



# Aviation Investigation Final Report

<b>Location:</b>	Cedar Key, Florida	<b>Accident Number:</b>	ERA22LA192
<b>Date &amp; Time:</b>	April 18, 2022, 11:10 Local	<b>Registration:</b>	N919AC
<b>Aircraft:</b>	BELL HELICOPTER TEXTRON 206B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

## Analysis

The pilot was performing aerial application flights during which he returned to the landing zone five times to receive additional product. He recalled spending the majority of his time troubleshooting a spray rate system issue and was not paying attention to the fuel level while ground personnel were loading the product. During climb out on the final spray, the engine lost all power. During the subsequent autorotation and hard landing on a gravel road, the tail boom and tail rotor drive shaft sustained substantial damage.

The pilot reported that there were no preimpact mechanical malfunctions or failures with the helicopter and that upon landing he noticed that the fuel gauge showed empty.

Examination of the helicopter by a Federal Aviation Administration inspector found that a total of 2.5 gallons of uncontaminated Jet A fuel was able to be sumped from the helicopter’s fuel system. Residual and trace amounts of fuel were discovered in the engine driven fuel pump and fuel filters. The helicopter was not equipped with an optional low fuel light.

The helicopter flight manual advised to avoid uncoordinated turns and maneuvers with fewer than 20 gallons.

It is likely that while the pilot maneuvered out of the field following his final spray, the engine was starved of fuel, which resulted in the loss of engine power.

The operator following the accident amended their ground personnel training manual to require that both the ground personnel and the pilot ‘confirm fuel quantity OK’ prior to each takeoff.

# Probable Cause and Findings

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

The pilot's improper fuel planning during agricultural spraying operations, which resulted in fuel starvation, a loss of engine power, and a hard landing following an autorotation.

## Findings

<b>Aircraft</b>	Fuel - Fluid management
<b>Personnel issues</b>	Fuel planning - Pilot

## Factual Information

### History of Flight

<b>Maneuvering-low-alt flying</b>	Fuel starvation (Defining event)
<b>Autorotation</b>	Collision with terr/obj (non-CFIT)

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	45, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Helicopter; Instrument helicopter	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	March 8, 2022
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 31, 2022
<b>Flight Time:</b>	5555 hours (Total, all aircraft), 4466 hours (Total, this make and model), 5430 hours (Pilot In Command, all aircraft), 40 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BELL HELICOPTER TEXTRON	<b>Registration:</b>	N919AC
<b>Model/Series:</b>	206B NO SERIES	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	1988	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Restricted (Special)	<b>Serial Number:</b>	4020
<b>Landing Gear Type:</b>	None; High skid	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	April 5, 2022 Annual	<b>Certified Max Gross Wt.:</b>	3200 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Turbo shaft
<b>Airframe Total Time:</b>	11661 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Rolls-Royce
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	250-C20B
<b>Registered Owner:</b>	VERTICAL VEGETATION MANAGEMENT LLC	<b>Rated Power:</b>	400 Horsepower
<b>Operator:</b>	VERTICAL VEGETATION MANAGEMENT LLC	<b>Operating Certificate(s) Held:</b>	Agricultural aircraft (137)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	CGC,10 ft msl	<b>Distance from Accident Site:</b>	30 Nautical Miles
<b>Observation Time:</b>	10:15 Local	<b>Direction from Accident Site:</b>	124°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots / None	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	250°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	29.97 inches Hg	<b>Temperature/Dew Point:</b>	24°C / 20°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Cedar Key, FL	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Cedar Key, FL	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	29.354257,-83.027988

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gerhardt, Adam
<b>Additional Participating Persons:</b>	Randy Ryhal; FAA FSDO; Tampa, FL
<b>Original Publish Date:</b>	December 15, 2022
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 4</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=104954">https://data.nts.gov/Docket?ProjectID=104954</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).