do the descent prior to them calling the field in sight, until they called airport in sight, and then there was a conversion over to manual flying at that point. When they initially called what they thought was the field, what had happened was that Springfield approach cleared them direct to the airport, and as they continued on down through 10,000 feet, the captain and he had called or identified the airport beacon and saw the runway lights, so they said they got the field in sight. At that point, based on the airport that was the Branson airport, he figured out that he was high and needed to lose some altitude, so he chose to turn downwind and extend a bit to lose altitude, and at that point they were no longer using the VUCUG waypoint they were going to in the FMS.

He said he first said he had the beacon in sight, he said the captain did, too. They told Springfield they had it in sight, and they cleared them for the visual approach. Previously they had been cleared direct to the airport. Clark County airport was what they identified as Branson because it was the first set of lights they saw and was closer and had a similar alignment, so they called it, then changed the FMS to go direct to VUCUG, which was on the RNAV approach on a 5 mile final. That made the airplane turn right a little bit for a left base to 14. They went direct VUCUG after they were cleared for the visual. Because Clark County was the closer of the two airports on their flight path, he looked at it and said "I'm high so I'm going to break off and extend his downwind to lose some altitude." They turned away from VUCUG and there was no navigational reference, it was just VFR flying at that time. They got configured, and were using the lights of the airport as what they thought was Branson.

The runway lights were lit up very bright, and the beacon was on. Neither one of them saw the Branson lights. The PLK runway lights were the brightest lights they saw, and due to the runway alignment being only 20 degree different, it was unfamiliar territory coming from the north and it took over their navigation to the airport.

There were no centerline lights, just runway lights. Branson did not have centerline lights, and they did not see any other airports in the area. They did not use any other distance indicating references in the FMS, just the reference to VUCUG and the distance to it. He thought the range on his navigation display was 20nm, but he could not recall.

He said the captain had set distance rings in the FMS around BBG, and they were displayed on the navigation display. He thought they were at 5 and 10 miles, but he was not sure. He looked at them, but was concentrating on flying direct to VUCUG. What happened was, as they were coming up on Clark, and the closer they got to it, the perception because it was night was that he was high for this airport and everything went out the window with situational awareness, because he thought he had to do something to manage the altitude. He turned away from Clark County and Branson before out of base to final. At that point it was just VFR flying. The visual to the runway took over, and said he had to do something about the altitude. It was his visual perception and not his distance that told him he was high. He did not look at the distance to confirm his altitude, and the rings on the navigational display were still there. He said you could

use the rings to judge height, and he said he normally set himself to fly 3,000 feet on downwind until he got slowed to configure and turned base to final, and then it was just visual perception.

As long as they were going to VUCUG, the HGS gave them a path. If he had continued he would be right on path for 14, but when his eyeballs saw that first airport, he thought "no, I'm high." He said when they were direct to VUCUG, they were on a vertical path. The flight path vector (FPV) was selected to the airport itself when on final, but he did not recall looking at the FPV because they were coming in at a 90 degree angle.

He said the rings were the only thing giving them distance to Branson, and he did not recall if the captain said he had the LOC set up for the other direction. ATC had switched them to tower and they had received clearance to land, so they were just making proper calls and getting configured. There was no high descent rate, they lost the extra altitude with the extended downwind. He said they were stable.

They had no indication of glideslope or flight path when on final, just the visual perception was all he really had. It did occur to him that he did not see the PAPI, but by the time he noticed there was no PAPI, they were at 500 feet and he thought maybe the PAPI was broken, so they continued to land. He said the key factor for him was the winds were gusting 23 knots to the south and he was hand-flying the approach and his attention was on the airspeed control and that was very important. A lot of his attention when he began to hand fly was on the airspeed control. He made statements on the approach that he was correcting on the airspeed. The captain did not have to make calls because he was announcing his corrections. At that point, seeing the VUCUG fix and distance to runway was not in his formula because he was hand flying the airplane and he was busy. The airspeed was moving everywhere so he was working pretty hard. He said he remembered not seeing the PAPI, but controlling his airspeed was more important to him than the absence of the PAPI.

They did not have a glideslope, just a visual perception was all they had. When asked if there was any company requirements for visual approach, he said it had to be backed up with ILS or instrument approach procedure, and there was not really one for runway 14 at Branson other than the RNAV GPS. When asked if that would give them course and DME to the runway, he said yes, but once he turned downwind and away from the airport to lose the altitude, that was not being used any more. It was just "eyeball to eyeball, and flying."

They did have the RNAV set up, and were initially flying to VUCUG, which was in the FMS. He said dealing with altitude and airspeed became priority at that point. They just continued to fixate on that airport. They had it identified and the combination of those three was like "Ken why didn't you just continue to VUCUG." He said he asked himself that every day - why he did not go direct to VUCUG and continue on.

He said the captain was calling out airspeed corrections. He made the proper callouts for 1,000 and 500 feet, but apparently he did not see anything wrong either. He said the captain, as PM, never called out to him anything about distance to the airport or altitude.

SWA's stabilized approach criteria was on speed, on profile by 500 feet AGL, speed +10/-5, on profile to mean on localizer and glideslope by 500, stabilized with configuration and airspeed. They were actually configured by 1,000 feet, and airspeed was stabilized by 500 feet. He said they were absolutely configured by 1,000 feet.

SWA trained pilots to identify airports by the runway, lighting, and backup navigation. He could not remember if the captain had distance rings on his ND, and they were usually visible on both, but he was not sure. He did not remember seeing any other airports in the area.

The jumpseater never said anything about seeing another airport, and should not have to because it was a sterile cockpit. He said the Clark County airport "kind of tricked us" because their lights were really turned high up, and they just stood out in a black hole, with a similar alignment, and they "just reached out and grabbed us" and said "I'm in."

He did not recall if he had the "airport" button pushed for the ND, but did not think PLK would have been there since it had to have a runway that was at least 5,000 feet long to be in the database.

He said SWA pilots extend the centerline on approaches in the FMS, but they did not do it that night.

They did not hear any aural warnings or aural altitude calls since the captain was making the altitude callouts. Some aircraft do have aural altitude callouts, but he could not recall if this one had it.

On the approach, only the PAPI was out of the ordinary, and that was it. When asked if the runway looked narrow, he said that being nighttime, the peripheral did not jump out at him. They were not using any vertical guidance, just visual perception was all he was using.

When asked if the PM provided sufficient backup, he said yes, for the alignment and what was going on. The only thing he could have done, but he was doing it for him, was the airspeed calls. Other than that he was making the right callouts.

When they touched down and came to a stop, that was when they realized they were at the wrong airport. They looked at each other and said "this is not the right airport." That was when they really noticed it.

He did not notice the numbers 12 on the runway at the time. They crossed the threshold, and they were more interested in getting it on the ground and stopped. He realized because of the gusty winds and crabbing that it looked right because it didn't say 360, but because they were just 20 degrees different and the wind created a crab and he thought it was runway 14.

