

Southwest Airlines Co.
Erin Carroll
Senior Manager Safety Investigations
Safety and Security
WGS-1SE
2195 Research Row
Dallas, TX 75235
[REDACTED]



May 7, 2025

Doug Brazy
Senior Aviation Accident Investigator
National Transportation Safety Board

RE: Southwest Airlines Flight 2231 Crew Statements

Doug,

Per your request, please find below the statements from the crew involved in the aircraft accident due to a hail encounter resulting in substantial aircraft damage on May 2, 2025.

Captain

This event occurred on day 3 of a 4-day pairing. This was the second leg of a three-leg day scheduled for the day. I was the Pilot Monitoring for this flight. Enroute to KBNA, we had been cleared on the CHSNE2 arrival beginning at Memphis. We were using our WSI application on the EFB to assess weather which was quickly approaching the KBNA area. Our alternates were KBHM and KSDF. Weather at KBNA was currently VFR but forecast indicated IFR with thunderstorms around our time of arrival. We discussed deviating south of the line of weather toward Muscle Shoals. It was noted that the extra time going south and back around would most likely put us arriving as the weather moved over KBNA. We could visually see and confirmed by WSI PilotBrief on our EFB that the line was breaking up to the north of our track. ATC provided us this information as well. We were well above the weather and my thought was to descend on the other side of the line. We discussed our plan and elected to deviate north of the weather.

Around the Memphis area, ATC gave us a descent to FL360, still well above any weather. I called to the Flight Attendants and asked them to be seated early in their jumpseats in the event of unforeseen turbulence and that I would call them when on the other side of any weather. We briefed the CHSNE2 arrival and the full approach to ILS Runway 20R. Before initiating the Descent Checklist, ATC further cleared us to FL240. The Pilot Flying initiated an enroute descent. We were in clear air and could visually see a build-up around our 1 o'clock position. ATC notified us of the cell at our 12:30 to 1:00 o'clock position and consulting radar and the WSI app, did not see anything directly ahead of us. Just after starting our descent, we received a crossing restriction of 40 miles out of BNA at 11,000FT. Ahead and below us was a flat, stratus layer with no build ups noted.

ATC advised us of moderate to extreme precipitation at 12:30 to 1:00 positions which was the reason to deviate. The Pilot Flying attempted to load the FMS for the crossing restriction but received an INVALID ENTRY response. I intervened to load the restriction for him in the FMC. We entered the clouds at around FL320 and initially, the ride was smooth with occasional light chop. It was decided to enter the fix page and enter a 40-mile ring off BNA since we were off the airway. At about FL280, the turbulence and precipitation hit. We were at about 290kts. Precipitation and turbulence were instant. Rain was very heavy and from the excessive noise, I suspected hail but could not verify visually. I immediately retarded the throttles and deployed the speed brake to slow to turbulent air penetration speed as he flew. The First Officer selected HDG Select and LVL change and began leveling out around FL240. The heavy precipitation lasted about a minute, and we exited the turbulence and heavy precipitation. We were still IMC at this time.

The First Officer initiated a LVL change descent from FL240 to 11000 feet. We exited the clouds at around FL190 and notified ATC that we experienced moderate turbulence. ATC then asked about the crossing restriction, and I notified him that we would be unable to comply. ATC continued to offer deviation information. We were then cleared down to 8000 feet on assigned heading of 110, if I remember correctly. I scanned the instrumentation and noted that all indications were normal. All flight controls and comms were normal as well.

I called back to the Flight Attendants to verify if all were ok and if anyone was injured and was told that all was okay because everyone had been seated early. Once we got around some buildups, we were assigned an eastbound heading and descent to, I believe, 6000 feet assigned. We continued to receive vectoring for the 20R approach. The approach and landing were normal.

After landing and completion of the First Officer completing his After Landing flow, I asked the First Officer to request Maintenance meet us at gate D1 to inspect for potential damage to the aircraft. We conducted a post flight walk-around with maintenance and made the appropriate logbook entries. The NOC received notice of the hail damage as well.

