Aviation Investigation Final Report

Location:	Nanwalek, Alaska	**Accident Number:**	ANC12FA014
Date & Time:	December 15, 2011, 15:30 Local	**Registration:**	N252AL
Aircraft:	Cessna U206G	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	4 Minor
Flight Conducted Under:	Part 135: Air taxi & commuter - Scheduled		

Analysis

The commercial pilot was taking off on the third leg of a scheduled flight returning to the airplane's base of operation. Earlier in the day, the weather in the area was not suitable for flight operations, but the pilot, along with another company pilot, performed the company risk assessment and decided that, under the current conditions, flights could depart. The pilot reported that the first two legs were uneventful. However, he noted that, upon landing at the end of the second leg, about 3 inches of slush covered the runway, with as much as 6 inches in some areas, and that the wind was from the east at 12 to 15 knots.

After loading passengers, the pilot decided to taxi from the north parking ramp to the opposite end of the runway for a northerly departure. The pilot and witnesses stated that the airplane's takeoff performance was degraded due to the runway contamination, but the airplane was still able to lift off just past the midfield point. The pilot stated that after the airplane lifted off in a nose-high attitude, he immediately started a shallow left turn to avoid the rising terrain at the north end of the runway. He said that after the airplane cleared a retaining wall on the west side of the runway, it encountered a downdraft, and the pilot was unable to maintain a climb. The airplane impacted the ocean about 100 yards offshore.

There is no official weather reporting at the airport. About 35 minutes before the accident, the nearest official weather reporting station, located 9 nautical miles northeast of the airport, reported wind from 170 degrees at 3 knots. About 10 minutes after the accident, it reported wind from 170 degrees at 10 knots, gusting to 15 knots. The airport is tightly constrained on both sides by terrain and water, and the runway condition is difficult to maintain due to sea erosion and lack of suitable maintenance equipment. According to the airport manager, there

is a contract maintenance provider in the village, and, on the morning of the accident, it was determined that runway conditions did not require maintenance. The contractor stated that the weather was very dynamic that day; he asked the pilot of the first airplane that landed if any maintenance was required on the runway and was told that the runway was fine. However, given the contamination on the runway, the accident pilot likely lifted off farther down the runway than normal. The airplane's attitude and slow airspeed, combined with the unfavorable wind conditions he encountered after he executed the shallow turn, likely resulted in an aerodynamic stall.

A review of the operator's flight risk assessment form showed that, for the conditions during the accident flight, the pilot and another company pilot should have assigned three of the five risk areas a value that requires additional management approval before flights could be released. Instead, they agreed that conditions were appropriate for flight and were allowed to exercise operational control to release the flights for departure, which placed the flight at risk for an accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's decision to takeoff from a contaminated runway with unfavorable wind conditions, and his failure to maintain airspeed during the initial climb, which resulted in an aerodynamic stall. Contributing to the accident was the operator's inadequate procedures for operational control and dispatch.

Findings

Personnel issues	Decision making/judgment - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	Airspeed - Not attained/maintained
Organizational issues	Adequacy of policy/proc - Operator
Environmental issues	Snow/slush/ice covered surface - Contributed to outcome
Environmental issues	Terrain induced turbulence - Contributed to outcome

Factual Information

History of Flight

Initial climb	Other weather encounter
Initial climb	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On December 15, 2011, about 1530 Alaska standard time, a Cessna U206G airplane, N252AL, sustained substantial damage when it impacted ocean waters shortly after takeoff from Runway 01 at the Nanwalek Airport, Nanwalek, Alaska. The airplane was being operated by Smokey Bay Air, Homer, Alaska, as a visual flight rules (VFR) scheduled commuter flight under 14 Code of Federal Regulations Part 135. The pilot and three passengers sustained minor injuries. Visual meteorological conditions prevailed at the time of the accident, and company flight following procedures were in effect. The flight originated from the Homer Airport about 1445, with a stop in Port Graham, Alaska.

In a written statement to the National Transportation Safety Board (NTSB), the pilot stated that the wind at the airport was from the east at 12 to 15 knots, and the runway was covered with approximately 3 inches of slush, with as much as 6 inches in the potholes. He said that there was enough contamination that extra power was required to taxi the airplane. During the takeoff roll on runway 01, the airplane's acceleration was degraded due to the runway contamination, but it became airborne near the midpoint of the runway. He stated that as he was making a left turn, the airplane encountered a strong downdraft. With full power applied to the engine and the airplane's pitch attitude set to best angle of climb, he said the airplane was still descending approximately 500 feet per minute. When he realized that the airplane was not going to climb, he reduced the engine power to idle and ditched the airplane approximately 100 feet from the shore. After the airplane entered the water, the pilot and three passengers evacuated the airplane through the pilot's door and began to swim to shore, where they were assisted by local bystanders.