They did heavy braking for the last 50 feet or so on the runway, but it did not scare him. The aircraft was well under control in his opinion. They had autobrakes 3 set, and those started to do their thing, and then he assisted and they kicked off maybe halfway down the runway. They operated after touchdown, and they were working. The last 50 feet, both of them were on the

brakes at that point, and he felt the captain come on the pedals also. He did not have any concerns about hot brakes

No one got off the airplane at first, and after the busses came and the passengers got off, the captain did a walk around. It took some time to get the passengers off because they had to call dispatch and work with Branson for buses, so it probably took an hour. The airport did not have airstairs for about an hour.

Stable approach criteria was 500 feet for visual only, and for an instrument approach it was 1,000 feet.

During the climb from MDW, he said he forgot to set MCP altitude to FL380 as he recalled. They told ATC, and they were continuing the climb. He forgot about that. He forgot to set the MCP to the proper altitude, so the aircraft leveled off. He did not remember why he set the wrong altitude.

He did not have any doubts about the airport when they were cleared for the visual approach, or when they were cleared to land. Everything looked like they were going the right direction, he was correcting for the wind, and said "let's do it."

When asked if a jumpseater could speak up about safety issues below 10,000 feet, he said yes, and for safety reasons that would be fine.

He did not recall what the LOFT difficulties he had when he was attempting to upgrade. There was something wrong with the simulator, and by the time they got in, they were rushed and he did not perform well. He also did not recall what happened on the second attempt, and "it was a mental thing" and he "didn't do well."

He was married with no children. He had no fatigue issues, and said he was fine. He said the captain appeared fine, and there was no talk about being tired. Three days before the incident, he did not recall when he went to sleep, probably 2200 or 2300. Two days before the incident, he was up around 1000 or 1030. He dutied in on Friday the 10th, with an afternoon show for one leg to St. Louis, and was then rerouted to a different schedule. He was supposed to go with the incident captain to SFO, but did one more leg to MSP. He got to MSP about 2100, went to hotel, had dinner, and had about a 12-hour overnight rest. He then went to sleep about 2230 or 2245.

The day before the incident, he woke up at about 0800. The van was at 0900. On Saturday the 11th, his report time was 0920. He flew two legs to MKE. He dutied out at 1730 CDT. The captain went home to Denver and he went to the hotel. He got about 15 hours of rest. He had dinner and went to bed about 10PM central.

On the day of the incident he had a 0715 van to MKE to start his deadheads. He had the 2 deadheads to LGA, MDW, and then they did the one leg to Branson. He woke up that morning at about 0615. He was in bed about 2130 or 2200 the night before. He used earplugs. His quality of sleep that night was very good, and he had no problem sleeping.

He averaged about 9 hours of sleep each night, and felt that was sufficient. He had no sleep difficulties. On the day of the incident, he had 2 hours 17 minutes at LGA, and had hamburger at about 1115 CDT. He considered himself an evening person. There was nothing unusual about his recent work schedule.

He had experienced no significant changes in his health, financial situation, or personal life for a year preceding the accident. His father-in-law had passed away in December, and he had emotionally supported his wife. If that had affected him at all it was through his supporting her. It was not troubling him during the flight.

He considered his health very good. His vision was good, and he just carried glasses. He did not take prescription medications. In the 72 hours before the accident, he had not taken any medications that could have affected his performance.

He characterized his workload on the day of the accident and during the incident flight as mild, and he added that there were no serious issues during the flight.

He said he loved flying for SWA, and there were no external pressures from the company.

He considered the captain's proficiency relative to other captains as above average, and said the morale of the pilots at the airline was good. He had never heard any complaints about the captain.

When asked whether he had received any training that might be relevant to this particular incident, he said he had received some training on visual approaches, but never on a scenario that was similar to this event. Asked whether there were any particular company procedures that were relevant to the circumstances of the incident, he said no.

He said PLK would not display on the ND, and the approach they had on the ND was for Branson. Initially when cleared to the airport by ATC, he had set the Branson approach up in FMS and it was depicted. When cleared for the visual, he had the RNAV GPS set to use as a backup to Branson. When cleared for the visual approach, he reselected VUCUG and turned away from airport to set them up for a 5 mile final. Once they turned away, at that point they were basically flying visually and not using the RNAV GPS backup. At 1,000 feet on final, he was outside and not looking at the ND. Branson was still the destination. The distance to Branson would have been displayed, but on final he was "outside airspeed, outside airspeed, back and forth." He was not looking at the ND. They had turned final to what they thought was Branson.

He did the approach briefing probably out of FL180, but was not sure, and that was when the approach was put in the FMS. The captain had picked up the METAR weather. They had not gotten the ATIS yet but figured it was runway 14. They preliminarily discussed it then enroute, but they set up runway 14 in the descent. He said 90% of the time they would have it set up because they had to talk about the waypoints and fixes. He recalled that it was in the FMS before he briefed it. When the autopilot was flying, the PF usually set up the box, and he put the approach in the FMS.

He briefed to back up the visual with the RNAV 14 to be used as verification of course and heading and waypoints. Like an ILS, if they were on a visual using the ILS for backup, they would use the glideslope to back themselves up on the descent path, stuff like that. It was the PM's duty to back up the PF.

He would stop backing up a visual approach probably at touchdown. He would be backing up airspeed all the way down as well. The written guidance for the visual backup was found in the FOM. He had a working knowledge of it.

He could not remember who called the field first, but both of them agreed on the airport. One of them called it and the other one agreed on that beacon and that runway.

He did not recall what other lights he saw. He noticed the PAPI was not there, but he did not say anything and subconsciously he thought maybe it was broken and he focused on airspeed.

He saw the basic alignment of the runway. When they called it was the first airport they saw, and it stood out. He did not know if Branson had their lights down on dim, but that airport just stood right out.

His last recurrent was January 28, 2013, and he was due this month. He did not recall if SWA put out any safety alerts about wrong airport landings from other recent events.

He thought Clark County had pilot controlled lighting, but they did not have to use it since the lights were already up. Branson probably did not and were controlled by the tower.

When asked if SWA had a policy on which FMC pages the PM should be on for given phase of flight, he said they do, and for RNAV to minimums there are settings, but if you are doing a visual with ILS backup or something, it was the pilot's prerogative.

He said the captain had the HGS down, but could not recall if he used it. Springfield approach did clear them for the visual on the descent, and then switched them to tower, who cleared them to land. The only other traffic was a helicopter, but he never saw it. He could not recall if the captain saw it, but the traffic was well below them.

He did RNAV approaches about once every three or four months. He was somewhat comfortable with them, but not as comfortable as with an ILS. He said the real world did not let them practice RNAV approaches as often. He did not feel rushed.