First Officer

This was day 3 of a 4-day pairing and leg two for the day. I was the First Officer and Pilot Flying operating SWA 2231 from AUS to BNA. Approximately 250NM out from BNA, we were using our EFB's to assess the latest weather approaching BNA and discussed our alternates of BMH and SDF. The weather at the time was VFR in BNA but the TAF was forecasting IFR with +TSRA around our time of ETA. We could see a fast-moving line of weather approaching from the west displayed on WSI Pilotbrief on our EFB's. We discussed deviating well south of the line of weather towards Muscle Shoals or Huntsville, and then deviating north to avoid the line by a wide margin. Our main concern with that plan of action was the extra time deviating south might allow the line of weather to move over BNA at our estimated time of arrival. We could see that the weather was breaking up on the north side of the line and might afford us an opportunity to deviate north. We discussed that the north deviation was more desirable as that would help us get to the field before the weather arrived. ATC confirmed our assessment that the weather was starting to break up and we both elected to deviate north.

Approaching MEM on the CHSNE2 (approximately 75nm from TOD), ATC had us step down to FL360 as I recall. The Captain seated the Flight Attendants for their safety around this time. We briefed the CHSNE2 arrival into BNA and a full instrument approach brief for the ILS 20R. Before we even got to the Descent Checklist, ATC cleared us to further descend to FL240. We started an enroute descent and our attention became focused on finding the clear air to cross the line of weather. I had terrain displayed on my MFD and the Captain was using WX radar on his MFD. I incorporated the Weather Radar display into my scan for situational awareness. I do not recall the tilt angle, but we were not displaying any weather returns directly ahead of us. ATC was assisting by calling out areas of precipitation while we were using aircraft weather radar, our EFB's, and visually looking outside for visual reference to avoid any cells. Shortly after starting our descent to FL240, ATC gave us a crossing restriction of 40W of BNA at 11,000FT. They also authorized us deviations for weather as necessary.

Visually, I could see a big cell to our right which I surmised was the weather south of us, hence our northerly deviation. Ahead was a flat layer of clouds with no visible buildup. ATC did advise of an area of moderate to extreme precipitation at our 12:30 to 1 o'clock most likely referring to the cell passing off our right as I was focused on loading the crossing restriction. I attempted to load KBNA/-40 into the FMC but received an INVALID ENTRY in the FMC scratchpad message. I tried to reload the crossing restriction but was unable and at that time the Captain intervened to load it. We entered the layer of clouds around

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FL320 and initially the ride was smooth. We elected to use the FIX page in the FMC and create a point 40W of BNA and loaded that point into the FMC scratchpad when we hit the precipitation and turbulence. Altitude was approximately FL280; airspeed was 293KIAS. Precipitation began almost instantly and was hitting the windscreen hard; we could not tell if it was hail, but it was intense and definitely got our attention. Turbulence instantly went from light to moderate and the plane started a +/-20 knot deviation. I grabbed the aircraft yoke and the Captain immediately retarded throttles to idle and extended speed brakes to slow our speed below 280KIAS for turbulence penetration. We re-engaged HDG SEL and LVL CHG and started to level at FL240. The Captain attempted to re-load the crossing restriction and manipulated the aircraft radar to attempt to find the cell.

I was focused on aircraft control and initiated a LVL CHG from FL240 to 11,000FT. ATC asked if we would meet our crossing restriction and Captain informed the controller that we were unable. I believe we exited the weather around FL190. We notified ATC that we had just encountered moderate turbulence; they continued to offer us deviations for weather. ATC cleared us to 8,000 feet and then assigned a heading of 110 degrees. The Captain checked in with Flight Attendants and ensure there were no injuries reported, which there were not, since he had secured the cabin early. Once we got around some convective buildups, we were assigned a 090 heading and I believe a further descent to 6,000FT followed by further vectors for approach sequencing to runway 20R. The remainder of the approach and landing to 20R were uneventful. Engines, flight controls, navigation systems, and communication performed normally; we were unaware of damage to the aircraft until post-flight inspection.

Upon landing, and after completion of my after-landing flow, the Captain requested that I notify BNA Maintenance to meet the aircraft upon arrival to Gate D1 to inspect the aircraft. The Captain and I completed a post flight walkaround inspection in unison with maintenance, at which point appropriate logbook entries were completed and the NOC notified of the hail damage we encountered.

Thank you,

Erin Carroll
Senior Manager Safety Investigations
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