



# Aviation Investigation Final Report

|                                |   |                         |             |
|--------------------------------|---|-------------------------|-------------|
| <b>Location:</b>               | Kaktovik, Alaska                              | <b>Accident Number:</b> | ANC04LA037  |
| <b>Date &amp; Time:</b>        | March 21, 2004, 15:15 Local                   | <b>Registration:</b>    | N223CS      |
| <b>Aircraft:</b>               | Piper PA-31T3                                 | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         |   | <b>Injuries:</b>        | 4 None      |
| <b>Flight Conducted Under:</b> | Part 135: Air taxi & commuter - Non-scheduled |                         |             |

## Analysis

During an IFR air taxi flight, the airline transport certificated pilot was landing a twin-engine turboprop airplane at a remote arctic airport. The visibility minimum for the GPS approach was 1 mile. En route to the airport, the automated weather observation system (AWOS) was reporting a visibility of 1.5 miles. The pilot began the global positioning system (GPS) approach to runway 06. Two miles from the runway, the pilot saw the runway and decided to circle to land on runway 24. While turning base for runway 24, the pilot lost sight of the runway and discontinued the landing approach. The pilot was cleared for another GPS approach to runway 06. At 1.5 miles from the runway, the pilot saw the runway and continued the landing approach. About 20 feet agl, the pilot experienced flat light conditions that limited his view of the runway so that he could only distinguish the runway lights as his landing reference. The airplane touched down about 1,700 feet beyond the approach end of runway 06. The airplane encountered about 2 feet of snow on the runway, pulled to the right, and came to a stop about 3,000 feet beyond the approach end. The airplane received damage to the right engine propeller, the fuselage belly cargo pod, the right main landing gear door, and the elevator trim tab. At the time of the accident (1515), the visibility was reported as 2.5 statute miles. The visibility at 1455 was 1 statute mile. The FAA Facility Directory for the airport states, in part: "Airport remarks - Attended 0600 to 2400. Runway not monitored. Recommend visual inspection prior to landing." The airport manager reported that the accident airplane arrived during near zero visibility conditions. The runway had been cleared the previous day, but had not been cleared on the day of the accident because of drifting snow and near zero visibility. FAR 91.103 Preflight Action, states, in part: "Each pilot in command shall, before beginning a flight, become familiar with all available information concerning the flight." FAR 135.229 Airport Requirements, states, in part: "(a) No certificate holder may use any airport unless it is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's selection of unsuitable terrain for landing, which resulted in the airplane colliding with drifted snow during the landing roll. Factors contributing to the accident were a snow covered runway, airport personnel's failure to remove accumulated snow on the runway, and flat light conditions at the airport.

### Findings

Occurrence #1: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER  
Phase of Operation: LANDING - ROLL

#### Findings

1. TERRAIN CONDITION - RUNWAY
2. (C) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - SELECTED - PILOT IN COMMAND
3. (F) TERRAIN CONDITION - SNOW COVERED
4. (F) AIRPORT SNOW REMOVAL - NOT PERFORMED - AIRPORT PERSONNEL
5. (F) LIGHT CONDITION - OTHER

## Factual Information

On March 21, 2004, about 1515 Alaska standard time, a Piper PA-31T3 airplane, N223CS, sustained substantial damage when it encountered deep snow while landing at the Barter Island Long Range Radar Station (LRRS), Kaktovik, Alaska. The airplane was being operated as an instrument flight rules (IFR) on-demand passenger flight under Title 14, CFR Part 135, when the accident occurred. The airplane was operated by Cape Smythe Air Service Inc., Barrow, Alaska. The airline transport certificated pilot, and the three passengers, were not injured. Visual meteorological conditions prevailed. The flight departed Deadhorse, Alaska, about 1447, and an IFR flight plan was in effect.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on March 21, the director of maintenance for the operator reported that he received a call from the pilot after landing at the Barter Island LRRS. The pilot reported that during the landing roll on runway 06, while the airplane's propellers were in reverse thrust, the airplane encountered about 2 feet of snow. The airplane pulled to the right and stopped on the runway. The pilot reported damage to the right engine propeller, the fuselage belly cargo pod, the right main landing gear door, and the elevator trim tab.

On March 29, the director of maintenance reported to the NTSB IIC that an inspection of the airplane revealed additional damage to both elevators, the elevator trim tab, and the right engine. The director of maintenance provided the NTSB IIC with a written statement from the pilot, in which the pilot reported listening to the recorded weather conditions at Barter Island when he was about 40 miles from the airport. The weather report included a sky condition of a partially obscured ceiling of 1,200 feet overcast, and a visibility of 1.5 miles.