Another pilot that was at the north end of the airport said he saw the airplane takeoff in a nose high attitude, "as you would expect of a soft-field takeoff." He stated that the airplane continued in a very nose high attitude until it descended below his line of sight, at which time he went to his airplane and radioed another pilot flying in the area, and informed him that an airplane was down near Nanwalek.

PERSONNEL INFORMATION

The pilot, age 38, held a commercial pilot certificate with airplane single-engine land,

multiengine land, and instrument airplane ratings. His most recent second-class medical certificate was issued on October 24, 2011, which contained the limitation that he must wear corrective lenses for distant vision.

In the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1) submitted by the operator, the pilot's aeronautical experience was listed as 1,987 flight hours, with 462 flight hours in the accident airplane make and model. The report noted that in the preceding 90 and 30 days prior to the accident, the pilot accrued a total of 200 flight hours and 53 flight hours.

A review of company training records revealed that the pilot completed his initial ground training on April 22, 2011. On April 26, 2011, the pilot completed his initial flight training in Cessna 206 airplanes. Once the pilot completed the company's training program and passed a check ride, the pilot was officially hired, then assigned to fly Cessna 206 airplanes from the company base in Homer. The pilot's most recent FAA Part 135.293 and 135.299 checks, administered by a FAA Operations inspector from the Anchorage Flight Standards District Office (FSDO), were on December 15, 2011, the morning of the accident flight.

The pilot's normally scheduled duty day was from 0730 to 2130. In the three days prior to the accident, the pilot was off duty. On the accident date of December 15, the pilot started his duty day at 0730, and flew a total of 2.4 hours before the accident.

AIRCRAFT INFORMATION

The six-seat, high-wing airplane was manufactured in 1976. The airplane was equipped with a Continental IO-520-F engine, rated at 300 horsepower, driving a Hartzel 3-bladed, all-metal, constant-speed propeller (model number HC-C3YF-1RF).

At the time of the accident, the airplane had a total time in service of 3,895 flight hours. A review of the maintenance records showed that maintenance personnel last completed an inspection of the airframe and engine under the continuous airworthiness inspection program on November 19, 2011. The engine had a total time in service of 1,245 hours at the last inspection.

METEOROLOGICAL INFORMATION

There is no official weather reporting at the Nanwalek airport. The nearest official weather reporting station is the Seldovia airport (PASO), 9 nautical miles northeast of Nanwalek. At 1453, the PASO Aviation Routine Weather (METAR) was reporting: Wind, 170 degrees (true) at 3 knots; visibility, 10 statute miles; sky condition, 5,000 feet scattered, 7,500 feet broken; altimeter, 29.19 inHg.

At 1540, the PASO METAR was reporting: Wind, 170 degrees (true) at 10 knots, gusting to 15 knots; visibility, 4 statute miles in light rain; sky condition, 1,800 feet broken, 3,900 feet broken; altimeter, 29.21 inHg.

An unofficial weather reporting station is located near the Nanwalek airport, and is used by pilots as supplemental weather information. At 1417, the unofficial weather station was reporting wind from 076 degrees (true) at 8 knots, gusting to 16 knots.

COMMUNICATIONS

There were no communications between air traffic control and the accident airplane.

Another pilot employed by the operator was also on the ground at the Nanwalek airport when the accident airplane was arriving. The pilot on the ground reported that he relayed weather and airport conditions to the accident pilot over the Nanwalek UNICOM frequency.

AIRPORT INFORMATION

The Nanwalek airport is a public-use airport, owned and maintained by the State of Alaska. The airport is tightly constrained by terrain and water on all sides, and the 1,850 feet runway is not regularly maintained. The FAA Airport/Facility Directory, Alaska Supplement listing for the Nanwalek Airport contains the following notation: “Airport Remarks – Unattended. Runway 01-19 north 1,000 feet CLOSED indefinitely, remaining 850 feet soft.”

The Alaska Department of Transportation closed the northern portion of the runway due to the fact that they deemed it unsuitable for operations, and that they had no way to provide adequate maintenance to keep the runway open. There is a contract maintenance provider in Nanwalek, and he stated that he did inspect the runway the morning of the accident, and determined that no maintenance was needed at that time. He said that the conditions were changing rapidly, and after the first airplane arrived at the airport later that day, he asked the pilot if the runway was adequate, and was told it was fine. According to the Nanwalek airport manager, it is at the contractor’s discretion to determine the runway conditions. The contractor also has the authority to issue Notices to Airmen (NOTAMs).

The area surrounding the Nanwalek airport produces significant turbulence and downdrafts, especially when the prevailing wind is from the east.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest in the waters of English Bay, about 100 feet offshore from the northeast coast of Nanwalek. The airplane remained intact and upright, and all the airplane’s major components remained attached, with the exception of the right main landing gear wheel, which separated during the accident sequence.

The right aileron and the right horizontal stabilizer were wrinkled and creased.

