
		NTSB ID: SEA04TA158		Aircraft Registration Number: N205XP	
		Occurrence Date: 08/11/2004		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Leavenworth		State WA	Zip Code 98826	Local Time 1025	Time Zone PDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer Bell		Model/Series 205A1		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On August 11, 2004, approximately 1025 Pacific daylight time, a Bell 205A1 helicopter, N205XP, was destroyed when it impacted heavily wooded, mountainous terrain approximately 20 miles northwest of Leavenworth, Washington. Prior to the impact, the helicopter's tail rotor struck a tree and aircraft control was lost while hovering out of ground effect with an external load. The commercial pilot, the sole occupant, was fatally injured. The helicopter was operated by Shasta Aviation Corporation dba Crescent Helicopters under contract to the United States Forest Service (USFS). The purpose of the public use flight conducted under Title 14 CFR Part 133 was to ferry supplies to a firefighting crew in the Alpine Lakes Wilderness Area located in the Cascade Mountain Range. Visual meteorological conditions prevailed, and a company flight plan was filed. The flight departed from the USFS Leavenworth helibase (Fromme Field) approximately 0955.</p> <p>Personnel with the USFS conducted witness interviews, examined the accident site, and prepared a summary report of their observations. According to the USFS report, on the afternoon of August 10, 2004, eight smoke jumpers parachuted into a drainage approximately 1/2 mile down stream of a small lightning fire called INC.698. Some of the jumpers were assigned to INC.698 and some were assigned to INC.697, another small lightning fire in the area. In the evening, the smoke jumpers requested that equipment be longlined into a drop zone (DZ) they selected near INC.698 along the stream bed. The jumpers estimated the trees in the drainage were an average of 80 feet tall with some 120 foot tall trees near the DZ. Therefore, they requested a 150-foot long-line be used for the equipment drop.</p> <p>According to the USFS report, on the morning of August 11, 2004, the helicopter was dispatched with a tandem sling load to deliver firefighting supplies as requested by the smoke jumpers first to INC.698 and then to take the remainder of the supplies to INC.697. The helicopter's approach into the DZ was from the southwest perpendicular to the drainage. The smoke jumpers had marked the drop sight by placing a large X made of pink flagging near the stream on a sand bar at the southern end of the DZ. To the right of the helicopter on its approach was a tall dead tree (snag) located on a cut bank overlooking the sand bar.</p> <p>The radio operator, one of the smoke jumpers, told the pilot that if he did not like the drop sight marked by the X, he could choose his own spot and that would be okay with the smoke jumpers. The pilot acknowledged the radio operator's statement and indicated he would give it a try. The radio operator did not mention the snag to the pilot. The pilot successfully placed both loads on the drop sight marker. The ground crewman, another one of the smoke jumpers, removed the first load and reattached the second load meant to be dropped at INC.697.</p> <p>Eyewitnesses (smoke jumpers) interviewed by USFS personnel reported that as the helicopter began its departure, the pilot, who was sitting in the left seat, slowly turned the helicopter's nose to the left and its tail to the right. This maneuver allowed the helicopter's tail rotor to contact the snag located near the drop sight marker. The helicopter then began to spin and move up stream</p>					
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## Narrative (Continued)


from the drop zone before falling to the ground. As the helicopter fell, the main rotor system separated, and a fire erupted.


On scene examination by USFS personnel revealed that the tail rotor and a portion of the 90-degree gearbox separated from the helicopter and came to rest 44 feet 6 inches from the base of the snag on a magnetic heading of 169 degrees. The helicopter came to rest on a magnetic heading of about 270 degrees, partially inverted on its left side, in trees approximately 200 feet west of the drop sight marker. The main rotor system separated from the aircraft at the mast near the static stops and came to rest approximately 40 feet north of the fuselage. The fuselage from the nose to the tail boom was destroyed by fire.

The cargo hook on the belly of the helicopter was found in the open position. The remote hook at the end of the long-line was still attached to the second load. The cargo long-line was stretched out from the drop zone towards the helicopter with the last 40 feet coiled up in a ball. The long-line measured 160 feet in length. The snag was cut down, measured, and found to be 169 feet 5 inches tall. There were three separate strike marks found 15 feet 4 inches from the top of the snag. The cut bank that the snag was located on was 3 feet 6 inches above the sandbar. Adding the height of the cut bank to the height of the snag, the top of the snag was determined to be 172 feet 11 inches above the drop zone surface.