In his statement, the pilot reported that he was cleared for the Global Positioning System (GPS) runway 06 approach. Two miles from the runway, about 600 feet msl, the pilot said he saw the runway and decided to circle to land on runway 24. While turning base for runway 24, the pilot lost sight of the runway and discontinued the landing approach. He then visually reacquired the runway and again reentered the landing pattern for runway 24. The pilot indicated he once again lost visual sight of the runway and executed the missed approach procedure. The pilot was then cleared for the runway 06 GPS approach. During the landing approach to runway 06, the pilot reported that at 1.5 miles from the runway, about 500 feet msl, he observed runway 06 and continued the landing approach. About 20 feet agl, the pilot said he experienced flat light conditions that limited his view so that he could only distinguish the runway lights as his landing reference. The airplane touched down about 1,700 feet beyond the approach end of runway 06, and the pilot selected reverse thrust. The airplane pulled to the right, and came to a stop about 3,000 feet beyond the approach end.

According to the FAA, the visibility minimum for the GPS approaches to runway 06 and runway

24, including the circle to land minimum, is 1 statute mile.

At 1515, a special weather observation at Barter Island was reporting, in part: Wind, 300 degrees (true) at 6 knots; visibility, 2.5 statute miles; clouds and sky condition, 1,200 feet overcast; temperature, 27 degrees F; dew point, 25 degrees F; altimeter, 30.37 inHg. Prior to the accident, the visibility at 1455 was 1 statute mile, and at 1435, the visibility was 1.25 statute mile.

The FAA Facility Directory/Alaska Supplement for the Barter Island LRRS indicates that runway 06 is 4,820 feet long and 100 feet wide. The remarks section states, in part: "Airport remarks - Attended 0600 to 2400. Runway not monitored. Recommend visual inspection prior to landing."

According to the FAA, no Notice to Airmen (NOTAM) or pilot reports (PIREP) were issued by the FAA prior to the accident. A local NOTAM applicable to the airport, indicated that the threshold lights were out of service. Following the accident, a NOTAM was issued indicating "2 foot berm inside runway lights."

Airport maintenance of the Barter Island LRRS is the responsibility of the Alaska North Slope Borough. In a telephone conversation with the NTSB IIC on May 6, 2004, the airport manager reported that the accident airplane arrived during near zero visibility conditions. He stated that two of the passengers in the accident airplane are airport linemen. The airport has a grader, loader, and snow blower for runway maintenance. The runway had been cleared on Saturday, March 20, but had not been cleared on Sunday, the day of the accident, because the visibility had been near zero. The manager said that the runway had accumulated drifting snow, and the pilot landed along the right edge of the runway. He indicated that the airport has an automated weather observation system (AWOS), and pilots of arriving aircraft will usually check the AWOS. If the AWOS is out of service, or if it is providing invalid data, pilots will usually telephone the local police station for weather information.

FAA Federal Aviation Regulation (FAR) 91.103 Preflight Action, states, in part: "Each pilot in command shall, before beginning a flight, become familiar with all available information concerning the flight." FAR 135.229 Airport Requirements, states, in part: "(a) No certificate holder may use any airport unless it is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting."

## Pilot Information

|                                  |   |  |                   |
|----------------------------------|---|--|-------------------|
| <b>Certificate:</b>              | Airline transport; Commercial; Flight instructor  | <b>Age:</b>                              | 48, Male          |
| <b>Airplane Rating(s):</b>       | Single-engine land; Multi-engine land   | <b>Seat Occupied:</b>                    | Left              |
| <b>Other Aircraft Rating(s):</b> | None  | <b>Restraint Used:</b>                   |                   |
| <b>Instrument Rating(s):</b>     | Airplane  | <b>Second Pilot Present:</b>             | No                |
| <b>Instructor Rating(s):</b>     | Airplane single-engine; Instrument airplane   | <b>Toxicology Performed:</b>             | No                |
| <b>Medical Certification:</b>    | Class 1 Valid Medical--w/ waivers/lim   | <b>Last FAA Medical Exam:</b>            | February 19, 2004 |
| <b>Occupational Pilot:</b>       | Yes   | <b>Last Flight Review or Equivalent:</b> |                   |
| <b>Flight Time:</b>              | 16389 hours (Total, all aircraft), 375 hours (Total, this make and model), 14357 hours (Pilot In Command, all aircraft), 247 hours (Last 90 days, all aircraft), 81 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft) |  |                   |

