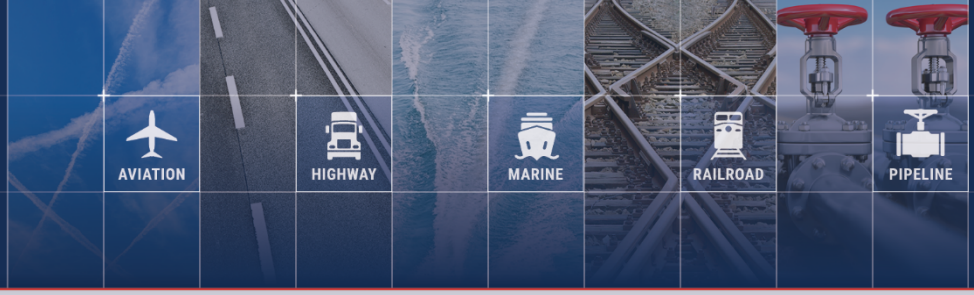


# Aviation Investigation Final Report

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|---|---|---|---|
| **Location:** | Oshkosh, Wisconsin | **Accident Number:** | CEN18FA215 |
| **Date & Time:** | June 9, 2018, 12:29 Local | **Registration:** | N529DW |
| **Aircraft:** | ROBINSON HELICOPTER R44 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Low altitude operation/event | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 135: Air taxi & commuter - Non-scheduled | | |

## Analysis

The commercial pilot of the helicopter had just finished a low-level aerial photography flight of a boating event along a series of lakes and rivers. The pilot landed the helicopter, off-loaded the photographer, and departed to a nearby airport to refuel. Witnesses and surveillance video indicated that the helicopter was flying northwest over the river when, about 1/2 mile from the takeoff location, it contacted two lines of an unmarked five-line array that crossed about 100 ft above the river. The tail rotor separated from the helicopter, and the helicopter subsequently impacted the river.

The photographer reported that they had flown over numerous bridges and power lines during the earlier flight and that they had discussed the location of the power lines in reference to the bridges. Examination of the airframe revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation of the helicopter. The circumstances of the accident are consistent with the pilot flying at an unnecessarily low altitude and then failing to maintain clearance from the wires while flying at low level.

## Probable Cause and Findings

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

The pilot's decision to fly over the river at a low altitude and his failure to maintain clearance with wires during low-level flight.

## Findings

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| **Personnel issues** | Attention - Pilot |
| **Personnel issues** | Decision making/judgment - Pilot |
| **Personnel issues** | Identification/recognition - Pilot |
| **Environmental issues** | Wire - Effect on operation |
| **Environmental issues** | Wire - Awareness of condition |
| **Aircraft** | Altitude - Incorrect use/operation |

# Factual Information

## History of Flight

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|---|---|
| **Maneuvering-low-alt flying** | Low altitude operation/event (Defining event) |
| **Maneuvering-low-alt flying** | Collision with terr/obj (non-CFIT) |
| **Uncontrolled descent** | Collision with terr/obj (non-CFIT) |

On June 9, 2018, at 1229 central daylight time, a Robinson R44 helicopter, N529DW, was substantially damaged when it collided with wires during a low-level flight in Oshkosh, Wisconsin. The pilot was fatally injured. The helicopter was registered to and operated by MF Helicopters LLC as a Title 14 Code of Federal Regulations Part 135 aerial photography flight. Visual meteorological conditions prevailed near the accident site at the time of the accident, and no flight plan was filed for the flight, which originated about 1226 from a field near the accident site and was en route to Wittman Field (OSH), Oshkosh, Wisconsin.

The helicopter was engaged in aerial photography operations for a boating event on Lake Winnebago. The helicopter was operating from a field on the Fox River, about 1/2 mile southeast of the accident site. The pilot and a photographer were airborne for about 1 1/2 hours flying at low altitude over a series of lakes and waterways while photographing the event. The photographer stated that he and the pilot flew over several bridges and sets of power lines during the flight, and they discussed that many of the bridges had power lines near them. He stated that there were no problems with the helicopter during their flight. The pilot then dropped off the photographer at the field before departing for OSH to refuel.

A surveillance camera captured the helicopter flying northwest when it struck wires that crossed a river. The video showed the helicopter pitching up as it struck the wires. The tail rotor separated from the helicopter and the helicopter descended into the water. Numerous witnesses also reported seeing the helicopter contact the wires and descend into the water.