The base of the snag was 36 feet 2 inches from the drop sight marker. The rotor diameter of the helicopter was 48 feet. Following the accident, on August 24, 2004, the USFS issued an Aviation Safety Alert on the subject of "Clearance From Obstacles During External Load Operations." One of the recommendations in the alert stated the following: "In areas of sloping terrain or with obstacles rising to one or more sides of the cargo pickup/delivery area, or dip site, pilot should maintain aircraft clearance from all obstacles in accordance with the landing area safety circle requirements for the type aircraft. The safety circle is generally recognized as 1 1/2 times the rotor diameter."

An autopsy of the pilot was performed by the Chelan County Coroner in Wenatchee, Washington. Toxicological tests performed by the FAA's Toxicology and Accident Research Laboratory were negative for carbon monoxide, cyanide, ethanol and drugs.

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<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used NA	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown: NONE					
VFR Approach/Landing: None					
<b>Aircraft Information</b>					
Aircraft Manufacturer Bell		Model/Series 205A1		Serial Number 30017	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Skid					
Amateur Built Acft? No	Number of Seats: 10	Certified Max Gross Wt.	10200 LBS	Number of Engines: 1	
Engine Type: Turbo Shaft	Engine Manufacturer: Lycoming	Model/Series: T-53-L-17A	Rated Power: 1800 HP		
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection	Time Since Last Inspection 89 Hours	Airframe Total Time 28600 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type Yes /	ELT Operated? No	ELT Aided in Locating Accident Site? No			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner Copter Lease LLC Trustee		Street Address 4701 Hawkins St NE			
		City Albuquerque	State NM	Zip Code	
Operator of Aircraft USDA Forest Service, Fire and Aviation Management		Street Address 1400 Independence Ave SW, Mailstop 1107			
		City Washington	State DC	Zip Code 20250	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 133: Rotorcraft Ext. Load					
Type of Flight Operation Conducted: Public Use					
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**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 55
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Sex: M	Seat Occupied: Left	Occupational Pilot? Civilian Pilot	Certificate Number: On File
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Certificate(s): Flight Instructor; Commercial

Airplane Rating(s): Multi-engine Land; Single-engine Land; Single-engine Sea

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): Airplane; Helicopter

Instructor Rating(s): Airplane Single-engine; Helicopter; Instrument Airplane

Current Biennial Flight Review? 01/2004

Medical Cert.: Class 2	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 04/2004
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	22650							21650		
Pilot In Command(PIC)										
Instructor	3000							3000		
Instruction Received										
Last 90 Days	110	80						110		
Last 30 Days	30	30						30		
Last 24 Hours										

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? Yes	Second Pilot? No
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**Flight Plan/Itinerary**

Type of Flight Plan Filed: Company VFR

Departure Point Leavenworth	State WA	Airport Identifier	Departure Time 0955	Time Zone PDT
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Destination Same as Accident/Incident Location	State	Airport Identifier	
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Type of Clearance: None

Type of Airspace: Class G

**Weather Information**

Source of Wx Information:  
  
Unknown

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**Weather Information**

WOF ID	Observation Time	Time Zone	WOF Elevation  Ft. MSL	WOF Distance From Accident Site  NM	Direction From Accident Site  Deg. Mag.
Sky/Lowest Cloud Condition: Clear			Ft. AGL	Condition of Light: Day	
Lowest Ceiling:			Ft. AGL	Visibility: 10 SM	Altimeter: "Hg
Temperature: 32 °C	Dew Point: °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction:	Wind Speed: Calm		Wind Gusts:		
Visibility (RVR): Ft.	Visibility (RVV) SM				
Precip and/or Obscuration:					

**Accident Information**

Aircraft Damage: Destroyed	Aircraft Fire: Ground	Aircraft Explosion: None
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- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -	1				1
Other Ground					
- GRAND TOTAL -	1				1

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Administrative Information

Investigator-In-Charge (IIC)

Georgia R. Struhsaker

Additional Persons Participating in This Accident/Incident Investigation:

Donald N Bird  
FAA, FSDO  
Spokane, WA

Boyce J Bingham  
USDA Forest Service, Alaska Region  
Juneau, AK