National Transportation Safety Board
Aviation Accident Final Report

Location:	Barrow, AK	**Accident Number:**	ANC03FA096
Date & Time:	08/17/2003, 1256 AKD	**Registration:**	N6591L
Aircraft:	Reims Aviation 406	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The certificated airline transport pilot, with one non-revenue passenger, departed in the twin-engine turboprop airplane from a rural airport on a CFR Part 135, VFR cargo flight over ocean waters. The flight did not reach its destination, and was reported overdue. Search personnel searched along the airplane's anticipated route of flight, over ocean waters. Shortly after initiation of the search, airborne search personnel reported sighting floating debris, consisting of what appeared to be aircraft seats, cardboard boxes, and small portions of aircraft wreckage, about 30.5 miles southwest of the flight's departure airport, and about 10 miles from shore. The airplane is presumed to have sunk in ocean waters estimated to be between 50 and 70 feet deep. Underwater search and recovery efforts were unsuccessful, and the airplane, pilot, and passenger remain missing. A review of archived radar data disclosed that as the accident airplane approached an area about 30.5 miles southwest of the departure airport, it descended to 500 feet msl, and then entered a right turn. As the turn progressed, the airplane continued to descend to 400 feet msl, with a radar-derived ground speed of 180 knots. The last radar return was recorded with the same radar-derived groundspeed, on an approximate heading of 200 degrees. A pilot who is familiar with geographical locations in the area reported that migrating whales are commonly sighted in the area where the radar depicted a descending right turn.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An in-flight collision with ocean waters while maneuvering for an undetermined reason.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
1. TERRAIN CONDITION - WATER
2. (C) REASON FOR OCCURRENCE UNDETERMINED
3. LOW ALTITUDE FLIGHT/MANEUVER

Factual Information

HISTORY OF FLIGHT

On August 17, 2003, about 1256 Alaska daylight time, a wheel-equipped Reims Aviation 406, twin-engine turboprop airplane, N6591L, was presumably destroyed during an in-flight collision with ocean waters, about 30.5 miles southwest of Barrow, Alaska. The airplane was being operated as a visual flight rules (VFR) non-scheduled domestic cargo flight under Title 14, CFR Part 135, when the accident occurred. The airplane was owned by Gussic Ventures LLC, and operated by Hageland Aviation Services, Inc., of Anchorage, Alaska. The certificated airline transport pilot and the sole non-revenue passenger have not been located, and are presumed to have received fatal injuries. Visual meteorological conditions prevailed at the flight's departure airport, and a VFR flight plan was filed. The flight originated at the Wiley Post/Will Rogers Memorial Airport, Barrow, about 1249 Alaska daylight time, and was en route to Wainwright, Alaska.

When the flight did not reach Wainwright, it was reported overdue at 1357. Search personnel from the North Slope Borough Search and Rescue, North Slope Borough Police Department, North Slope Borough Fire Department, and various aviation operators, initiated a search along the airplane's anticipated route of flight over ocean waters. Shortly after initiation of the search, airborne search personnel reported sighting floating debris consisting of what appeared to be aircraft seats, cardboard boxes, and small portions of aircraft wreckage, about 30.5 miles southwest of Barrow, and about 10 miles from shore.

On August 18, the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) reviewed Federal Aviation Administration (FAA) archived radar data concerning the accident flight. The first radar return indicated a target at 1249:37 with the accident flight's assigned transponder code. As the target departed from the Barrow airport area, it turned to a southwest heading, climbed to about 700 feet msl, and continued towards Wainwright. The direct route of flight from Barrow to Wainwright is southwest, across Peard Bay and a portion of the Arctic Ocean. The distance over open water from the west shore of Barrow, to the southwest shore of Peard Bay, is about 54 miles. As the target progressed towards Wainwright, approaching an area located about 30.5 miles southwest of Barrow, the target descended to 500 feet msl, and then entered a right turn. As the turn progressed, the target continued to descend to 400 feet msl, with a radar-derived ground speed of 180 knots. The last radar return was recorded at 1256:38, with the same radar-derived groundspeed, on an approximate heading of 200 degrees.