ORGANIZATIONAL AND MANAGEMENT INFORMATION

The operator is a Federal Aviation Regulations (FAR) Part 135 Air Carrier, and held scheduled commuter and on-demand operations specifications. Company facilities are in Homer. At the time of the accident, the listed Director of Operations (DO) lived in Homer, but was no longer involved with the day-to-day operations with the carrier, and they were in the process of naming a new DO. The Chief Pilot (CP) resided in Anchorage, Alaska, and regularly commuted to Homer to perform his duties. A review of the company's operations specification, issued by the FAA, indicate that flights shall only be initiated, diverted, or terminated under the authority of the director of operations, who may delegate his authority, but retains responsibility. At the time of the accident, the company president was out of town.

Company Training

Both initial and recurrent pilot training were accomplished in-house. Initial operating experience flights were conducted to the Nanwalek airport. In accordance with Part 135 requirements, Smokey Bay Air maintains an FAA-approved training manual.

Operational Control

At the time of the accident, the company used a two-pilot release method for dispatching and monitoring operational control of flights. Once it was determined that a flight was to be made, the information was passed along to the pilot-in-command (PIC) who along with another pilot, or the DO or CP in some circumstances, would determine if all the conditions for conducting that flight could be met. Under some circumstances, the DO or CP must be notified to release a flight.

The company used a basic risk assessment form to determine the level of operational control needed for a specific flight. The risk assessment form prompted the pilot to look at five areas of risk (Pilot, Equipment, Weather, Runway Conditions, and Daylight Requirements), and assign each category a value (Green light, Yellow light, or Red Light). Pilots complete the risk assessment at the beginning of the day, and are required to reevaluate if any conditions change throughout the day. Any combination of 3 yellow light items required additional approval from the DO or CP. A red light item required the cancellation of the flight. (A copy of the risk assessment template is located in the public docket for this accident.)

On the morning of the accident flight, the accident pilot, along with another company pilot, reviewed the weather in the area, and decided that no flights would be initiated. Around noon, the weather began to clear, so the two pilots exercised their operational control under the two-pilot release system, and flight began at approximately 1300.

The two pilots completed the risk assessment form and assigned “green lights” for 4 of the 5 categories. A “yellow light” was assigned to the equipment category, but no note was made explaining the reason for the upgraded risk.

A review of the risk assessment by the NTSB IIC showed that, for the conditions during the accident flight, 3 of the 5 categories should have been assigned a “yellow light” requiring additional approval from the DO or CP.

Standard Operating Procedures

At the time of the accident, Smokey Bay Air pilots were trained to the standard operating procedures contained in the company’s General Operations Manual.

ADDITIONAL INFORMATION

In the months after the accident, the operator made numerous changes to their operating procedures that benefited the safety of the flight operations. Including changes to their operational control mechanisms, having both the DO and CP in house, modifying their risk assessments, and revamping their safety policies to align with the FAA Safety Management System framework.

The FAA Weather Camera Office has initiated installation of a weather camera at Nanwalek to help pilots better assess weather and airport conditions. The installation is slated to be complete in June 2013.

The State of Alaska has plans to permanently close the Nanwalek Airport and to build a new airport to serve the communities of Nanwalek and neighboring Port Graham. Officials are still in the stages of acquiring land and right-of-way for the new site, and there is no definitive date that airport construction will commence.

Pilot Information

Certificate:	Commercial	**Age:**	38,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	October 24, 2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 26, 2011
Flight Time:	1987 hours (Total, all aircraft), 462 hours (Total, this make and model), 200 hours (Last 90 days, all aircraft), 53 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N252AL
Model/Series:	U206G	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U20603612
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	November 19, 2011 Continuous airworthiness	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	37 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3858 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO 520 SERIES
Registered Owner:	SMOKEY BAY AIR INC	**Rated Power:**	300 Horsepower
Operator:	SMOKEY BAY AIR INC	**Operating Certificate(s) Held:**	Commuter air carrier (135), On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	X53A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PASO	**Distance from Accident Site:**	9 Nautical Miles
Observation Time:	15:40 Local	**Direction from Accident Site:**	60°
Lowest Cloud Condition:		**Visibility**	4 miles
Lowest Ceiling:	Broken / 1800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 15 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.2 inches Hg	**Temperature/Dew Point:**	
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Nanwalek, AK (KEB)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Homer, AK (PAHO)	**Type of Clearance:**	None
Departure Time:	15:29 Local	**Type of Airspace:**	

Airport Information

Airport:	Nanwalek KEB	**Runway Surface Type:**	Dirt;Gravel;Ice;Snow;Water
Airport Elevation:		**Runway Surface Condition:**	Holes;Ice;Rough;Slush covered;Snow;Standing water
Runway Used:	01	**IFR Approach:**	None
Runway Length/Width:	1850 ft / 50 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	3 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Minor	**Latitude, Longitude:**	59.352222,-151.925277(est)

Administrative Information

Investigator In Charge (IIC):	Shaver, Christopher
Additional Participating Persons:	Angelique Talbot; FAA Anchorage FSDO; Anchorage, AK
Original Publish Date:	October 29, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=82530