



Bell 206L Strikes Water During Low-altitude Flight in Whiteout Conditions

The fatal accident occurred on a snowy afternoon after the pilot, who did not have an instrument rating and had been assigned to operate only under visual flight rules, picked up four technicians who had been working on airport navigation equipment in Alaska.

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FSF Editorial Staff

At 1543 local time Oct. 18, 2001, a Bell 206L LongRanger struck the water in an inlet west of the approach end of Runway 6 at Ted Stevens Anchorage (Alaska, U.S.) International Airport. The helicopter was substantially damaged. The pilot and two passengers were killed; two passengers received serious injuries.

The U.S. National Transportation Safety Board (NTSB) said, in its final report, that the probable cause of the accident was “the pilot’s failure to maintain clearance from the surface of an open body of water while intentionally attempting to maintain a very low altitude while in cruise flight.”

The report said that factors in the accident included “falling snow, low ceilings, whiteout ... conditions and flat/glassy water.”¹

The 60-year-old pilot of the accident helicopter held a commercial pilot certificate, which initially was issued in October 1969, and was rated to operate helicopters and single-engine airplanes. He had more than 10,000 flight hours



in helicopters, including 8,000 flight hours in Bell 206 helicopters and 50 flight hours in offshore operations. He did not have an instrument rating. He had a second-class medical certificate; his only medical limitation was a requirement that he wear lenses to correct his vision during flight operations.

The pilot was hired by Era Aviation on June 25, 2001. Before that, he had been a pilot for the Alaska State Troopers from March 1980 until January 2001. His Era Aviation pre-assignment training was completed July 9, 2001; on the same day, he passed a U.S. Federal Aviation Regulations (FARs) Part 135 (“Commuter and On-demand Operations”) approval check for visual flight rules (VFR)-only operations.

The approval check included three items involving instrument flight procedures: unusual attitude recoveries, basic instrument airwork and communications procedures. The report said that the “remarks” section of the Part 135 Check Ride Form included a note that said, “Inadvertent IMC [instrument meteorological conditions] training completed — base month July.”

After the approval check, the pilot was assigned as a VFR-only pilot of the Bell 206. On July 29, 2001, he removed himself from flying status to have arthroscopic knee surgery; a physician issued a medical release for his return to flying status Oct. 10, 2001. When the accident occurred, he had 9.5 flight hours as a pilot for Era Aviation; his flights on the day of the accident

were his first passenger-carrying revenue operations for the company.

The report said that about 0915 the day of the accident, the pilot flew the accident helicopter to transport five passengers — technicians working for the U.S. Federal Aviation Administration (FAA) — from the Anchorage airport to Fire Island, about six nautical miles (11 kilometers) west of the airport. He flew the helicopter back to the Era Aviation helicopter facility at the Anchorage airport, and at 1300, he returned to Fire Island, landing the helicopter in a clearing near an FAA navigational radio facility. The report said that when the technicians completed their work, at about 1515, the pilot prepared for the return trip to the airport, and four technicians boarded the helicopter.

The airport automatic terminal information service (ATIS) information available at the time indicated that weather conditions included visibility of 1.0 statute mile (1.6 kilometers) with light snow and mist, a broken ceiling at 400 feet, a broken layer of clouds at 1,700 feet and an overcast at 3,400 feet. Ten minutes after the accident, the airport surface weather observation said that visibility had decreased to 0.8 statute mile, with an indefinite ceiling of 800 feet; visibility from the air traffic control (ATC) tower remained 1.0 mile. A witness said that several minutes before the accident, snow had begun falling heavily; he estimated visibility at 500 feet (153 meters).

At 1531, the pilot asked ATC for a special VFR clearance back to the south airpark at Anchorage International Airport.² At 1540, ATC issued the clearance, which included instructions to maintain an altitude of 1,100 feet or lower.

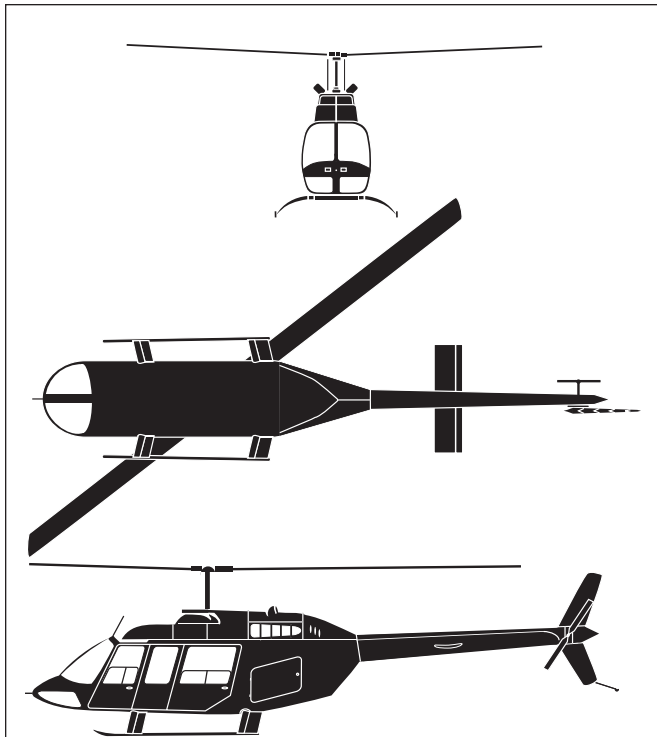
“The pilot then read back the clearance and indicated that ‘we’re on our way, thank you much,’” the report said. “About two minutes and 30 seconds after the pilot indicated he was en route, the tower asked him what altitude [the helicopter] was at. He responded with ‘four hundred is at 50 feet.’”

