

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



CEN22FA100

MEDICAL

Specialist's Factual Report

October 20, 2022

A. ACCIDENT

Location: Houma, Louisiana
Date: January 14, 2022
Time: 10:01 Local
Helicopter: Bell 407; N167RL

B. MEDICAL SPECIALIST

Specialist Michelle Watters, MD, PhD, MPH
National Transportation Safety Board, RE-1
Washington, DC

C. DETAILS OF THE INVESTIGATION

Purpose

This investigation was performed to evaluate the pilot for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

Methods

The Federal Aviation Administration (FAA) medical certification file, FAA medical case review, and the pilot's autopsy and FAA Forensic Sciences Laboratory toxicology reports¹ were reviewed, as was a summary page letter from the Department of Veteran's Affairs concerning disability benefits. Video from inside the cockpit was viewed. Other relevant medical and regulatory issues were reviewed.

D. FACTUAL INFORMATION—PILOT

1.0 FAA Medical Certification File and FAA Medical Case Review

According to the FAA medical certification file and FAA medical case review, at the time of the accident, the 30-year-old male pilot held a second class medical certificate with the limitation out that he must wear corrective lenses. At the time of his most recent exam (6/14/21), he reported having 1,900 total civil flight hours and was 70 inches tall and weighed 194 pounds. He reported having no medications or medical conditions. He denied ever having frequent or severe headaches, dizziness or fainting spells, unconsciousness for any reason, heart or vascular trouble, and neurological disorders such as epilepsy, seizure, stroke, or paralysis.

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,300 substances including toxins, common prescription and over-the-counter medications, and illicit drugs. <https://jag.cami.jccbi.gov/toxicology/>

Previous exams were similar with the exception that the pilot reporting taking fexofenadine (commonly marketed as Allegra) for seasonal allergies at the 2019 and 2015 medical examinations. At his 2015 medical examination he reported taking over-the-counter Excedrin Migraine (acetaminophen, aspirin, and caffeine) and ibuprofen for once weekly migraines; migraines were without significant side effects such as visual auras, seizure activity, or change in level of consciousness. No significant medical concerns were identified in this or in previous exams dating back to 2013.

2.0 Autopsy

According to the autopsy performed by the Lafourche Parish Coroner's Office, Raceland, Louisiana, the cause of death of the pilot was massive total body trauma and the manner of death was accident. The examination was limited by extensive trauma, no brain was available for examination. The cardiovascular system showed no evidence of natural disease; all four heart valves were competent, there was no coronary artery disease, there was no ventricular dilatation or hypertrophy, and no arterial aneurysm was noted.

3.0 Toxicology

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.² N-butanol was detected in his liver, kidney and muscle tissues but was not detected in his lung tissue. N-propanol was detected in his kidney and muscle tissues but was not detected in his liver and lung tissues. Tissue samples were reported to have exhibited putrefaction. The non-impairing over-the-counter antihistamine fexofenadine and its metabolite azacyclonol were detected in the pilot's liver and muscle tissue.³

Ethanol is a social drug commonly consumed by drinking beer, wine, or liquor. It acts as a central nervous system depressant; it impairs judgment, psychomotor functioning, and vigilance. Ethanol is water soluble, and after absorption it quickly and uniformly distributes throughout the body's tissues and fluids. The distribution pattern parallels water content and blood supply of the tissue. Ethanol can be produced after death by microbial activity; sometimes in conjunction with other

² Grams per hectogram in tissue samples are directly comparable to grams per deciliter in liquid samples.

³ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Fexofenadine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=210>

Azacyclonol. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=16>

alcohols, such as *butanol* and *propanol*. Extensive trauma increases the spread of bacteria and raises the risk of ethanol production after death.⁴

4.0 Pre-Accident Medical Records

The first and last page of a letter dated 10/29/21 from the Department of Veterans Affairs concerning disability benefits was provided by the pilot's family member. The pilot had a combined rating of 70%, which included 30% for migraine and 10% for tinnitus. He was denied a service connection for traumatic brain injury (TBI); service treatment records did not contain complaints, treatment, or diagnosis of TBI or head injury and service records did not show an event, disease, or injury during his service that resulted in a TBI.

E. SUMMARY OF MEDICAL FACTS

The 30-year-old male pilot held a second class medical certificate with the limitation that he must wear corrective lenses. At the time of the most recent exam (6/14/21), he reported having no medications or medical conditions. No significant medical concerns were identified. Department of Veterans Affairs disability records show that the pilot had a history of migraines and tinnitus but had no diagnosis of traumatic brain injury.

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

Toxicology testing detected ethanol in the pilot's liver, lung, kidney, and muscle tissue at 0.056 gm/hg, 0.012 gm/hg, 0.055 gm/hg, and 0.039 gm/hg, respectively. N-butanol was detected in his liver, kidney, and muscle tissues but was not detected in his lung tissue. N-propanol was detected in his 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.

Submitted by:

Michelle Watters, MD, PhD, MPH
Medical Officer, RE-1

⁴ Kugelberg, FC and AW Jones. 2007. Interpreting results of ethanol analysis in postmortem specimens: a review of the literature. *Forensic Science International* 165(1):10-29.