He remembered getting the smart pack for Branson, but there was nothing in it about the airport they landed at. It did have something about Springfield, which was 45 miles away.

He did not remember seeing a runway number when they crossed the threshold. He said he had thought the event through, and what played into that was airport familiarization and going into an airport at night from an unknown direction.

He felt comfortable sitting in the right seat, and had no worries flying at night.

He said the Smartpack had an airport 45 miles away and he did not think that was a factor. However, something 7 miles away, that was a factor.

When he set up the approach, there was no discontinuity, they had a magenta line to the airport. Once they had turned away to lose altitude, however, it was totally visual. That was what led them in a bad direction.

There were no EGPWS or other aural alerts. There were no real mountains, and they were not even close to the terrain.

After landing, they stayed on the phone with dispatch and had airstairs sent over.

He could not recall if the airplane made any TCAS resolution advisory aural callouts.

He did not feel task saturated when he was high and turning downwind. He was always under control. He "read it like a book and dealt with it." He saw the problem and fixed it.

The traffic was not a distraction. He had let the captain do most the looking, and it did not bother Mr. Langford a bit. Mr. Langford did look for the traffic, but it was his job to make that altitude correction.

Asked to describe the array of ground lights in the vicinity of Branson, he said that the airport was in a pretty dark area. That was what made the runway stand out. They were coming at it from a 90-degree angle, and it was dark around the airport and the airport lights were so bright. He knew they were supposed to be coming into Branson from a 90 degree angle. He said because it was so dark, that was why it was so easy to pick up. Asked whether he recalled noticing any clusters of city lights, he said no.

The new airport pack for Branson had information about the terrain, and to not get confused with Springfield, what the tower operating hours were and other information about the airport.

3.0 Interview: Daniel Menius, Southwest Airlines (SWA) Dispatcher

Date: January 16, 2014
Location: Via telephone
Time: 1000 EDT
Present were: Dave Tew, Bill Bramble, Paul Misencik – National Transportation Safety Board (NTSB); Pat Hempkin – Federal Aviation Administration (FAA); Keith Griffith – Southwest Airlines (SWA); Mike Harris – Southwest Airlines Pilots Association (SWAPA); Doug Allington - Boeing
Representative: David Watzky

During the interview, Mr. Menius stated the following:

His name was Daniel Menius, and he was 25 years old. His date of hire with SWA was January 3, 2011. He was hired by SWA out of college as a St. Louis Ops Agent in the Operations Department, and subsequently moved into dispatch. His college degree was flight ops management. He was qualified for the accelerated program in Ft. Worth to get his dispatch license, got two weeks off work by shift trading and vacation, and went down to Ft. Worth and acquired his license.

He had a commercial pilot license and an instrument rating, and had about 250 or 275 flight hours. His flying was limited to the C172 and C172RG.

He had ridden the jumpseat at SWA many times. Dispatchers were required to log at least 5 hours per year of observation time. He flew up front whenever he traveled to permit an empty seat in the back. He had never jumpseated into Branson before. He had jumpseated probably 20-30 times.

He had been in dispatch since August 2012. Training included 5 weeks of ground school. Then he started off as an assistant dispatcher, which is a trainee program. Dispatcher trainees sat with trainers and released under the trainers name. He did that from August when he was hired until June 2013, when he upgraded to dispatching on his own. He said it was his "dream job."

He did not know either pilot before the incident flight. He met both pilots at Chicago Midway (MDW). The incident flight was his first flight of the day. He felt rested, and it was a lazy Sunday, and he had slept in that day. He said he felt plenty rested.

He introduced himself to the crew, and said he had never flown into Branson before, and wanted to see the approach. They said it would be dark, but they agreed. The captain asked if he had sat up in the cockpit before, and he said yes. The captain went over the briefing card with him. He went over the O2 mask, don't say anything below 10,000 feet, and if he saw anything unsafe to speak up. The FO was the pilot flying (PF).

They exchanged the usual customaries, like if he wanted water. Other than that, they kept to themselves.

They were delayed, but that was pretty typical for flights going through MDW. The aircraft had an MEL for a fuel boost pump inoperative. He had planned flights like that before, so he was excited to see how that affected the flight itself. That was the only MEL he knew of. There were no problems with the gate agents or passengers that were out of the ordinary, just a regular departure out of Chicago. It was delayed, but nothing crazy. He thought the delay was due to the inbound aircraft.

The taxi out of MDW was normal, and they were second in line to takeoff for 22L. It was a long taxi, but uneventful. The takeoff seemed ok. Once they took off and the gear going up, there was some confusion on the heading. He thought the FO thought the previous aircraft's clearance was theirs as far as the heading went, but the captain corrected him. Other than that, it was pretty uneventful.

The climb was fine and there was nothing out of the ordinary. They were filed at FL380. Eventually they told them to go up to FL400. The captain put that in the box and the procedure was for the PF to confirm that and hit the altitude change button, but did not think that happened. They leveled at FL380, switched frequency, and ATC asked them what altitude we were at. They then finally hit the button to climb and the captain corrected the FO that he was supposed to hit the button to continue the climb to FL400. That was it as far as the event. He did not know why the FO did not hit the button, and he hit it after the ATC query. It stuck out to him as something that was different.

The rest of the cruise portion of the flight was normal and very uneventful. There was one traffic observance, and they spotted it fairly quickly. The captain tried to educate him on the MEL. The fuel imbalance of 800 lbs. was observed, and the captain showed him how to do the crossfeed and turn off the pumps in the other tank. He appreciated that because he was always trying to learn when he was up there. The captain was not having problems with the crossfeed, and they were able to correct the imbalance with the procedures. It was not a distraction because they were able to spot the one traffic and get all their frequency changes. That happened early in the flight.

He said the crew briefed the approach to Branson. He could not recall with certainty if they did the briefing or got out the plates, but he thought they did use the plates. They got the OPC and the ATIS information. The captain did that because the FO was the PF.

SWA has three flights a day into Branson.

Before they departed, the captain said he had not been to Branson, and the FO said he had been there once. The FO did not specify if he had been the PF. The FO claimed that he was going to be the "expert" on it since none of them had been there before.

Nothing about the ATC handling stood out as being different. Springfield approach took them over and then handed them off to the tower, who cleared them for the visual approach. The last thing he recalled saying was the captain pointing out a second cluster of lights that should be Branson, and the lights over to the right should be Springfield. The ATC clearances did not seem unusual. They seemed to clear them for the approach pretty early, but it was Branson, and there was no one for a hundred mile radius.

They were planning on landing on runway14, and that is all he recalled. He knew they were cleared for the visual approach.

He thought ATC asked if they had the airport in sight, but it did not stick out in my mind. The controller would not have cleared them to land if they did not have it in sight. They said they saw the beacon, but not the runway lights and cluster of lights, and that stuck out to him. He was not the best at picking out airports, and thought they did this every day and were better at it. He did not recall who pointed out the beacon, and as far as he knew, both agreed that they had seen the beacon. He did not recall them specifically talking about the runway, and he was busy trying to focus on finding it himself.