About 15 seconds later, the controller gave flight instructions to the crew of another helicopter, with the radio call sign “Dynasty 212.”

Recordings showed that the transmission was followed by “the click associated with the tower controller releasing his transmit button.” Another sound that lasted about half a second, which apparently was the end of a transmitted spoken word, was followed by “a squealing static sound that is consistent with the termination of a radio transmission overlapping the tower’s transmission to Dynasty 212,” the report said.

After about five seconds, the tower controller repeated modified instructions for the crew of Dynasty 212.

The report said, “The flight crew of Dynasty 212 responded with a confirmation of the clearance and then asked, ‘Did you copy



Bell 206L LongRanger

The Bell 206L LongRanger first was flown in 1974. Developed from the Bell 206B JetRanger II, the 206L has a fuselage that is about 2.0 feet (0.6 meter) longer than that of the 206B and an Allison 250-C20B engine with a takeoff rating of 420 shaft horsepower (313 kilowatts) and a continuous rating of 370 shaft horsepower (276 kilowatts).

The 206L has a fuel capacity of 98 U.S. gallons (371 liters) and a range at sea level of 298 nautical miles (553 kilometers). Range at 5,000 feet is 321 nautical miles (595 kilometers).

Useful load is 2,006 pounds (910 kilograms), and maximum takeoff weight is 3,900 pounds (1,769 kilograms).

The 206L has a cabin volume of 83 cubic feet (2.35 cubic meters) and can be configured to seat a two-member crew and five passengers. When the helicopter is used for emergency medical services operations, it can accommodate as many as two patients on litters and two ambulatory patients or two medical personnel.

Maximum level speed at sea level is 130 knots, and cruising speed at sea level is 118 knots. Service ceiling at maximum cruise power is 12,700 feet; hovering ceiling in ground effect is 7,500 feet, and hovering ceiling out of ground effect is 1,800 feet.◆

Source: *Jane's All the World's Aircraft*

aircraft going into the water?" Tower asked Dynasty 212 to say again, and ... Dynasty 212 responded with, "Did you copy? It sounded like Era said he was going into the water."

There were no further radio transmissions from the pilot of the accident helicopter. About two minutes later, the airport police and a U.S. National Guard Rescue Coordination Center were told that the helicopter probably had struck the waters of Cook Inlet. The crew of an Air National Guard helicopter rescued the two survivors. Fire department rescue boats and National Guard search helicopters were recalled at 1730 because of weather conditions.

The accident investigation included several interviews with the two surviving passengers, who had been seated in the right rear seat, facing forward, and in the left front seat. Both passengers said that at the time of the initial liftoff into a hover, a considerable amount of condensation had accumulated on the helicopter's windows; the pilot set the helicopter back on the landing area, and he and the front-seat passenger wiped the windshield. The front-seat passenger asked the pilot if they were on a "weather hold," and the pilot responded that they were. After about five minutes, the pilot conducted another takeoff and flew the helicopter low over trees until reaching the shore of Fire Island. The passengers said that after passing the shoreline, the pilot flew the helicopter lower — about 10 feet to 15 feet above the water.

The front-seat passenger said that although he could not determine exactly how high the helicopter was, "it was a lot lower than he thought they should be," the report said.

Both passengers said that they were unable to see the horizon. The report said that the front-seat passenger said that "everything, including the reflection on the water, was kind of grayish-white" and that there were "no clear visual clues as to where they were going."

The rear-seat passenger said that as the flight continued, the helicopter descended to "what seemed to be about five feet above the water," the report said. "He could see white chop and a lot of spray being created where the wind from the aircraft's main rotor was impacting the surface of the water. He said that he was 'real uncomfortable' with the low altitude and wanted to say something to the pilot but did not because he was concerned that he would break the pilot's concentration."

The helicopter descended a few more feet, and the skids "either entered the water or skipped a couple of times across its surface," the rear-seat passenger said. "Almost immediately after the skids contacted the water, the helicopter's nose came up, its tail appeared to hit the water, and the aircraft quickly pulled away from the surface."