## Aircraft and Owner/Operator Information

|                                      |  |                                       |  |
|--------------------------------------|--|---------------------------------------|--|
| <b>Aircraft Make:</b>                | Piper  | <b>Registration:</b>                  | N223CS   |
| <b>Model/Series:</b>                 | PA-31T3  | <b>Aircraft Category:</b>             | Airplane   |
| <b>Year of Manufacture:</b>          |  | <b>Amateur Built:</b>                 |  |
| <b>Airworthiness Certificate:</b>    | Normal   | <b>Serial Number:</b>                 | 31T-8275008  |
| <b>Landing Gear Type:</b>            | Retractable - Tricycle                                 | <b>Seats:</b>                         | 10   |
| <b>Date/Type of Last Inspection:</b> | March 17, 2004 AAIP                                    | <b>Certified Max Gross Wt.:</b>       | 9000 lbs   |
| <b>Time Since Last Inspection:</b>   | 5 Hrs  | <b>Engines:</b>                       | 2 Turbo prop   |
| <b>Airframe Total Time:</b>          | 11991 Hrs at time of accident                          | <b>Engine Manufacturer:</b>           | Pratt & Whitney                                      |
| <b>ELT:</b>                          | Installed, activated, did not aid in locating accident | <b>Engine Model/Series:</b>           | PT6A-11  |
| <b>Registered Owner:</b>             | U.S. Bankcorp  | <b>Rated Power:</b>                   | 500 Horsepower                                       |
| <b>Operator:</b>                     | Cape Smythe Air Service Inc.                           | <b>Operating Certificate(s) Held:</b> | Commuter air carrier (135), On-demand air taxi (135) |
| <b>Operator Does Business As:</b>    |  | <b>Operator Designator Code:</b>      | CSAA   |

## Meteorological Information and Flight Plan

|   |                                  |   |             |
|---|----------------------------------|---|-------------|
| <b>Conditions at Accident Site:</b>     | Visual (VMC)                     | <b>Condition of Light:</b>                  | Day         |
| <b>Observation Facility, Elevation:</b> | PABA, 5 ft msl                   | <b>Distance from Accident Site:</b>         |             |
| <b>Observation Time:</b>                | 15:15 Local                      | <b>Direction from Accident Site:</b>        |             |
| <b>Lowest Cloud Condition:</b>          |                                  | <b>Visibility</b>                           | 2.5 miles   |
| <b>Lowest Ceiling:</b>                  | Overcast / 1200 ft AGL           | <b>Visibility (RVR):</b>                    |             |
| <b>Wind Speed/Gusts:</b>                | 6 knots / None                   | <b>Turbulence Type Forecast/Actual:</b>     | /           |
| <b>Wind Direction:</b>                  | 270°                             | <b>Turbulence Severity Forecast/Actual:</b> | /           |
| <b>Altimeter Setting:</b>               | 30.37 inches Hg                  | <b>Temperature/Dew Point:</b>               | -3°C / -4°C |
| <b>Precipitation and Obscuration:</b>   | No Obscuration; No Precipitation |   |             |
| <b>Departure Point:</b>                 | Deadhorse, AK (PASC)             | <b>Type of Flight Plan Filed:</b>           | IFR         |
| <b>Destination:</b>                     | Kaktovik, AK (PABA)              | <b>Type of Clearance:</b>                   | IFR         |
| <b>Departure Time:</b>                  | 14:47 Local                      | <b>Type of Airspace:</b>                    | Class G     |

## Airport Information

|                             |                         |                                  |                           |
|-----------------------------|-------------------------|----------------------------------|---------------------------|
| <b>Airport:</b>             | Barter Island LRRS PABA | <b>Runway Surface Type:</b>      | Gravel                    |
| <b>Airport Elevation:</b>   | 5 ft msl                | <b>Runway Surface Condition:</b> | Snow                      |
| <b>Runway Used:</b>         | 06                      | <b>IFR Approach:</b>             | Global positioning system |
| <b>Runway Length/Width:</b> | 4820 ft / 100 ft        | <b>VFR Approach/Landing:</b>     | Full stop                 |

## Wreckage and Impact Information

|                            |        |                             |                      |
|----------------------------|--------|-----------------------------|----------------------|
| <b>Crew Injuries:</b>      | 1 None | <b>Aircraft Damage:</b>     | Substantial          |
| <b>Passenger Injuries:</b> | 3 None | <b>Aircraft Fire:</b>       | None                 |
| <b>Ground Injuries:</b>    | N/A    | <b>Aircraft Explosion:</b>  | None                 |
| <b>Total Injuries:</b>     | 4 None | <b>Latitude, Longitude:</b> | 70.133888,-143.57695 |

## Administrative Information

|  |   |
|--|---|
| <b>Investigator In Charge (IIC):</b>     | Erickson, Scott   |
| <b>Additional Participating Persons:</b> | Tom Lane; FAA-AL-FAI FSDO 01; Fairbanks, AK   |
| <b>Original Publish Date:</b>            | September 29, 2004  |
| <b>Last Revision Date:</b>               |   |
| <b>Investigation Class:</b>              | <a href="#">Class</a>   |
| <b>Note:</b>                             |   |
| <b>Investigation Docket:</b>             | <a href="https://data.nts.gov/Docket?ProjectID=58963">https://data.nts.gov/Docket?ProjectID=58963</a> |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).