National Transportation Safety Board
Aviation Accident Final Report

Location:	Nome, AK	**Accident Number:**	ANC09LA021
Date & Time:	02/19/2009, 1812 AST	**Registration:**	N41185
Aircraft:	PIPER PA-31-350	**Aircraft Damage:**	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	1 Serious, 5 Minor
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Scheduled		

Analysis

The scheduled commuter flight was about 10 miles north of the destination airport, operating under a special visual-flight-rules clearance, and descending for landing in instrument meteorological conditions. According to the pilot he started a gradual descent over an area of featureless, snow-covered, down-sloping terrain in whiteout and flat light conditions. During the descent a localized snow shower momentarily reduced the pilot's forward visibility and he was unable to discern any terrain features. The airplane collided with terrain in an all-white snow/ice field and sustained substantial damage. At the time of the accident the destination airport was reporting visibility of 1.5 statute miles in light snow and mist, broken layers at 900 and 1,600 feet, and 3,200 feet overcast, with a temperature and dew point of 25 degrees Fahrenheit. The pilot reported that there were no preaccident mechanical problems with the airplane and that the accident could have been avoided if the flight had been operated under an instrument-flight-rules flight plan.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's continued flight into adverse weather and his failure to maintain clearance from terrain while on approach in flat light conditions.

Findings

Aircraft	Altitude - Not attained/maintained (Cause)
Personnel issues	Decision making/judgment - Pilot (Cause)
Environmental issues	Below VFR minima - Decision related to condition (Cause)
	Flat light - Effect on personnel

Factual Information

On February 19, 2009, about 1812 Alaska standard time, a twin-engine Piper PA-31-350 airplane, N41185, sustained substantial damage when it collided with snow-covered terrain about 5 miles northeast of the Nome Airport, Nome, Alaska. The airplane was being operated by Frontier Flying Service, Fairbanks, Alaska, as a visual flight rules (VFR) scheduled domestic commuter flight, as Flight 8218, under the provisions of Title 14 Code of Federal Regulations (CFR) Part 135. Of the six people aboard, the airline transport pilot and four passengers sustained minor injuries, and one passenger sustained serious injuries. Instrument meteorological conditions prevailed at the airport, and company flight following procedures were in effect. The flight departed Brevig Mission, Alaska, about 1735, en route to Nome.

During a conversation with the National Transportation Safety Board investigator-in-charge on February 20, the pilot reported that just after leaving Brevig Mission, he climbed the airplane to 5,500 feet, but as the flight progressed south towards Nome, the ceiling began to lower, and visibility diminished. About 10 miles north of Nome, the pilot said that he descended to about 1,500 feet, and the visibility was between 1 to 2 miles, with light snow showers.

The pilot said he contacted the Nome Flight Service Station (FSS), about 8 miles north of Nome, and obtained an airport advisory. The FSS specialist on duty reported that current weather conditions at the airport were below basic VFR conditions, then asked the pilot his intentions. The pilot reported that he requested and received a Special VFR clearance to enter the Nome Class E airspace, and he was advised that runway 28 was in use. He said that as the airplane flew towards the Nome Airport, he lowered the landing gear, configured the flaps to the approach setting, and started a gradual descent over an area of featureless, snow-covered, down-sloping terrain. The pilot said that during the descent a localized snow shower momentarily reduced his forward visibility, which deteriorated to a point where he was unable to discern any terrain features. He added that "flat light conditions" contributed to his inability to recognize any topographical features on the snow-covered terrain. The pilot said that he then encountered what he described as "white-out conditions," and the airplane subsequently collided with the snow-covered terrain.

After the airplane struck terrain, the main landing gear collapsed, and the airplane slid for about 100 feet, coming to rest in 8 feet of fresh, windblown snow.

The closest weather reporting facility was the Nome Airport, 5 miles southwest of the accident site. At 1802, about 10 minutes before the accident, a special weather observation from the Nome Airport was reporting, in part: Wind, 250 degrees (true) at 20 knots, gusting to 25 knots; visibility, 1.5 statute miles with light snow and mist; clouds and sky condition, broken layers at 900 and 1,600 feet, 3,200 feet overcast; temperature, 25 degrees F; dew point, 25 degrees F; altimeter, 30.06 inHg.

At 1821, about 24 minutes after the accident, a special weather observation from the Nome Airport was reporting, in part: Wind, 270 degrees (true) at 8 knots; visibility, 1.25 statute miles with light snow and mist; clouds and sky condition, 1,100 feet scattered, 2,200 feet overcast; temperature, 21 degrees F; dew point, 21 degrees F; altimeter, 30.09 inHg.