He did not notice the FMS setup for the approach, and remembered them being cleared to different GPS waypoints. He assumed it was a GPS approach. He did not specifically recall that was what they were set up for. He remembered that the waypoint was a weird term he had never heard of.

He was not sure whether the crew was referencing anything to monitor the distance to the airport. The screen they had showed waypoint distances but he was not sure if they were looking at those distance because by that point he had transitioned from looking at the instruments to looking for the airport himself. Most of the flight, he stared at the miles ticking down, but at that point when they were cleared for the approach, the distances were nothing for him to look at. He just looked at the airport because it came pretty fast at that point. He did not recall seeing the crew watch the distance to the airport.

He thought the crew briefed the approach. It would have stood out to him if they had not. He did not recall what type of approach was discussed, or whether they discussed the type of lighting system. He was familiar with the VASI and PAPI systems. He did not recall if he saw one since it all came kind of quickly. They were descending, putting flaps out and the gear down. He thought he saw an airport in the distance, and then they quickly made a left turn and there was a runway right in front of them, and he thought "Oh, I was off, that must be Northwest Arkansas regional over there." He dismissed his notion that the one in the distance was the one they were heading toward. He had thought they were awfully low to be heading there, but then they turned and it seemed a little high actually. That was the first thing that piqued his interest. He did not recall there being any PAPI or glideslope guidance at all. Then it also piqued his interest that there was no ramp lighting whatsoever. If it was an airport SWA had service to, and they were expecting them to arrive, the ramp would have been lit up. But at that point, they were getting low.

He said the runway edge lights were lit, and that was the only lighting. The runway had no centerline lights.

He said the crew did not point the airport out to him, as they were below 10,000 feet. He said he was just trying to follow along to what they were talking about. He did not follow the one they had pointed out because he was trying to figure it out for himself. They were not chatting with him or trying to figure it out with him. He was just along for the ride.

He found the airport himself, the one he thought we were heading to, but he thought they were low. He said it really caught him off guard when they made a left turn and there was a runway. He thought that must be Branson, it must be normal, it must be what the approach was, and the crew knew what they were doing.

The airport he had seen in the distance was just a beacon and runway lighting. There was nothing in particular at that airport as far as approach lighting that had really caught his eye. He just saw the runway lights. He was not sure if the airport in the distance had terminal lighting, but it was a little more lit up than the one they landed at. He did not know if it had a terminal or hangars. It just looked like an airport in distance.

He did not say anything to the crew since they were below 10,000 feet. He tried his hardest to respect that. He just second-guessed himself, thinking that the airport in the distance must be Northwest Arkansas and he must be foolish. He had only jumpseated 20 times and it was dark and the pilots had done this thousands of times. He was not about to interrupt the approach with his opinion and second-guess their professional opinion. He just thought they would not want a jumpseater pointing things out. They had been doing this since he was in grade school.

He was not sure if the pilots were using any reference for distance to the airport. The runway lights at Graham Clark were on, but no other lights, and he did not see a VASI or PAPI. The runway was not lit up per say, and he did not see any runway numbers until they were crossing the threshold and when he saw the numbers saying 12. He thought "is this happening, this is a dream, this is not right." The edge lighting was all there was. There was no way to see what the runway number was until they were crossing the threshold or got close enough for the landing lights to illuminate them. He just thought "Oh my god, this is not the right airport." He knew for a fact that 14 was the one they were supposed to be landing on, and that was when he thought it was a dream it was not happening. It never occurred to him that the runway could be too short and that it could be catastrophic. He just thought it was the wrong airport. By the time he saw the runway numbers, it was too late for him to say anything even if he wanted to. It all happened really fast.

The pilots did not acknowledge that they were at the wrong airport until after the airplane had stopped. He could not recall which one pointed it out. They knew they were at the wrong airport. No one said anything until after they had stopped at the end of the runway. He did not say anything out loud about it being the wrong runway at that time. He just remained silent.

After that, they stayed there and waited for Branson to send support. The captain contacted the tower, told the tower they had landed, and said he did not think they were at their airport. The tower asked if they were on the ground, and the captain said yes. They then tried to identify the airport. He pulled it up on airnav and tried to show the captain, but the captain brushed him off, understandably. He had a lot on his mind. They then made lots of phone calls to the airline and their union. The captain definitely called dispatch right away.

The crew were very professional as far as the passengers went. As they deplaned, the captain came out to make sure that went smoothly and safely.

Asked to describe the position of the airport he thought they were headed toward just before the hard left turn, he said he was not sure. It kind of looked like they were heading toward it but they were too low. After they made the left turn the airport he had been looking at was off to the right. He was resigned to fact that that was NW Arkansas regional. He was not sure how far away that airport was. He was bad at estimating distances from the air, especially at night.

They were cleared for the approach early, for sure. He thought ATC cleared them to land pretty early as well. They were the only people landing on a Sunday night for a hundred mile radius.

The crew observed sterile cockpit under 10,000 feet during arrival. As far as he remembered, they were very professional. Below 10,000 feet, there was nothing they were having conversations about that he could recall. He remembered one of the pilots wondering if they had hit the FA call button and them having to hit it again.

He did not know the range on the navigation displays, but he remembered that the captain did make a point of putting range rings around the airport at 5 and 10 miles. He did not recall paying attention to it further after they were cleared for the approach. That was when his eyes went outside the airplane. He should have referenced the display, but was trying to figure it out on his own with visual cues. It was the captain who put the range rings in FMS. He thought they were displayed on both displays, but could not say with certainty. He could not recall if the rings went away, or if the crew changed the rings.

He said they cleared them to one of the GPS waypoints, and the crew hit direct VUCUG or something along those lines. It was pretty standard direct routing to a fix. He did not recall the crew referencing the navigation displays after they were cleared to land.

The crew seemed to be getting along fine. Both lived in Tampa, and had a lot in common. They seemed pretty nice to each other. The captain gave them both chocolates in the middle of the flight, simple niceties like that. He had been on flights where they were much more chatty and friendly, but they did not seem to have any animosity or appear to be super chatty.

He had no health issues during the flight. He did not hear the crew complain of any illness or symptoms, and they seemed healthy. They also seemed alert and did not seem tired or anything like that. They did not discuss being tired.

They were drug and alcohol tested when they got to the hotel. They arrived at the hotel about 11pm or so, and went to their own rooms. About 1:30 AM the drug and alcohol testing woman arrived from Little Rock. Each of them was separately drug tested and alcohol tested about 7 hours after they landed.

The crew did not discuss what went wrong afterward. They almost seemed a little in shock. They did not discuss it as far as he observed.

His last use of alcohol was Friday night with a few beers at dinner, and no crazy partying. That had occurred about 40 hours before the incident. His Saturday night had been pretty tame.

