

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



ERA22FA386

MEDICAL

Specialist's Factual Report

May 16, 2023

A. ACCIDENT

Location: French Lick, Indiana
Date: 8/27/2022
Time: 20:58 Local
Airplane: Beech B35; N8741A

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 case review, the pilot's autopsy report, and FAA Forensic Sciences Laboratory toxicology report¹ were reviewed. Other relevant medical and regulatory issues were reviewed.

D. FACTUAL INFORMATION–PILOT

1.0 FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 78-year-old male pilot did not have a valid FAA medical certificate. His most recent FAA medical certification exam was in 2004.

2.0 Autopsy

According to the autopsy performed for the Orange County Coroner, Paoli, Indiana, the pilot's final diagnoses included aircraft crash with flash fire eruption and smoke inhalation and severe incineration. The forensic pathologist reported that the pilot had soot in his trachea, bronchus, and lung and had 50% occlusion of his left anterior descending coronary artery.

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,000 substances including toxins, common prescription and over-the-counter medications, and illicit drugs.
<https://jag.cami.jccbi.gov/toxicology/>

3.0 Toxicology

Toxicology testing performed by the FAA Forensic Sciences Laboratory reported the pilot's carboxyhemoglobin saturation in heart blood was 20%. Cyanide was also detected at 2.97 micrograms per milliliter. Cyanide is highly toxic and can be produced in high concentrations from the burning of nitrogen containing polymers. The high blood pressure medication timolol was detected in the pilot's urine; this medication is generally considered non-impairing.²

Carbon monoxide (CO) is an odorless, colorless gas that is a byproduct of combustion, such as from an exhaust system or fire. Carboxyhemoglobin is formed when CO binds to hemoglobin, the protein in red blood cells that carries oxygen. The degree of carboxyhemoglobin formation is related to the concentration of CO and the duration of exposure. The binding of CO impairs oxygen transport and use, and results in symptoms of exposure that can be mild and vague, such as headache and fatigue, to impairing and incapacitating. While poisoning is considered to have occurred at carboxyhemoglobin levels above 10%, non-smokers living in urban areas may have levels of 5% and heavy smokers can have levels as high as 15%. Severe poisoning is usually associated with levels over 20%.³

E. SUMMARY OF MEDICAL FACTS

The 78-year-old male pilot did not have a valid FAA medical certificate. His most recent FAA medical certification exam was in 2004. According to the autopsy report, the pilot's final diagnoses included aircraft crash with flash fire eruption and smoke inhalation and severe incineration. The pilot had soot in his trachea, bronchus, and lung and had 50% occlusion of his left anterior descending coronary artery.

Toxicology testing reported the pilot's carboxyhemoglobin saturation in heart blood was 20%. Cyanide was detected in his heart blood at 2.97 micrograms per milliliter and the non-impairing high blood pressure medication timolol was detected in his urine.

Submitted by:

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

² FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Cyanide. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=37>.

Timolol. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=198>

³ Smollin, C and K Olson. 2010. Carbon monoxide poisoning (acute). *British Medical Journal Clinical Evidence*. 2010:2013.