The rear-seat passenger said that the pilot appeared to move the helicopter's controls "all over the place" and the helicopter again descended and struck the water "very hard."

Neither passenger saw warning lights illuminate or heard warning horns or beepers, any change in engine noise or any unusual noises from the rotor or the engines. Although both passengers believed that the helicopter was being flown too low over the water, they also believed that "there was otherwise nothing unusual about the movements or the flight path of the helicopter until the skids touched the water," the report said.

After the impact, both passengers exited the cabin. The rear-seat passenger tried unsuccessfully to use two cellular telephones to call for help and then sat on a portion of the helicopter that was above the water while he tried to correctly adjust his life vest before inflating it. "Since he found this exacerbated the pain from the back injury he sustained during the impact, he slid back into the water," the report said. "Once he was back in the water, he made the adjustment of his [life vest] and pulled the inflation lanyards. The vest then successfully inflated."

He tried to swim toward a shoreline, but "discovered that he was making little progress against the receding tide," the report said. He stopped swimming and floated until being rescued by the crew of the National Guard helicopter.

The report said that after the pilot's body was recovered, investigators observed that his life vest was not inflated.

"As part of the investigation, the [life vest] was inspected and activated by pulling the inflation lanyards," the report said. "The inspection revealed no indication of a malfunction of the [life vest], and when activated, it inflated and remained so during the test period."

An autopsy found that the pilot had drowned. The report did not discuss the cause of death of the two passengers.

Radar tracking data showed that the helicopter had struck the water about 0.6 nautical mile (1.1 kilometers) west of the mainland shoreline off the approach end of Runway 6. The wreckage, which had been moved a short distance by weather and tides, was recovered for analysis during the investigation. Examination of the helicopter revealed no anomaly that might have contributed to the accident.

A review of the Era Aviation *Helicopter Operations Manual* showed that limitations in effect for single-pilot, single-engine, VFR-only, day operations at the time of the accident required a ceiling of 400 feet and visibility of 2.0 statute miles (3.2 kilometers). Nevertheless, the report said, "these minimums could be reduced to a 300-foot ceiling and a visibility of one mile if the aircraft contained both an operating weather radar and radar altimeter and if the pilot had reason to believe that the conditions of reduced ceiling and visibility were temporary." (The report said that the helicopter's radar altimeter was removed after the accident for further examination.)

The operations manual said that onshore operations required a 300-foot ceiling and visibility of one mile, although the

Notes

visibility requirement could be reduced to 0.5 statute mile (0.8 kilometer) “if the pilot is familiar with the area in which the flight will take place.” The manual also said that the pilot must maintain a visual surface reference “sufficient to control the helicopter.”³

Another section of the manual said that in marginal weather conditions in which a whiteout is possible, “if there is any doubt in your mind, DO NOT GO, wait for better conditions. It is not worth risking your life or your passengers.”

The manual said that pilots should avoid flight over large, flat areas in snow or during periods of low visibility. During these conditions, pilots should “stay along a tree line, small streams, roads, power lines or railroads”; pilots also should reduce airspeed and, as visibility is reduced, should maneuver the helicopter closer to the reference point, the manual said.

“This also is an important time to know exactly where you are so that whiteout areas can be avoided,” the manual said. “Unless you are familiar with the area, it may be best to wait on the ground for better weather.”♦

[FSF editorial note: This article, except where specifically noted, is based on U.S. National Transportation Safety Board aircraft accident report SEA02FA008. The 37-page report contains illustrations.]

1. The U.S. Federal Aviation Administration (FAA), in Advisory Circular 91-13C, *Cold Weather Operation of Aircraft*, defines whiteout as “a condition in which there are no contrasting ground features in the pilot’s visibility range. . . . A whiteout calls for an immediate shift to instrument flight.”
2. The FAA *Aeronautical Information Manual* says that a special visual flight rules (VFR) clearance may be requested by a pilot operating under VFR and may be granted by air traffic control to allow operations within some types of controlled airspace during periods when weather is “less than that required for VFR flight.”
3. U.S. Federal Aviation Regulations Part 135.205 (“VFR: Visibility Requirements”) says, “No person may operate a helicopter under VFR in Class G airspace [uncontrolled airspace] at an altitude of 1,200 feet or less above the surface or within the lateral boundaries of the surface areas of Class B, Class C, Class D or Class E airspace [all forms of controlled airspace] designated for an airport unless the visibility is at least —

“(1) During the day — 1/2 mile [0.8 kilometer]; or,

“(2) At night — 1.0 [statute] mile [1.6 kilometers].”

Part 135.207 (“VFR: Helicopter Surface Reference Requirements”) says, “No person may operate a helicopter under VFR unless that person has visual surface reference or, at night, visual surface light reference, sufficient to safety control the helicopter.”

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