



National Transportation Safety Board Aviation Accident Final Report

Location:	Happy Camp, CA	Accident Number:	LAX07TA227
Date & Time:	07/23/2007, 1018 PDT	Registration:	N205BR
Aircraft:	Bell 205 A1++	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 133: Rotorcraft Ext. Load		

Analysis

The accident occurred while the helicopter was supporting firefighting efforts with long-line operations. Two days prior to the accident, the division group supervisor (DIVS) anchored a colored reflective panel used for indicating landing and drop zones at the accident location. The DIVS stated that no site assessment was performed at the time of the panel placement because the placement was not intended to be the indicator of the drop zone for blivet deliveries. The terrain in the area consisted of steep slopes and trees varying in height from 75 to 200 feet. One day prior to the accident, the location of the panel was not changed from the previous day and remained as placed by the DIVS. The accident helicopter, equipped with a 150-foot-long line, then made the blivet drop within 3 feet of the panel. The marshaller stated he warned the pilot about the proximity of one tree that was located to the right and upslope. Two ground crew members distanced themselves from the blivet drop because they were concerned with their own safety due to the tree hazards. The division safety officer visited the site immediately after the blivet operation and there was no discussion regarding the aircraft use, the drop zone, or any discernment on the part of any crew member regarding the safety of the operation. In addition, there was no discussion about the operation during the "After-Action Review" (AAR) at the overnight camp that evening. On the day of the accident prior to the day's missions, there was no safety assessment or organized AAR conducted. The accident pilot was told that he would be delivering two more blivets to the same drop zone and back hauling the empty blivets that had been delivered the day before. At the intended drop zone, two crew members, who were not the same from the previous day, were so concerned about the potential for an accident that they briefed each other three times on what action would be taken in the event of an accident; however, this was not discussed with the pilot. The panel was not moved and the drop zone site remained in the same location as the previous day. The marshaller communicated with the DIVS that a longer long-line was recommended so the helicopter could remain above the trees; however, the helicopter had already departed. Witnesses observed that as the blivets were set down on the ground, the helicopter drifted to the right and the main rotor blades contacted a 165-foot-tall tree about 15 feet from the top. The long-line, along with the blivets, remained attached to the helicopter as it made a turn to the left, stopped momentarily, and then flew downhill to ground impact. The helicopter impacted several trees and was destroyed by post impact fire. No anomalies were noted with

the airframe and engine that would have precluded normal operation prior to the accident. The helicopter was approved for the pilot to operate the aircraft from the left seat. Visibility to the right side of the helicopter was partially obstructed by aircraft structure, passenger seats, and the seat headrests.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain clearance with the trees during a long-line operation. Contributing factors were the Forest Service's inadequate communication between crews, failure to properly assess the safety of the intended drop zone, reduced visibility to the right side of the helicopter, and the trees.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: HOVER - IN GROUND EFFECT

Findings

1. TERRAIN CONDITION - CONGESTED/CONFINED AREA
2. OBJECT - TREE(S)
3. (F) CREW/GROUP COORDINATION - INADEQUATE - COMPANY/OPERATOR MANAGEMENT
4. (F) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - SELECTED - GROUND PERSONNEL
5. (F) VISUAL LOOKOUT - REDUCED - PILOT IN COMMAND
6. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

7. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

On July 23, 2007, at 1018 Pacific daylight time, a Bell 205 A1++, N205BR, impacted trees and terrain during a long-line mission in support of the Elk Fire about 1/4 mile southeast of the Happy Camp Airport (36S), Happy Camp, California. The certificated airline transport (ATP) helicopter pilot, who was the sole occupant, was fatally injured. The United States Department of Agriculture Forest Service (USFS) operated the helicopter under the provisions of 14 CFR Part 133 as a long-line operation to drop off water blivets for ground crews in the area. Visual meteorological conditions prevailed for the local public-use firefighting flight, and a USFS flight plan had been activated. The helicopter was destroyed after impacting the heavily forested area, and a post impact fire consumed the cabin area.

According to the USFS, the firefighters were in "mop-up" mode and the type 2 hand crew superintendent requested blivets through the division group supervisor (DIVS) to support the operation. Two days prior to the accident, the DIVS anchored a fluorescent panel (used for indicating landing and drop zones) for the next day superintendent to use. The panel was placed on a decommissioned road near a small seep and a location that was convenient for the crews. The DIVS stated no site assessment was performed at the time of the panel placement because the placement was not intended to be the indicator of the drop zone for the blivet operations. The terrain in the area contained steep slopes and trees varying in height from 75 to 200 feet.

