VIKING Aviation, LLC
[redacted]
Batesville, AR 72501

1 INTRODUCTION

On January 29. 2019, a Bell 407 helicopter, N191SF, operated by Viking Aviation LLC dba Survival Flight, departed Mt Carmel Hospital, Grove City Ohio for a patient transfer flight from Holzer Meigs Hospital, Pomery Ohio. At approximately 0650 Eastern standard time the aircraft collided with the ground in hilly, forested terrain near Zaleski, Ohio. The pilot, flight nurse and paramedic sustained fatal injuries. The flight was conducted under the provisions of 14 CFR Part 135, a Viking Aviation LLC company flight plan was in effect. Visual meteorological conditions prevailed.

Viking Aviation LLC has concluded that the accident and resulting fatal injuries to the occupants were likely the result of a controlled flight into terrain (CFIT). Viking Aviation further proposes the CFIT event was the result, based on audio recordings, of the pilot being incapacitated in some manner or degree from the event causing the noise. The event could be an object strike, such as a bird or drone. Criminal activity in the area could have resulted in gunfire and an aircraft hit. Because of the accident terrain and the accident debris field, it would be near impossible to find a before impact broken chin bubble or maybe windshield. The timing of the onset noise event coincides with a course and aircraft attitude change. The noise continues until the recording ends. Given the pilot's abilities, her training and significant amount of equipment for CFIT prevention makes incapacitation of some degree the logical cause. An event caused an unknown noise, at the same time the pilot reacted by changing course. The aircraft subsequently flew into the ground with HTAWS displayed on an EFIS with synthetic vision changing color the closer to the ground they went, with the audio going off. These would seem to be the actions of an incapacitated pilot.

2 BACKGROUND

2.1 Viking Aviation LLC

Viking Aviation LLC is a commercial, on-demand air taxi operator specializing in helicopter air ambulance (HAA) operations. The company as an HAA operator, was established in 2014 in Arkansas, and currently serves 6 states with nearly 80 employees. Viking Aviation LLC received its Title 14 CFR Part 135 Operating

Certificate, number 2VKA986M, on December12, 2011. The company operates 17 helicopters and 1 airplane out of 17 bases.

Viking Aviation LLC operates in accordance with its FAA-approved Operations Specifications (Ops Spec). Contained in the Ops Spec was authorization to conduct on-demand, single-engine, VFR day/night, passenger-carrying operations.

Viking Aviation LLC put into place a voluntary Safety Management System. Improvements in technology and procedures have been incorporated into a safety culture with the addition of technologies such as night vision goggles, Helicopter Terrain Avoidance Warning Systems (HTAWS), Global Positioning System (GPS) capabilities, Satellite Weather, and Satellite Tracking. As aircraft are acquired and are conformed for HAA use, the standard, whenever possible is the inclusion of an EFIS system with synthetic vision technology, as was in the accident aircraft.

A technologically robust Operational Control Center is in place.

Additionally, Viking Aviation LLC has invested in the Outerlink IRIS system for aircraft tracking and other features including voice recording. The accident aircraft had such a system, the recording device survived, the quality and amount of voice data recovered has been under review for some time. Had the IRIS system functioned as the manufacturer represented, we could have enough information provided so as not have to speculate as to the outcome. We are left with enough of their information to come to a very likely hypothesis.

2.2 Flight

On January 29. 2019, approximately 0650 Eastern standard time, a Bell 407 helicopter, N191SF, operated by Viking Aviation LLC dba Survival Flight, departed Mt Carmel Hospital, Grove City Ohio for a patient transfer flight from Holzer Meigs Hospital, Pomery Ohio.

2.3 Precursor Events

The accident aircraft was a Bell 407 serial number 53006. Based at the Mt. Carmel Hospital, Grove City Ohio. The aircraft was maintained under a FAA approved AAIP, (approved aircraft inspection program) and a MEL (Minimum equipment list). No maintenance issues noted.

2.4 Accident flight

The aircraft departed the base at approximately 0628 and tracking was lost at approximately 0650. The flight profile and recorded data of the flight show normal flight profiles until the time frame of the introduction of the unexplained sound.