They had briefly discussed the meltdown the company had the week before at Midway, due to the weather and staffing at MDW, a snowstorm, a lot of sick calls, tarmac delays in Chicago, and their operation came to a halt essentially with crews being displaced and all that. But that was the week prior. Everything had since smoothed out.

Asked to describe his daily sleep need, he said he tried to get a full 8 hours each night. He worked evening shifts and did not have anywhere to be in morning or a family to take care of, so he was usually very rested.

He was on reserve, but he did all evening shifts. They started at 1300, 1400 or 1500 and lasted 8 hours. His normal schedule was 6 days on, 3 off, 6 on, 3 off, 6 on, and 6 off, but being in the bottom 20% in terms of seniority, they messed his schedule around to fill the holes. He worked Tuesday and Wednesday prior to incident on the 7th and 8th. He was then off from the 9th through the 12th.

On the night before incident, he was in Chicago staying with friends and went to a Bulls game. He came home about 2200 or 2230, and watched TV. He went to bed before midnight and slept in the next morning. He could not recall when he woke up, but he got at least 8 hours of rest. He could not recall any sleep restrictions the previous 2 nights, and it was roughly the same sleep schedule.

He said SWA actually seemed to be doing fairly well. The stock had gone up considerable, and did not know why. He said the workload on the pilots did not seem to be overwhelming from dispatch point of view, especially with the implementation of Part 117. It had taken a while for them to get used to it. Morale seemed fine. They always had something to say on the line and rumors at HQ. They were pretty much talking about what went wrong the week prior, and who to blame. Other than that, it seemed like "status quo."

Dispatchers were required to get 5 hours in the jumpseat each year. He tended to go way over that as a young single guy, traveling a lot. The flights were typically pretty full so he had to sit up there. He was listed as a jumpseat rider authorized for flight deck.

When asked if the term additional crewmember or ACM come into play, he said he did not think so. He said he was technically considered part of the crew, but he did not believe it said anywhere "additional crewmember," and was "just kind of understood."

His role in the jumpseat was just observance, and he had no official role. He liked to see out-of-the-norm situations, like Chicago when the ceilings were low. He thought there were written guidelines in the dispatch manual, but he would have to look them up. It pretty much stated what he said, "just observing."

He said this crew was not really chatty with him. They typically do not want you up there unless you have to as a dispatcher because it felt like somebody was watching them, hovering over them in their workspace. Some crews want you to be up there, though. They loved that dispatch was interested. This crew, he had to actually kind of really ask and say he would really appreciate it if he could see this approach, and they had agreed. He did not have to beg, but they were not as excited as some crews had been before.

He did not recall if the crew briefed the approach. He said with him traveling so much, just whenever they do their briefings it was just another thing they did that he did not think twice about. It did not stand out to him.

Crews normally briefed on the descent. It depended on the flight. For a short hop, they did it pretty quick, above 10,000 feet normally. He did not recall them referencing approach plates. He

was not exactly paying 100% attention to them doing it. They must have gotten them out, just he was not paying attention to that.

Approaching the airport, one of pilots was pointing out Springfield and Branson. That was above 10,000 feet, but did not recall specifically. It was in the descent, for sure.

The crews had a checklist they pull out at 10,000. A flight attendant notification was on that checklist, and he could not recall what else. The pilots could repeat it verbatim, but he did not remember.

The airport they landed at was not one of the approved alternates, and not in the OPC. Engineering had to look up the numbers. They may have been able to look it up in the FMC, but no attempt was made to do that. The airport they landed at was not in their ops specs. He was not aware of any runway length limits, just the list of airports they serve and alternates. He did not know if the runway lengths were displayed. He recalled it being on one of the approach plates after they landed, but nothing that he could recall was on the display.

He did not recall seeing what the crew did as an airport verification procedure. He was not sure of the actual procedure since that was more of a pilot thing. He did not recall noticing any specific runway verification procedure in his previous jumpseat experience.

As far as he could remember, the braking did not seem excessive. It did not seem different than landing at Chicago, which was one of their shorter runways. It seemed they always braked hard to stop quickly, but he had a lot on his mind. He knew they were at the wrong airport. He was not really paying attention. He did not recall any smell of burnt rubber as reported in the news or any comments from them until they stopped the aircraft.

The crew seemed rested. He assumed they had just started their day, or they probably had one leg prior. They were going all the way through to New Orleans and seemed well rested. He believed they were on the trip together and would finish together, and were talking about doing New Orleans, Houston and Orlando.

He thought the crew was getting along fine. The approach did not seem rushed, and they were cleared to one of the waypoints. It all kind of seemed normal. They put in the flaps and gear that is what he thought they needed to. Nothing seemed out of the ordinary as far as setting up for what runway they were landing on. They were cleared to one of the waypoints out of Chicago so they did not have to follow the A track all the way down. There was nothing excessive.

There was definitely not any other traffic in the area of the Branson airport at that time. There may have been at Springfield, but he did not recall. The crew was not worried about spacing issues.

SWA started service to Branson on March 8 of 2013. Dispatchers also received new airfield packets, and he got one for Branson. It is still on SWAlife he thought, and would have received it about a year ago. He did not recall what hazards it had listed in it.

He did not remember if the captain had the HGS up or not.

The crew seemed a little reluctant to have him there when he first introduced himself, but during flight the captain was attentive to him and wanting to educate him about the MELs, and even offered him a chocolate. He was very nice to him once underway.

They never felt rushed, and he did not feel like they were all that rushed. In Chicago one could not rush, A flight would get out of there when it got out of there.

The winds did not seem too strong, and they landed fairly normally.

He did not recall seeing the crew set up the FMS, but they may have since it occurred on every flight. He did not think twice about it.

He did not remember any alerts on the approach.

He was not sure what airports showed up on the navigation display.

On the ground, they stayed in contact with tower controllers who gave them the Unicom frequency 122.7. The first people who showed up were a couple of people in a Jeep. They were not able to communicate because the airplane's engines were still on. They communicated through the radio by way of the tower. Somehow they got a phone number to someone in the area that they were talking to on the phone a lot. There was not a lot of communicating through the window. A state trooper came up and the pilots opened the window, but the captain did not want to have anything to do with that and just slammed it. They had trucks come in from the real Branson airport. It took a good hour and a half.

He was listening to ATC communications through the headphones during the flight. He did not remember hearing any traffic callouts in the Branson area. There were no TCAS alerts or RAs.

There were no aural alerts other than the usual when they turned off the autopilot and started hand flying, which happened every flight. He remembered hearing a "100" aural callout, but that was when he was overwhelmed with landing at the wrong airport.

He did not recall anything about the glideslope or FPV during the approach. His attention was outside the airplane.

Dispatchers covered DRM training every year in recurrent training, and it covered how to associate with the flight crews and work as a team. Every other year they had refresher training on riding the jumpseat, but most of it was just dealing with the jumpseat.

