Aviation Investigation Final Report

Location:	Cedar Key, Florida	**Accident Number:**	ERA22LA192
Date & Time:	April 18, 2022, 11:10 Local	**Registration:**	N919AC
Aircraft:	BELL HELICOPTER TEXTRON 206B	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 None
Flight Conducted Under:	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

Aircraft	Fuel - Fluid management
Personnel issues	Fuel planning - Pilot

Factual Information

History of Flight

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

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	45,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument helicopter	**Toxicology Performed:**	
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	March 8, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 31, 2022
Flight Time:	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

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

Meteorological Information and Flight Plan

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

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	29.354257,-83.027988

Administrative Information

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