DCA97MA017
Addendum VI to Meteorological Factual Report

Interview Summaries from the Captain and First Officer of Northwest Flight 272
(11 Pages)

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The following are summarized notes from a telephone conference interview with the Captain of Northwest Flight 272 on May 7, 1998 commencing at 0900 EDT. Present during the interview were representatives from the NTSB, FAA, ALPA, COMAIR, and Embraer. These notes were reviewed and signed by the Captain.

Heaviest icing, rate of accumulation of ½ inch per minute, at 4,000 feet; 50% at 4,500 feet; trace of ice at 5,000 feet.

Mostly rime ice.

Descent was about 1,000 feet per minute and the heaviest concentration of ice was at 4,000 feet.

The icing was located in a narrow altitude band.

The heavy icing lasted about 1 to 2 minutes. He did not notice any snow. It was totally IMC and in dense clouds.

In heavy icing the windshield corners will accumulate ice. The Direct View (DV) window is the side window which is heated and both side windows were covered over with ice. There was good visibility through the windshield but there was ice in the corners.

Splashback occurs on the side windows because in the DC-9 the Direct Vision window is heated and liquid runs back onto the side window.

They were in dense clouds and he did not hear anything hitting the windshield. It was the fastest buildup he had seen. It was at 4,000 feet. The ice did not present a problem for them at 4,000 feet and they were close to being vectored for an approach when it was called off.

During the taxi in after landing, the ice on the wiper bolt was gone. He had experienced this type of icing about six times in his career.

They were instructed to contact DTW approach control 15-20 miles from the marker. They were being vectored for an ILS. He thought COMAIR 3272 was number one for the approach and perhaps they were number two. At some point after the approach controller made his fourth call to COMAIR and after a long silence, NW 272 was instructed to climb to 5,000 feet. Once level at 5,000 feet, the accumulation of ice let up. The clouds were less dense at 5,000 feet than they were at 4,000 feet.

They started another vector for approach after and after a while intercepted the glide slope and were cleared for the approach from 5,000 feet. He estimated that after the 30-45 seconds of silence another 1 ½ minutes passed before they were vectored for the second approach. Passing through 4,000 feet again the icing was the same intensity [heavy] at 4,000 feet.

There was no visibility out the left side of the airplane. At 3,000 feet, the clouds started to break up. The conditions were about the same during the descent.

Ice had been reported on ATIS but not by the controller. The airplane they were flying was a DC-9-30 series.

Color radar was in use by the crew but he could not remember the manufacturer.

The clouds started as very thin and were thickest at 4,000 feet. They broke out from the bases of the clouds at about 800 feet. The ice was a combination but more rough in appearance. Mostly rime ice; milky in color.

He did not issue a pilot report about the ice. He did not want to interfere on the radio. DO TO ATC TRYING TO MAKE CONTACT WITH THE COMAIR FLIGHT.
He stated it was "heavy icing."

The airspeeds during the vectoring were about 210-180 knots. While vectoring and in the climb he probably was at about 210.

The autopilot was engaged.

He did not recall seeing any remaining ice on the aircraft after landing.

Other than viewing windshield and/or wiper blade belt

He has no enroute means to determine they are operating in freezing rain; he said he is only aware of freezing precipitation when operating at or near an airport.

[redacted]

May 12, 1998

Captain Statement
Northwest Flight 272
Detroit, Michigan January 9, 1997

Pilot Not Flying (PNF)

I grew up in the Northeast and am familiar with various icing conditions. I have flown in and out of Detroit several times a day during winter conditions over the past 20 years of flying with Northwest airlines, most of which have been on the DC-9. I have to say this was the fastest building ice I have ever experienced.

We were coming up from the south, out of Houston, on our way to Detroit. As best I can recall, we entered the clouds around 7,000 to 8,000 feet. Above that, it was sunny and clear. We picked up a trace of ice in IMC conditions on the descent from 6,000 to 4,000 feet. I used the windscreen wiper bolt and the rain repellent tube as my visual guide.