Asked if the company provided any CFIT ratings or other risk ratings for airports, he said not that he recalled. He added that they had a new fuel policy where they rate the airports based on complexity, and was related to contingency fuel.

4.0 Interview: Jerry Griewahn, FAA Aircrew Program Manager, B737-700

Date: May 8, 2014
Location: Via telephone
Time: 1300 EDT
Present were: David Lawrence, Bill Bramble, Alyse Adkins – National Transportation Safety Board (NTSB); Pat Hempkin – Federal Aviation Administration (FAA); Keith Griffith – Southwest Airlines (SWA); Doug Allington - Boeing
Representative: Mark Tomicich, FAA Chief Counsel's office

During the interview, Mr. Griewahn stated the following:

His name was Jerry E. Griewahn, and he was 66 years old. His title was Aircrew Program Manager (APM) on the B737-700 fleet, and he had been in that position for about 4 years. He was in charge of all training, simulator programs, check airman training and programs, and reviewed Southwest training manuals.

His background started in general aviation, and he spent about 10 years flying in Part 135 operations. He was an air ambulance pilot out of south Florida, and also a chief pilot for a Part 121 operation. He spent 8 years with Kitty Hawk, 3 years as their chief pilot, and several years as their Director of Training. He was a check airman on single engine aircraft and light twin engine aircraft as well as the Lear jet. He was also check airman on the B727 and DC9. He was chief pilot on the Convair 580's, DC9's and B727's while at Kitty Hawk.

He was type rated on the B737, and they were on an MOU[1] with Southwest Airlines to go through the same training as the pilots, and for new training, the FAA went through the curriculum first. He observed training every week, and conducted about 80 proficiency checks (PC) each year. He would sit in on those PC's to see how all the check airmen were doing. He said if he only sat in on a few PCs, he would only see how a handful of check airmen were doing. He wanted to check the teaching and standardization of all the check airmen. All training for Southwest was conducted in Dallas, Texas.

He would conduct enroute inspections on the B737, but not as often as he was in the simulator. He did about 2 or 3 enroute inspections each month, and most of those were out and backs from Dallas.

The Certificate Management Office (CMO) he worked in had a Principle Operations Inspector (POI), and he also had a supervisor in the Ops unit. They had 2 APMs and one assistant APM. Gary Parks was the APM on the B737-300, -500, -800. His only oversight responsibility was on the -700. He had a total of 10 Aircrew Program Designees (APDs), with a new class of 16 about to finish their training, for a total of 26. The reason for the increase was in preparation to their transition to Advanced Qualification Program (AQP) training and the need for APDs to do the initial checks, which was set to phase in on January 1, 2015 with the introduction of Continuing Qualification Training (CQT).

[1] Memorandum of understanding.

He first met the incident crew when he participated in both of their 709 rides.[2] He said that both pilots performed well on their rides. The captain had returned to line flying, and the first officer (FO) had since retired.

He said he had reviewed both pilot's training records, and the FO had multiple LOFT[3] failures for upgrade. He was not involved in those LOFT failures, though he did receive notice of all failures in training. He went through retraining, and he said the upgrade training difficulties were the only training problems the FO had.

He said that if a pilot had 2 failures in 2 years, he went into a remedial training program. If he incurred another failure, his case went to the pilot review board, which reviewed the need for training. He did not know if the FO went through the remedial program, and he did know why the FO retired.

Oversight was conducted through ATOS[4], and they conducted risk assessments, identified the risks, performed element performance inspections (EPIs) and safety attribute inspections (SAIs) and constructed dynamic observation reports (ConDORs). They conducted oversight under the ATOS format, did a risk management, figured out the risk, and attacked those problems. The SAI's were done on a timeframe, and EPIs were done as needed. They conducted ConDORs for special problem areas if they saw a need to conduct them. When asked if the FAA had conducted any recent ConDORs on the Southwest Airlines -700 program, he said no.

He said the incident had not prompted any new oversight initiatives on the FAA's part. The FAA had already been working with Southwest on human factors training. Southwest was "upping their emphasis" on human factors. The company was coming up with a new Division Manager position for human factors, was emphasizing their looks at pilot monitoring on PC checks, increasing training for pilot monitoring (PM), and encouraging the PM to "speak up." Southwest had good procedures in their manuals for visual approaches. Visual approaches at Southwest were required to be backed up by an navigational aid they had available. He said they had good "calls" in their manuals, and in the Branson event it was all human factors. The crew had developed tunnel vision, and "it was all downhill from there."

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[2] The 709 ride refers to the FAA's authority to re-examine an airman holding a certificate (pilot, flight instructor, airframe and powerplant etc.) at any time pursuant to 49 U.S.C. 44709(a). The FAA issues a request for re-examination to an airman after it discovers evidence that leads it to question an airman's qualifications to exercise the privileges of the airman's certificate.

[3] Line oriented flight training.

[4] Air Transportation Oversight System. According to the FAA, ATOS is based on the explicit policy of the FAA, which states: "The FAA will pursue a regulatory policy, which recognizes the obligation of the air carrier to maintain the highest possible degree of safety." ATOS implements FAA policy by providing safety controls (i.e., regulations and their application) of business organizations and individuals that fall under FAA regulations. Under ATOS, the FAA's primary responsibilities are: (1) to verify that an air carrier is capable of operating safely and complies with the regulations and standards prescribed by the Administrator before issuing an air carrier operating certificate and before approving or accepting air carrier programs; (2) to re-verify that an air carrier continues to meet regulatory requirements when environmental changes occur by conducting periodic reviews; and (3) to continually validate the performance of an air carrier's approved and accepted programs for the purpose of continued operational safety. Source: FAA 8900.1 CHG 81, Section 1 "Air Transportation Oversight System Doctrine."

The B737 check airmen met twice a year as a group, and each check airman was in the simulator every other month to conduct Proficiency Checks (PCs) on line pilots.

He said that if a check airman or line pilot had any problems or questions, Southwest had an online questionnaire for them to fill out to get answers.

Southwest had conducted a LOSA[5] audit, and he thought that occurred last year or the year before. He said there were no significant findings from the LOSA, other than pilot monitoring. That was what had started the push on pilot monitoring and human factors emphasis. That initiative had begun prior to the incident, and Southwest had emphasized it more since the incident.

When asked if the FAA had any findings to the Branson event, he said "not really." The FAA had not made any findings related to the incident and Southwest had not made any changes to their training or procedures since the incident other than re-emphasizing CRM (crew resource management) and pilot monitoring.

When asked if visual approaches were overseen by the FAA, he said he was in the airplane quite a bit, and 90% of the approaches he saw were visual approaches. Those were the only times he would see visual approaches. Oversight also occurred through his review of the training manuals that were studied by the pilots.