The airplane is presumed to have sunk in ocean waters, estimated at 50 to 70 feet deep. Search and recovery efforts were unsuccessful, and the airplane, pilot, and passenger remain missing.

CREW INFORMATION

The pilot held an airline transport pilot certificate with airplane single-engine land, and multiengine land ratings. In addition, she held a flight instructor certificate with airplane single-engine, multiengine, and instrument airplane ratings. The most recent first-class medical certificate was issued to the pilot on June 15, 2003, and contained no limitations.

According to the NTSB Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2)

submitted by the operator, the pilot's total aeronautical experience consisted of about 7,000 hours, of which 1,000 were accrued in the accident airplane make and model. In the preceding 90 and 30 days prior to the accident, the report lists a total of 205 and 41 flight hours, respectively.

The pilot completed her basic company indoctrination on February 6, 2002. She completed her most recent pilot-in-command, FAA Part 135 check ride on June 12, 2003. The check ride was conducted in a Reims Aviation 406 airplane, the same make and model as the accident airplane, and included instrument procedures.

AIRCRAFT INFORMATION

The airplane had accumulated a total time of approximately 7,674.9 hours. The airplane was maintained on an approved airworthiness inspection program (AAIP). The most recent Phase 4 check inspection was accomplished at an aircraft total time of 7,603.1, about 71.8 hours before the accident.

METEOROLOGICAL INFORMATION

The closest official weather observation station is Barrow, about 30.5 nautical miles northeast of the presumed accident site. On August 17, 2003, at 1153, an Aviation Routine Weather Report (METAR) was reporting, in part: Wind, 060 degrees (true) at 10 knots; visibility, 10 statute miles; clouds, 2,000 feet overcast; temperature, 37 degrees F; dew point, 34 degrees F; altimeter, 29.77 inHg.

At 1553, an Aviation Routine Weather Report (METAR) at Wainwright, which is located about 43 nautical miles southwest of the presumed accident site, was reporting, in part: Wind, 070 degrees (true) at 8 knots; visibility, 2.5 statute miles in light rain and mist; clouds, 700 feet broken, 1,400 feet overcast; temperature, 37 degrees F; dew point, 37 degrees F; altimeter, 29.75 inHg.

An area forecast for the Arctic Slope Coastal Region, valid until 1800, was reporting, in part: An AIRMET, forecasting occasional ceilings below 100 feet, visibility below 3 statute miles with drizzle and mist along the pilot's planned route of flight from Barrow to Wainwright. Otherwise, sky condition and ceiling, 400 feet scattered, 1,200 feet overcast, tops 2,500 feet, with occasional visibility below 3 to 5 statute miles with drizzle in areas southwest of Barrow. Elsewhere, isolated visibility 3 to 5 statute miles with mist.

A pilot involved in the search for the accident airplane, operating over the accident site about 1400, characterized the weather conditions in the area as 2,000 feet overcast, and visibility in excess of 10 statute miles. The pilot stated that weather conditions to the southwest, and towards Wainwright, appeared to be worse.

COMMUNICATIONS

Review of recorded telephone communications between the pilot and the Barrow AFSS, revealed that at 1024:56, the pilot called the flight service station specialist at the preflight position. During the course of the conversation, the pilot received current and forecast weather conditions for the surrounding area, and along the intended route of flight. The Barrow AFSS specialist advised the pilot that weather conditions at Wainwright, the flight's destination airport, were reported to be below VFR minimums. He added that visibility at Wainwright was reported to be 1.75 statute miles in mist; with ceilings 300 feet overcast. The FAA flight service station specialist, stated in part: "Oh okay, yeah, there is an AIRMET out for

IFR of course." The pilot said, in part: "Oh okay, all right, we'll see, I'll call you back in a little bit then."