The pilot reported that there were no preaccident mechanical problems with the airplane, and noted in his written report to the NTSB that the accident would have been avoided if the flight had been operated under an instrument flight rules flight plan.

SEARCH AND RESCUE

After being notified of an overdue airplane and learning that the airplane's last reported position was about 7 miles northeast of the Nome Airport, search and rescue personnel from the Nome Fire Department, Nome Search and Rescue Group, and the Alaska State Troopers, began a ground search for the missing airplane using snow machines. A helicopter from Nome was dispatched to join the search, but low clouds, snow, and reduced visibility prevented the crew from continuing the aerial search.

According to the Alaska State Troopers, about 2100, ground searchers reported seeing a set of dim glimmering lights in an area of mountainous terrain. As the searchers approached the lights they discovered that they were from flashlights that the airplane's occupants were using to signal the approaching searchers. The pilot and passengers were transported to a nearby road via snow machine, then by ambulance to Nome.

Emergency Locator Transmitter (ELT)

The accident airplane was not equipped with a 406 MHz ELT, which can be detected within seconds by geostationary search and rescue satellites, and provide searchers with accurate global positioning system coordinates. According to the operator's director of flight safety, the accident airplane had an older generation 121.5 MHz ELT installed. Both types of ELT's can be turned on manually, or automatically, by impact forces.

Effective February 1, 2009, 19 days before the accident, world-wide satellite monitoring of 121.5 MHz ELT's was terminated, due in part because of their many false reports, lack of accuracy, and low power and range when compared to the 406MHz ELT. Now 121.5 MHz ELT's can only be detected by ground-based receivers such as some airport facilities and air traffic control facilities, or by overflying aircraft, greatly diminishing their effectiveness.

The decision to terminate satellite monitoring of 121.5 MHz ELT's was made in October 2000, in response to guidance from the International Civil Aviation Organization, giving aircraft owners and operators more than 8 years notice to replace their older 121.5 MHz ELT's with 406 MHz ELT's.

Although the NTSB has made two prior recommendations to the FAA seeking that they mandate the use of 406 MHz ELT's, it is still legal to operate both non-commercial and commercial flights without a 406 MHz ELT.

History of Flight

Approach-VFR pattern final	Controlled flight into terr/obj (CFIT) (Defining event)

Pilot Information

Certificate:	Airline Transport	**Age:**	66, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With Waivers/Limitations	**Last FAA Medical Exam:**	10/29/2008
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	12/30/2008
Flight Time:	24850 hours (Total, all aircraft), 7500 hours (Total, this make and model), 22605 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N41185
Model/Series:	PA-31-350	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	31-8553001
Landing Gear Type:	Retractable - Tricycle	**Seats:**	7
Date/Type of Last Inspection:	02/06/2009, AAIP	**Certified Max Gross Wt.:**	7368 lbs
Time Since Last Inspection:	46 Hours	**Engines:**	2 Reciprocating
Airframe Total Time:	10928 Hours at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C91 installed, activated, aided in locating accident	**Engine Model/Series:**	T10-540-J2B
Registered Owner:	Gussic Ventures	**Rated Power:**	350 hp
Operator:	Frontier Flying Service	**Operating Certificate(s) Held:**	Commuter Air Carrier (135); On-demand Air Taxi (135)
Operator Does Business As:		**Operator Designator Code:**	FFSA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Dusk
Observation Facility, Elevation:	OME, 37 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	1802 AST	**Direction from Accident Site:**	210°
Lowest Cloud Condition:	Unknown	**Visibility**	2 Miles
Lowest Ceiling:	Broken / 900 ft agl	**Visibility (RVR):**	5500 ft
Wind Speed/Gusts:	20 knots / 25 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	-4°C / -4°C
Precipitation and Obscuration:	Light - Mist; Light - Snow		
Departure Point:	Brevig Mission, AK (KTS)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Nome, AK (OME)	**Type of Clearance:**	Special VFR
Departure Time:	1735 AST	**Type of Airspace:**	Class E

Airport Information

Airport:	Nome (OME)	**Runway Surface Type:**	Asphalt
Airport Elevation:	37 ft	**Runway Surface Condition:**	Snow
Runway Used:	28	**IFR Approach:**	None
Runway Length/Width:	6001 ft / 150 ft	**VFR Approach/Landing:**	Full Stop

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious, 4 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 5 Minor	**Latitude, Longitude:**	64.512222, -165.445000 (est)

Administrative Information

Investigator In Charge (IIC):	Clinton O Johnson	**Report Date:**	03/23/2010
Additional Participating Persons:	Christopher Farnell; Federal Aviation Administration (Operations); Fairbanks, AK		
Publish Date:	03/23/2010		
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/.		

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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. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available here.