Southwest trained in Level D simulators.[6] Asked if he oversaw visual approaches were being trained in the simulator he said yes, but the pilots did not practice that many visual approaches in the simulator.

He had no concerns about how Southwest pilots were conducting visual approaches, not with how they reviewed the approach or briefed the approach. In the case of Branson, it was a human factors issue, and both pilots saw the airport lights, and "the caught their attention and distracted them and they never went back in" the cockpit.

For the HUD (heads-up guidance system) on the B737, the pilot could set up a visual approach, and it would give you a glideslope, and they could then "hook that up." They were taught in initial training how to use the HUD and instruments when conducting a visual approach.

Pilots could set up a 3 degree glideslope in the HUD, and it would give the pilot a 3 degree bar to set them up for visual guidance for the approach. Pilots were taught in training how to conduct visual approaches using the HUD, and they were taught to just use the HUD as a back-up.

He said he was not concerned about how visual approaches were briefed by Southwest pilots. He said there were 2 types of visual approach briefings, one to a visibility unrestricted and one to a visibility restricted, and he thought the briefings included lights to assist them in conducting the visual guidance. When asked if he had seen the recent NTSB safety alert for conducting visual

[5] Line Operations Safety Audit.
[6] Level D simulators are full motion simulators with daylight, dusk and night visuals. See FAA Advisory Circular 120-40B "Airplane Simulator Qualification."

approaches and wrong airport landings and the guidance suggested in the Safety Alert, he said Southwest pilots "pretty much do that now."

He had no suggestions for changes to Southwest procedures. He said that not just for Southwest, but all operators needed to focus on human factors. He had over 3,000 hours as a simulator instructor. He said he had seen things like a light distract a crew and watched them "fly into the side of a mountain." He said Southwest was preaching pilot monitoring, and to encourage the PM to speak up. He said the Branson event was a case of "tunnel vision by a pilot or both pilots." It was like driving down a road and your mind wandered, and when you came back, you did not remember the last 5 miles you had driven. He thought they both got distracted by the lights and took their mind completely off the instruments. It took their minds completely off what they were doing with the airplane.

He did not know what criteria went into the identification of nearby airports in the Smart Pack issued for Branson. The FAA got copies of the Smart Packs, and he thought they came from both the Safety and Training departments.

He said that Southwest had a website on their employee page that allowed a pilot to review any city and see the mistakes other pilots may have made going into that airport. The data source for that was from irregularity reports (IRs), ASAP[7], and wherever they could get the information.

Interview concluded at 1335.

5.0 Interview: Denny Keller, Southwest Airlines B737-700 Check Airman

Date: May 20, 2014
Location: Via telephone
Time: 1400 EDT
Present were: David Lawrence, Alyse Adkins – National Transportation Safety Board (NTSB); Pat Hempkin – Federal Aviation Administration (FAA); Keith Griffith – Southwest Airlines (SWA); Doug Allington – Boeing
Representative: Captain Keller declined representation.

During the interview, Captain Keller stated the following:

His name was Dennis L. Keller, and he was 62 years old. His title was captain and check airman on the B737 at Southwest Airlines. He was an all-checks (simulator and line) check airman on all the B737, including the B737-300, -500, -700 and -800. He had been a check airman on the

[7] Aviation Safety Action Program. According to the FAA Advisory Circular 120-66B "Aviation Safety Action Program (ASAP)", the objective of the ASAP is to encourage air carrier and repair station employees to voluntarily report safety information that may be critical to identifying potential precursors to accidents. The Federal Aviation Administration (FAA) has determined that identifying these precursors is essential to further reducing the already low accident rate. Under an ASAP, safety issues are resolved through corrective action rather than through punishment or discipline. The ASAP provides for the collection, analysis, and retention of the safety data that is obtained. ASAP safety data, much of which would otherwise be unobtainable, is used to develop corrective actions for identified safety concerns, and to educate the appropriate parties to prevent a reoccurrence of the same type of safety event.

B737 for 27 years since 1987. His date of hire with Southwest was 32 years ago. He was originally Dallas Love Field (DAL) based, transferred to Phoenix, Arizona (PHX) for 20 years, and currently was based back in DAL.

He held an Airline Transport Pilot (ATP) license with a type rating on the B737. He also held a first class medical certificate with a limitation to possess glasses. He estimated his total flight time at 22,000 hours, with about 20,000 hours as pilot in command (PIC). He said most of his time was in the B737, and he previously flew in the military.

He reviewed the incident captain's training record, saw that he conducted a proficiency check (PC) on the incident captain, but did not remember specifics about the PC. He did not see anything unusual in his review of the training records, and "nothing else jogged my memory."

The PC ride was an annual event. Visual approaches were not required to be evaluated on a PC. They might be performed if a check airman needed a right seat landing. He did not remember the particular PC for the incident captain, but said he would not typically have the pilot conduct a visual approach on a PC he was administering.

When asked if he had experience as a check airman with a pilot going through remedial training, he said he was the PHX chief pilot for 3 years, and a senior chief pilot for 3 years, and he was involved in the development of the remedial training program at Southwest. It involved a pilot who had an unsatisfactory a training or checking event. It usually was initiated after two unsuccessful events in a row. He was not sure about the specifics since the program had evolved since he first helped start the program.

He said check airman typically do not review a pilots training record prior to conducting training or and evaluation so they could "get a fresh look at a person."

Either during simulator training on line training, they always train pilots to back up every visual approach with an instrument approach, and monitor the instrument approach. They train pilots to review the airport diagram as well. On the line checks, the pilot would typically see a visual approach, and they would observe the pilots backing up the visual approach with an instrument approach. It was a procedure to back up all visual approaches, and they were instructed to use the best available approach; and ILS, a GPS, an RNAV or whatever was available. He said about 90% of the approaches Southwest pilot conducted were conducting visual approaches

When asked how pilots at Southwest were trained to brief visual approaches, he said they should brief a visual approach into the airport, backed up with an approach, and include touchdown elevation and high terrain as a minimum. They should also include terrain, runway lights and approach lighting. He said "typically on an instrument approach, the visual approach can brief as much as you want," and the pilot should look at the flight management computer (FMC) and control display unit (CDU) to make sure it was "in the box." He did not know why runway and approach lighting was not required to be briefed for visual approaches, and some pilots would include that information and some would not. At a minimum, they would brief the approach course and the frequency for the approach. Guidance for visual approach briefings was found in the flight operations manual (FOM).

When flying a visual approach, the pilot should cross check their instruments inside, and when should select VOR or LOC to capture the course inbound. They use both the information they see outside and the information they have for the instrument approach. They should use the visual cues with the best available approach to know if they are high on the approach. For vertical guidance, they should use the glideslope from the ILS, and could cross-check with the final approach fix (FAF) altitude and other recommended altitude for the fixes on the approach. They could also use the VNAV guidance for glideslope guidance.

