Aviation Investigation Final Report

Location:	Houma, Louisiana	**Accident Number:**	CEN22FA100
Date & Time:	January 14, 2022, 10:01 Local	**Registration:**	N167RL
Aircraft:	Bell 407	**Aircraft Damage:**	Destroyed
Defining Event:	Medical event	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The pilot and passenger departed in the helicopter on the on-demand passenger flight. Cockpit imagery indicated that, while enroute, the pilot experienced a sudden loss of consciousness. The helicopter departed controlled flight and impacted terrain. Examination of the helicopter revealed no mechanical anomalies that would have precluded normal operation.

Autopsy of the pilot was limited due to extensive traumatic injury. While the pilot's cardiovascular system showed no evidence of natural disease, an arrhythmia or other electrical disorder would not leave evidence on autopsy; thus, the cause of the pilot's sudden incapacitation could not be determined.

Varying levels of ethanol were detected in the pilot's liver, lung, kidney, and muscle tissue. Butanol and propanol were also detected in some tissues. Given the differing ethanol tissue concentrations, the state the body was recovered, and the presence of butanol and propanol in some tissues, it is likely that the identified ethanol was from sources other than ingestion.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's sudden loss of consciousness for undetermined reasons during cruise flight, which resulted in a loss of control and impact with terrain.

Findings

Personnel issues	(general) - Flight crew

Factual Information

History of Flight

Enroute-cruise	Medical event (Defining event)
Enroute-cruise	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On January 14, 2022, about 1001 central standard time, a Bell 407, N167RL, was destroyed when it was involved in an accident near Houma, Louisiana. The commercial pilot and a passenger sustained fatal injuries. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 135 on-demand passenger flight.

The helicopter was equipped with an Appareo Vision 1000, which captured cockpit imagery of the accident flight.

The recorded video indicated that the flight was proceeding normally until about 10:00:50, when the pilot's head began to fall back in a motion not consistent with scanning for traffic or with directed attention. The helicopter was traveling at a speed of about 123 knots and an altitude about 1,220 ft mean sea level. The pilot's movements after this time appeared to be undirected and solely in response to the g-forces resulting from aircraft motion.

The pilot's head began to move toward the right and upward until the end of the recording. The pilot's motion remained consistent with an undirected response to aircraft motion. The view outside the windscreen was consistent with a nose-down, inverted attitude just before the end of the recording.

A witness near the accident site stated that he saw the helicopter descend into terrain in a nose-down attitude and did not see any parts separate from the helicopter while it was airborne.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	30,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	November 13, 2021
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 13, 2021
Flight Time:	(Estimated) 1951.5 hours (Total, all aircraft), 29.8 hours (Total, this make and model), 1951.5 hours (Pilot In Command, all aircraft), 86.2 hours (Last 90 days, all aircraft), 59.6 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N167RL
Model/Series:	407	**Aircraft Category:**	Helicopter
Year of Manufacture:	1997	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	53167
Landing Gear Type:	Emergency float; Skid	**Seats:**	7
Date/Type of Last Inspection:	December 26, 2022 AAIP	**Certified Max Gross Wt.:**	5250 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo shaft
Airframe Total Time:	20224.6 Hrs at time of accident	**Engine Manufacturer:**	Rolls Royce
ELT:	C126 installed, not activated	**Engine Model/Series:**	M250-C47B
Registered Owner:	Rotorcraft Leasing Company, LLC	**Rated Power:**	650 Horsepower
Operator:	Rotorcraft Leasing Company, LLC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	YTRA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HUM,9 ft msl	**Distance from Accident Site:**	
Observation Time:	09:47 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	6 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	10°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	16°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Venice, LA (VEN)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Patterson, LA (PTN)	**Type of Clearance:**	VFR
Departure Time:	09:26 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	29.491308,-90.42939(est)

A postaccident examination of the helicopter revealed there was no mechanical failure or malfunction that would have precluded normal operation.

Medical and Pathological Information

The 30-year-old male pilot held a second-class Federal Aviation Administration (FAA) medical certificate with a limitation for corrective lenses. At the time of the most recent exam, he

reported no medications or medical conditions. No significant medical concerns were identified. Department of Veterans Affairs disability records showed that the pilot had a history of migraines and tinnitus, but had no diagnosis of traumatic brain injury.

According to the autopsy, the pilot's cause of death was massive total body trauma and the manner of death was accident. The examination was limited by extensive trauma. The cardiovascular system showed no evidence of natural disease.

Toxicology testing performed by the FAA Forensic Sciences Laboratory detected ethanol in the pilot's liver, lung, kidney, and muscle tissue at 0.056 grams per hectogram (gm/hg), 0.012 gm/hg, 0.055 gm/hg, and 0.039 gm/hg, respectively (grams per hectogram in tissue samples are directly comparable to grams per deciliter in blood samples). N-butanol was detected in liver, kidney, and muscle tissues, but was not detected in lung tissue. N-propanol was detected in kidney and muscle tissues but was not detected in his liver and lung tissues. The non-impairing over-the-counter antihistamine, fexofenadine, and its metabolite, azacyclonol, were detected in the pilot's liver and muscle tissue.

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Jose Areizaga; FAA FSDO; Baton Rouge, LA Gary Howe; Bell; Fort Worth, TX Jack Johnson; Rolls Royce; Indianapolis, IN Jason Melancon; Rotorcraft Leasing Company, LLC; Broussard, LA
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