The day prior to the accident, the crew superintendent prepared for blivet delivery by the accident helicopter. The location of the panel was not changed from the previous day and remained as placed by the DIVS. The DIVS remained at the overnight camp and did not personally observe if the panel had been relocated. The accident helicopter then made the blivet drop within 3 feet of the panel. The marshaller, located on the ground, stated he warned the pilot about the proximity of one tree that was located to the right and upslope. Two ground crew members distanced themselves from the blivet drop because they were concerned with their own safety due to the tree hazards. The division safety officer visited the site immediately after the blivet operation and there was no discussion regarding the aircraft use, the drop zone, or any discernment on the part of any crew member regarding the safety of the operation. In addition, there was no discussion about the operation during the "After-Action Review" (AAR) at the overnight camp that evening. The crew superintendent through the DIVS requested additional blivets and back haul of the day's empty blivets for the following day.

On the day of the accident prior to the day's missions, there was no safety assessment or organized AAR conducted. The accident pilot was told that he would be delivering two more blivets to the same drop zone and back hauling the empty blivets delivered the day before. At the intended drop zone, two crew members, who were not the same crew members from the previous day, were assigned the duties of marshaller and hitcher. During a post accident interview, the two crew members stated that they were so concerned about the potential for an accident that they briefed each other three times on what action would be taken in the event of an accident. The panel was not moved and the drop zone site remained in the same location as the previous day.

The helicopter was equipped with a 150-foot-long line. The marshaller communicated with the DIVS that a longer long-line was recommended. By the time the recommendation was transmitted to the helibase, the accident helicopter had departed on the blivet delivery flight.

Due to radio traffic, the marshaller and pilot did not communicate until the helicopter was on final approach to the drop zone. Several firefighters from the hand crew witnessed the arrival of the helicopter. They reported that as the blivets were set down on the ground, the helicopter drifted to the right and the main rotor blades contacted a tree. The long-line, along with the blivets, remained attached to the helicopter as it made a turn to the left, stopped momentarily, and then flew downhill. The helicopter impacted several trees and was destroyed by post impact fire. Crew members responded to the accident site, and in an attempt to provide assistance to the pilot. The firefighters reported that there were no abnormal engine sounds emanating from the engine during the event.

The helicopter's main rotor impacted the top 15 feet of a 165-foot-tall tree. Examination of the helicopter revealed the main rotor blades displayed bends on the main spar approximately 2 to 4 feet from the blade tips. Blue paint, consistent with the vertical stabilizer paint color, was observed on the leading edge of both blades. The main rotor hub assembly remained attached to the top fractured stub section of the mast. The mast fracture was oblong in shape, consistent with contact from the main rotor yoke static stops. The main rotor and tail rotor drive systems displayed several separations and fractures. The separations and fractures displayed signatures that were consistent with overload. Flight control continuity was not established due to fire and impact damage. No anomalies were noted with the airframe and engine that would have precluded normal operation prior to the accident.

The helicopter was approved for the pilot to operated the aircraft from the left seat. The left seat position allowed the pilot to view the ground during long-line operations while leaning to the left, which facilitated the pilot's ability to control the collective. Visibility to the right side of the helicopter was partially obstructed by aircraft structure, passenger seats, and the seat headrests.

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	60, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	03/01/2007
Occupational Pilot:		Last Flight Review or Equivalent:	01/01/2007
Flight Time:	12454 hours (Total, all aircraft), 2179 hours (Total, this make and model), 11900 hours (Pilot In Command, all aircraft), 93 hours (Last 90 days, all aircraft), 54 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N205BR
Model/Series:	205 A1++	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	30033
Landing Gear Type:	Skid	Seats:	9
Date/Type of Last Inspection:	07/01/2007, AAIP	Certified Max Gross Wt.:	10500 lbs
Time Since Last Inspection:		Engines:	2 Turbo Shaft
Airframe Total Time:	11717 Hours as of last inspection	Engine Manufacturer:	honeywell
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	T53-17B
Registered Owner:	Idaho Helicopters, Inc.	Rated Power:	1500 hp
Operator:	US Dept. of Agriculture	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	US Forest Service	Operator Designator Code:	GAKA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	340°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.06 inches Hg	Temperature/Dew Point:	16° C / 15° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Happy Camp, CA (36S)	Type of Flight Plan Filed:	Company VFR
Destination:		Type of Clearance:	None
Departure Time:	1007 PDT	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	1 Fatal	Latitude, Longitude:	41.640556, -123.276944

Administrative Information

Investigator In Charge (IIC): Tealeye C Cornejo **Report Date:** 07/30/2008

Additional Participating Persons: Richard Conte; Federal Aviation Administration; Sacramento, CA
James Sedell; U.S.D.A. Forest Service; Albany, CA
Mark Stuntzner; Bell Helicopter; Fort Worth, TX

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 pubinquiry@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.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](#).