## Pilot Information

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|---|---|---|---|
| **Certificate:** | Commercial; Flight instructor | **Age:** | 27,Male |
| **Airplane Rating(s):** | None | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | Helicopter | **Restraint Used:** | 4-point |
| **Instrument Rating(s):** | Helicopter | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | Helicopter | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 2 Without waivers/limitations | **Last FAA Medical Exam:** | May 24, 2017 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | December 7, 2016 |
| **Flight Time:** | 559.5 hours (Total, all aircraft), 559.5 hours (Total, this make and model), 474.2 hours (Pilot In Command, all aircraft), 8.6 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft) | | |

The pilot held a commercial pilot certificate with rotorcraft-helicopter and instrument helicopter ratings. He also held a flight instructor certificate with a rotorcraft-helicopter rating. The pilot's logbook contained entries between August 28, 2013, and May 30, 2018. The logbook showed that the pilot had 559.6 total hours of flight experience, all of which were in Robinson R44 helicopters. The pilot held a Federal Aviation Administration second-class medical certificate that was issued on May 24, 2017. The medical certificate did not list any limitations.

## Aircraft and Owner/Operator Information

| | | | |
|---|---|---|---|
| **Aircraft Make:** | ROBINSON HELICOPTER | **Registration:** | N529DW |
| **Model/Series:** | R44 UNDESIGNAT | **Aircraft Category:** | Helicopter |
| **Year of Manufacture:** | 2001 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 1109 |
| **Landing Gear Type:** | N/A; Ski | **Seats:** | 4 |
| **Date/Type of Last Inspection:** | March 15, 2018 Annual | **Certified Max Gross Wt.:** | |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 2394.5 Hrs as of last inspection | **Engine Manufacturer:** | LYCOMING |
| **ELT:** | Installed, not activated | **Engine Model/Series:** | O-540-F1B5 |
| **Registered Owner:** | MF HELICOPTERS LLC | **Rated Power:** | 235 Horsepower |
| **Operator:** | MF HELICOPTERS LLC | **Operating Certificate(s) Held:** | Agricultural aircraft (137) |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | OSH,808 ft msl | **Distance from Accident Site:** | 2 Nautical Miles |
| **Observation Time:** | 11:53 Local | **Direction from Accident Site:** | 360° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 11 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 80° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.04 inches Hg | **Temperature/Dew Point:** | 22°C / 16°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Oshkosh, WI | **Type of Flight Plan Filed:** | None |
| **Destination:** | Oshkosh, WI (OSH ) | **Type of Clearance:** | None |
| **Departure Time:** | 12:26 Local | **Type of Airspace:** | Class G |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 Fatal | **Latitude, Longitude:** | 44.017223,-88.549446(est) |

The helicopter contacted a static wire and a fiber optic line, which were the top two lines of an unmarked five-line array that crossed over the Fox River. The lines were about 100 ft above the water and spanned about 640 ft across the river.

The helicopter wreckage was located in the river about 300 ft northwest of the wire strike and was subsequently recovered. The entire structure of the helicopter sustained impact damage. Both skids remained attached to the helicopter. The floats were not deployed during the accident sequence but were inadvertently deployed during the wreckage examination. The cockpit area was crushed to the right and the left side of the canopy was missing. The floor of the cockpit was crushed upward.

The main rotor blades remained attached to the helicopter. Continuity of the main rotor system was established from the cockpit controls to the blades. A 180-ft section of 7-strand steel cable was wrapped around the main rotor hub and both rotor blades. The cable cut through one of the blades from the trailing edge to the blade spar about 66 inches from the blade tip and cut through the other blade about 38 inches from the blade tip. Numerous cable marks were visible on both blades.

The tail rotor separated from the helicopter during the accident sequence and was not located. The tailboom, tail rotor drive shaft, and tail rotor push-pull tube were fractured about 4 ft aft of the forward flex plate. The tail rotor drive shaft remained attached at the forward flex plate, which was deformed. Continuity of the tail rotor drive system was established from the cockpit to the fractures in the tailboom. Examination of the airframe revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

## Medical and Pathological Information

The Milwaukee County Medical Examiner's Office, Milwaukee, Wisconsin, performed an autopsy of the pilot. The pilot's death was attributed to drowning with blunt force trauma to the head.

The FAA Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on specimens of the pilot. Testing was negative for carbon monoxide, cyanide, ethanol, and drugs in the testing profile.

## Administrative Information

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| **Investigator In Charge (IIC):** | Sullivan, Pamela |
| **Additional Participating Persons:** | Peter T Hupher; FAA; Milwaukee, WI |
| **Original Publish Date:** | November 6, 2019 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | The NTSB traveled to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=97427 |