At 1203:11, the accident pilot again contacted the Barrow AFSS, and stated "can you give me Wainwright?" The FAA flight service station specialist reported, in part: "Hey, it's a little bit better, still IFR though, two and a half miles with mist, ceiling seven hundred feet overcast." The pilot then filed a VFR flight plan for the accident flight by saying: "All right, all right, um, I'm just going to Wainwright and back, in uh, six five nine one lima."

At 1243:23, the accident pilot contacted the Barrow AFSS's in-flight position and requested a traffic/field advisory prior to departure. After departure, the AFSS specialist on duty stated: "Cessna niner one, uh, lima, flight plan activated." The accident pilot responded by saying: "Okay, thanks." No further communications were received from the accident airplane.

A complete transcript of the recorded conversations between the pilot, and the Barrow AFSS, is included in the public docket for this accident.

SEARCH AND RECOVERY EFFORTS

On August 19, an extensive underwater search effort was conducted utilizing a research vessel equipped with sonar equipment. During the sonar search, a target, believed to be the submerged airplane wreckage, was located in 75 feet of water, about 30.5 miles southwest of Barrow. On August 22, a recovery vessel with an NTSB investigator aboard, was dispatched to the area. Divers were unable to locate the airplane's wreckage due to reduced visibility in the murky, silt-laden waters. On September 1, the operator initiated a second underwater search and recovery effort using a vessel equipped with side-scan sonar equipment, but was unable to locate the airplane's wreckage. On September 3, the underwater search was suspended due to heavy seas, and worsening weather conditions.

ADDITIONAL INFORMATION

The passenger aboard the accident airplane was the pilot's mother, visiting Alaska from Japan. According to ground crew personnel in Barrow, the passenger was seated in the front, right side seat when the airplane departed from Barrow.

During a telephone conversation with the NTSB IIC on August 18, a pilot who is familiar with geographical locations in the area between Barrow and Wainwright, reported that migrating whales are commonly sighted in the area where the radar depicted a descending right turn.

Pilot Information

Certificate:	Airline Transport	**Age:**	30, Female
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last Medical Exam:**	06/15/2003
Occupational Pilot:		**Last Flight Review or Equivalent:**	06/12/2003
Flight Time:	7000 hours (Total, all aircraft), 1000 hours (Total, this make and model), 205 hours (Last 90 days, all aircraft), 41 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Reims Aviation	**Registration:**	N6591L
Model/Series:	406	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	F406-0053
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	10
Date/Type of Last Inspection:	07/25/2003, AAIP	**Certified Max Gross Wt.:**	9360 lbs
Time Since Last Inspection:	71.8 Hours	**Engines:**	2 Turbo Prop
Airframe Total Time:		**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-112
Registered Owner:	Gussic Ventures LLC	**Rated Power:**	500 hp
Operator:	HAGELAND AVIATION SERVICES INC	**Air Carrier Operating Certificate:**	On-demand Air Taxi (135)
Operator Does Business As:		**Operator Designator Code:**	EPUA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	BRW, 0 ft msl	**Observation Time:**	1152 ADT
Distance from Accident Site:	31 Nautical Miles	**Direction from Accident Site:**	230°
Lowest Cloud Condition:		**Temperature/Dew Point:**	3°C / 1°C
Lowest Ceiling:	Overcast / 2000 ft agl	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	10 knots, 60°	**Visibility (RVR):**	
Altimeter Setting:	29.77 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:			
Departure Point:	Barrow, AK (BRW)	**Type of Flight Plan Filed:**	VFR
Destination:	Wainwright, AK (AWI)	**Type of Clearance:**	None
Departure Time:	1249 ADT	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	70.982500, -158.083333

Administrative Information

Investigator In Charge (IIC):	Clinton O Johnson	**Adopted Date:**	07/29/2004
Additional Participating Persons:	Ken A Thomas; Federal Aviation Administration; Fairbanks, AK Hugh T Youngers; Hageland Aviation Services; Anchorage, AK		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.