We started picking up a lot of ice just before 4,000 feet--about 1/2 inch per minute I would say. ATC wouldn't let us go below 4,000 feet so we were there for a minute or so. Total accumulation was approximately 2 inches. It was very heavy for that short period of time. As we were climbed back to 5,000 feet, the ice seemed to stop accumulating and we held what we had; or any additional ice that may have accumulated was at a very small rate. In the vicinity of 4,000 feet seemed to be the "magic altitude" for heavy icing.

Looking out the front windscreen, I did not notice any splattering, or rain-like precipitation on the window. In some of the front window corners where the window isn't quite as hot as other places, ice began to grow. It had a frost-like appearance to it. It sort of "faded in" and looked like frosted glass.

The aft side window, which is unheated, had ice collecting on it but much thicker. It eventually covered completely and you couldn't see out of it at all. It had a rimey, milky appearance but very rough crystalline look to it--like the coarsest sandpaper you could find.

The forward (Direct Vision {DV}) side window was eventually covered as well but not near as thick even though it is heated.

There was zero visibility out of either of these two side windows (forward and aft on Captains side) by the time we began to climb to 5,000 feet although the aft side window accumulation was much thicker. They had a frosted glass appearance but there was no color. The texture was like the coarsest sandpaper you could ever get.

As far as past experiences, I have made approaches in the past in

freezing rain conditions aloft, with just rain reported at the field. In these conditions, the forward and aft side window has iced over. The ice on these side windows gets rough. It has been my experience that the freezing rain accumulation has a much coarser appearance than what I have seen when flying through clouds only and getting heavy icing. The heavy icing encountered in clouds has a smoother appearance to it visually.

I am sure I was not flying in freezing rain at any time during the descent or approach. Rather, I am mentioning this description to use as a point of reference. Based on this reference, I would say the appearance of the ice buildup on the forward (DV) and aft side windows was more toward the freezing rain appearance (not to imply that it was freezing rain) in terms of visual roughness that I have seen in the DC-9.

It has also been my experience in the DC-9, that anytime I have gotten ice or "frosting" on the front windscreen I have almost always gotten ice on the 2 side windows (fore and aft on the same side of the fuselage).

[redacted]

May 12, 1998

The following are summarized notes from a telephone conference interview with the First Officer of Northwest Flight 272 on May 7, 1998, commencing at 1000 EDT. Present during the interview were representatives from the NTSB, FAA, ALPA, COMAIR, National Weather Service, and Embraer. These notes were reviewed and signed by the First Officer.

They were level at 4,000 feet when they picked up most of the ice. They were at 4,000 feet for about 2 minutes and saw about 1 inch of ice. After being vectored back to final, there was no further appreciable accumulation.

He turned off the anti-ice after landing. They de-ice the tail prior to ~~landing~~ approach. After landing, he inspected the nose and wings of the airplane and noticed about 1/8th inch of mostly clear ice in a round pattern on the radome. The wings had about a 1/8th thickness on the leading edge of the wing and was about 1 inch in width.

The ice at altitude was not rime; it looked more on the clear side. He did not notice any water drops between 5,000 and 4,000 feet on the windshield. ~~He has not~~ He had some experience of operations in freezing precip, however he had no guidance to identify enroute freezing precip. His experience with freezing precip was primarily in the airport environment. ~~taking off experienced flying in freezing rain~~. He didn't recall seeing any ice on any side windows.

He has 12 years in the DC-9. Eight years are with Northwest and he has been based in Detroit for that period.

The clouds were not solid below 8,000 feet. The ATC workload was light at the time of the accident. ATC did not issue icing warnings, and there was no turbulence.