Use of the HUD (heads up display) on visual approaches is not a requirement. They could put the HUD in VMC mode, and pilots were taught how to put the reference line on the runway for glide path information. He said in VMC mode, it primarily was just a descent angle to the runway, and gave cues that you can put you on the runway. It would not tell the pilot they were approaching the correct runway, and that was why pilots were taught to back up the visual approach with an approach like an ILS. There was no navigational information displayed in the HUD when in VMC mode. He did not believe the HUD in VMC mode gave any distance information to a runway, including for a visual approach backed up with an RNAV approach.

He said he personally did not use the VMC mode that much. It was a tool that was available to the pilot, and he always put in an approach to backup up the visual approach. He would also use an RNAV to back up a visual approach; however in that case, if he were using the HUD, he would use the HUD in "IMC mode." Southwest provided guidance on how to set up the HUD for low visibility approaches. They had cards in the airplane that pilots could review to setup a CatIII approach, and how to set up the HUD for takeoff and landings. They did not have a card that provided guidance on how to conduct a visual approach.

He did not see pilots having an over-reliance on the HUD during visual approaches.

When asked how pilots were trained to land at the correct airport, he said they were trained to use all available resources, back up visual approaches, and when they were close in, ensure that the runway numbers were correct and the heading for the runway was correct.

Since the incident, he did not know of any procedural changes at Southwest related to visual approaches. He said there was a "heightened awareness" from the pilots regarding visual approaches and landing at the correct airport.

He said the presence of a VASI or PAPI could be part of a visual approach briefing, but it was not a requirement. He said they did brief lighting for their visual approaches, but did not think it was that much of a factor. He said he had not seen a problem with that on an instrument approach, but "obviously during night time everything is critical."

He said if a crew were high on the approach, they should conduct a go-around if they were not stable.

For operating into a new airport, he said there was standard guidance. Pilot should make sure there was an instrument approach to the airport. Their 10-7 page had a lot of information about

the airport the pilot could review, and included warnings about surrounding airports. He said Smartpacks were something the company put out when they first started flying into an airport. It included items to look for, and listed ASAP information about the airport.

He said he had operated into Branson before, coming in from the northeast from Midway Airport (MDW). He remembered it having an ILS, and they flew that approach. The area was hilly, and there were some terrain considerations. He remembered that it did not have a long runway, and pilots should have a heightened awareness operating there. When asked what he meant by heightened awareness, he said they taught that in the simulator, and in was risk resource management. If the pilot "got out of the green into the yellow or red" they should mitigate the risk to move back into the green. He used that as a teaching tool.

The captain was the only pilot with a HUD. Pilots were taught not to get "tunnel vision" when flying with the HUD. He said he thought their procedures were are good, and what was taught was good. He said the Branson incident was "one of those things that happens," and did not know what he would change to make things better. He said pilots had to follow their procedures, and said "what we teach is good."

Interview concluded at 1450.

6.0 Interview: Craig Henrichson, Southwest Airlines B737-700 Check Airman

Date: May 20, 2014
Location: Via telephone
Time: 1500 EDT
Present were: David Lawrence, Alyse Adkins – National Transportation Safety Board (NTSB); Pat Hempkin – Federal Aviation Administration (FAA); Keith Griffith – Southwest Airlines (SWA); Doug Allington - Boeing
Representative: Captain Henrichson declined representation.

During the interview, Captain Henrichson stated the following:

His name was Craig Henrichson, and he was 55 years old. His title was line captain on the B737 at Southwest Airlines. He previously was a check airman for about 6 years from April 2005 to march of 2012. His date of hire with Southwest was March 1, 1990, and he had been a captain since October 1994. He held an Airline Transport Pilot (ATP) license with a type rating on the B737. He held a first class medical certificate with a limitation to possess glasses.

He estimated that his total flight time was 18,000 hours, with 14,000 hours as pilot in command (PIC) He said all but about 2,500 hours was on the B737, and of his PIC time, all but about 3,500 hours was on the B737. Previous to Southwest Airlines, he served in the Air Force. He was no longer a check airman, and voluntarily returned to the line because he "had done it long enough."

He reviewed the incident first officer's (FO) record, but did not remember anything about him or the check ride. He believed he provided the FO a routine proficiency check (PC) in January of

2012. At the time of the PC, he was not made aware of any of the FO's training difficulties, and upon review of the training records, saw that the FO had difficulty with upgrade training.

When asked about the remedial training program in general at Southwest, he said that when a pilot failed an event, he would bring it to the attention of his supervisor, and based on the check airman's recommendation, the chief instructor would determine the need for retraining. He was never briefed on the incident FO's training difficulties. There were certain check airmen who were called on to do recertification rides. He was never briefed about a pilot's previous training prior to him conducting a PC. It was not standard procedure, and was not encouraged. He did not know why.

Typically on PC's, pilots did not conduct visual approaches. They may have one during a windshear event in the simulator. The profile for the PC was laid out and scripted. CRM was evaluated, and there was more emphasis on it now.

Pilots were taught to fly visual approaches primarily during initial operating experience (IOE) on the line, and also based on their past experience. He said about 70% of all the approaches they conducted on the line were visual approaches.

Visual approaches were required to be briefed. They also required the pilot to back up the visual approach with an instrument approach. Runway and approach lighting was not required to be part of a visual approach briefing. When asked why not, he said "ask the guy who wrote it." The lighting was also not required to be briefed on a visual approach at night. Some pilots would brief it as a technique. The guidance for briefing visual approaches was found in the Flight Operations manual (FOM).

When asked how are pilots were taught to fly the visual while backing up with an approach, he said the pilot needed to be on glideslope by 1,000, and on a 3 degree glide path. They would then transition to visual, and use the PAPI if available.

The HUD (heads up display) was not required for a visual approach, and was only required for approaches below CatI. The HUD was not encouraged on visual approaches "one way or another."

He had never seen any issues with pilots having problems conducting visual approaches while using the HUD. The only difficulty he saw was a firm landing from the pilot overly focused on the HUD symbology.

He said the use of the HUD symbology was purely pilot technique. He personally set it to IMC mode to "declutter from the primary mode." He did not personally use the VMC mode very much, and there may be some pilots who liked to use it.

During training, he did not know what the pilots were looking at flying while flying the HUD on a visual approach. There was good flight director guidance in the HUD, but he would also be monitoring the approach for the other information.

When asked about the strategies Southwest taught its pilots to ensure they were landing at the correct runway, he said that every visual approach was to be back up with instrument approach. Some of the other techniques came from basic pilot knowledge since "at Southwest, we don't teach aviation 101."

He said there have been no changes to procedures since the Branson incident. There was a flyer put out by Southwest re-emphasizing visual approaches to be backed up by instrument approaches.

He said as pilot monitoring (PM), he would use the HUD the same way as if he were the pilot flying (PF).

He felt the tools they had at Southwest were adequate "if you follow them."

Interview concluded at 1535.