3.0 Factual Summary

3.1 Aircraft configuration

The aircraft was a standard configured HAA aircraft. Avionics included 2 Garmin 650s, a Garmin 500H with radio altimeter. The G500H also displayed Synthetic vision giving the pilot enhanced situational awareness. Additionally, the aircraft was equipped with the Outerlink IRIS system, which is supposed to record, among many things cockpit voices.

3.2 Aircraft Examination

Post-accident investigation of the aircraft showed no unusual failures.

3.3 Accident Site Description

The accident scene was in hilly, forested terrain which was located on state forest property.

The debris field was scattered from a hilltop downward towards a running stream

During his initial visit to the site by the Viking Aviation LLC Director of Maintenance (DOM), a local park ranger was assisting him to the accident site. The park ranger explained to the DOM of the level criminal activity in the area. The felony act of stealing trees has become a serious issue for the State of Ohio. The following link is to a website and a TV story about the criminal activity in the area.

https://www.tv10.com/article/officals-timber-thieves-stealing-trees-state-parks-forestry-land-2019-aug

3.4 Weather

The weather was VFR at the time of the accident. Snow has come up as possibility, the aircraft limitation flight into snow is for no less than ½ statute mile visibility. Section 1 of the Rotorcraft Flight Manual Supplement (FMS 4, Snow Deflector) falling snow visibly limitation of ½ statue mile is far less the 14 CFR Part 135.609 weather of 3 statue mile limitation for flights in class G airspace.

4.0 Analysis

4.1 Pilot's reaction to the "sound"

There is the unexplained reaction of the pilot to a sound, and the resulting left-hand turn. The left turn was initiated almost at the same time as the sound was recorded.

Additionally, the pilot's control of the aircraft seems to deteriorate in the both pitch and roll axes.

4.2 Cause of the "sound"

a. The cause could be from the loss of a window due to impact from birds. Recently there have been 4 helicopter bird strikes in a recent one-week reporting period, one of them a Bell 407. The impact could have been an angled hit that propagated as time passed. The impact could have been a direct hit and resulting evidence lost in the debris field.

b. The cause could be from impact an airborne object such as a drone. Drone use could be for criminal purposes, helping timber thieves look out for law enforcement. Drone use by local landowners could use a drone trying to protect their property from the same timber thieves. All of this, at night, drone use would be in conjunction with criminal activity, either the propagation of or the prevention of.

c Another cause could come from the same criminal activity. An early morning helicopter, personnel involved in felonious criminal activity come in contact. The resulting gun fire was to disrupt the potential law enforcement activity and allow the

criminals to escape. The owner of this company has been involved in years past of aircraft damaged by gunfire for similar reasons.

4.3 Pilot Condition

The 34-year-old commercial pilot had 1855 hours total time with 94.8 hours in the Bell 407. 264 hours of night and 104 of instrument experience had been logged by the PIC.

By all accounts a qualified and certainly competent PIC. The pilot's actions during the flight and prior the time of noise, were as expected. The actions of the pilot in the last few minutes of the flight were not as earlier in the flight and the cause of that change is at the heart of the issue.

6.0 Conclusions

6.1 Possibilities

As stated earlier with the possibilities caused by the "sound"

a. A windshield, window or chin bubble either damaged or somehow comes to failure inflight. The failure may have been progressive with resulting loss situational awareness by the pilot. The failure could have a onetime event and the effects of the event became progressive, very cold temperatures causing more and the pilot's condition becoming more and more degraded, a level of increasing incapacitation cause could have been bird or birds or a larger object such as a drone. Whatever the impact cause, the pilot was adversely affected by the event resulting in significant loss of situation awareness.
b. The same event caused by discharge of a firearm, an event causing loss of the same loss of situational awareness.

6.2 Aftermath of the sound

Whatever caused the pilot to make numerous control inputs, a change course, being that close to destination, was significant. We can rule out weather and the aircraft itself (chip lights etc.) The pilot had the tools available to maintain situational awareness, which appears, after the sound event, to be compromised and deteriorating. The logical conclusion is something caused her a loss of vision (blown out windshield) or an incursion of extremely cold air again with loss of situation awareness.

Whatever the cause the pilot was unable to maintain her situational awareness and the aircraft was flown into terrain under control of the pilot, CFIT. With who she was and what she had, CFIT shouldn't have happened, unless something happened to her.

Timothy T. Taylor

Viking Aviation LLC

Board Member