In the clouds, it is hard to tell freezing rain or freezing drizzle. ~~The area they penetrated at 4,000 feet was not what the weather reported.~~ the weather present did not adequately represent the conditions we encountered on that leg. Only identified snow on the airport After climbing back to 5,000 feet, there was no appreciable increase in icing. They were at 5,000 feet for about 5 minutes. The second time they were descended to 4,000 feet, it was not as bad.

He didn't look out the side windows as much as the PNF because he was flying "on the gauges." They did have icing on descent.

They were at flaps 15 for the vectoring in order to keep the power up for wing deicing and heat. The clouds were solid at 4,000 feet.

To deice the tail sets a timer. It runs for 2 ½ minutes. After the timer completes the cycle, wing heat is restored to the wings.

The comment about one of the "worst icing conditions" was based upon the rapid accumulation of ice on the wiper bolt. He estimated there was about 1 inch.

He did not receive any PIREPS. The pilot not flying gathers the ATIS, and he recalled mention of icing and believed that it was on the ATIS.

He described the icing at 4,000 feet as being on the "high end of moderate."

He only remembers looking at the wings and radome when they were at the terminal, as they had to change airplanes. He did not accomplish a complete walk around the plane.

It was possible for the leading edge of the wings to have accumulated the remaining ice [seen on the ground] when bleed air was ported to the tail for deicing and was not available to the wings for two and one-half minutes as selected by the crew then the system was deactivated when weight-on wheels was established at touchdown.

Did not recall seeing ice on the Clear View or Direct View windows.

There was no moisture, ice pellets, snow, or sleet noticed. during the accretion of ice ~~after landing~~, at 4,000 feet.

[redacted]

5-22-98

First Officer Statement Northwest Flight 272

Detroit, Michigan January 9, 1997

Pilot Flying (PF)

We were going to Detroit, Michigan from Houston, Texas. South of Detroit, we descended into the clouds. The tops were about 8,000 to 7,000 feet when we entered them. They were not a solid layer though.

You often see 1/4 inch of clear to rime ice going in and out of Detroit airport in the winter time. There was no ice that I noticed until the vicinity of the 5,000 - 4,000 feet level at which time it was a very rapid accumulation and then tapered off or stopped. I would say the accumulation rate was every bit of a 1/2 inch per minute. The ice build up was a lot thicker than I have ever experienced before. It seemed like we got one big shot within a minute or two and then it didn't get any worse. I would estimate we had a good 3/4 of an inch if not closer to an inch of ice on the wiper bolt when I initially noticed it building.

I would classify the accumulation rate on the "high" end of moderate. It was approaching a level almost too much for the aircraft icing systems to keep up with. We encounter ice going into and out of Detroit all the time, but this was the worst I had ever seen. In fact, I have gotten really bad ice like this maybe 2 or 3 times in my 26 years of flying (18 with airlines). In my mind, this encounter was as bad as I have ever seen it. I think the most rapid accumulation was in the vicinity of 4,000 feet or so.

The air was smooth with no turbulence. There was no outside noise like rain or ice particles hitting the nose or front windows. I recall the controller asking us to slow to 180 knots. ATC broke us out of the approach pattern and climbed us back up to 5,000 feet and gave us a turn to the southwest. By the time we got vectored back around and descended to 3,000 feet, it took about another 5 to 10 minutes. During this time period as we were set up for a dog-leg to final on 3R, we didn't get any further appreciable ice.

After landing, I would say it took about 10 minutes to taxi in and park at the gate. I went out to look at the airplane and there was a ribbon about one inch wide in a long sheet down both sides of the wings leading edges. It was centered on the leading edge and I would say it was about a 1/8th inch thick layer. It was not white and looked more toward the clear end in color. It appeared somewhat smooth.

I also recall seeing ice on the radome. I would say it was leaning more toward the clear side in nature. It was in a

normal, circular pattern about 9 to 10 inches in diameter. I would say it was closer to the clear ice end of the spectrum and toward the smooth side. I didn't look at the tail or horizontal stabilizer.

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5-22-98