

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



Medical Factual Memorandum for Record

February 7, 2025

A. CASE

NTSB ID: WPR23FA141
Location: Oxbow, Oregon
Date: April 2, 2023

B. MEDICAL SPECIALIST

Specialist Turan Kayagil, MD, FACEP
National Transportation Safety Board
Washington, DC

C. DETAILS

1.0 Description of Review

For purposes of evaluating the pilot for potentially impairing substances and potentially impairing medical conditions, the above Medical Specialist reviewed the following sources of medical information, along with selected relevant regulation, medical literature, and investigator reports.

- Final Federal Aviation Administration (FAA) medical case review
- Medical examiner death investigation reports (autopsy not performed)
- FAA Forensic Sciences Laboratory toxicology report

2.0 Summary of Medical Facts

The 43-year-old male pilot's only aviation medical examination was August 31, 2022. At that time, he reported no active medical conditions or medication use. He was issued a third-class medical certificate without limitation.

According to information provided by the Oregon State Police Medical Examiner Division, due the condition of the pilot's remains, no autopsy was performed. The Baker County Medical Examiner Report documented the pilot's cause of death as blunt force trauma and his manner of death as accident. The accompanying death investigator narrative indicated that the remains were highly fragmented. Reviewed medical examiner death investigation reports did not include information about the specimens submitted for toxicological testing.

The FAA Forensic Sciences Laboratory received postmortem tissue specimens identified as belonging to the pilot. Toxicological testing by the FAA Forensic Sciences Laboratory detected ethanol at 0.013 g/hg in muscle tissue, 0.043 g/hg in kidney tissue, and 0.016 g/hg in lung tissue.¹

Ethanol is the intoxicating alcohol in beer, wine, and liquor, and, if consumed, can impair judgment, psychomotor performance, cognition, and vigilance, with detrimental effects on piloting tasks that worsen as ethanol levels increase.² FAA regulation imposes strict limits on flying after consuming ethanol, including a prohibition on piloting a civil aircraft while having a blood ethanol level of 0.04 g/dL or greater.³ When absorbed into circulation after alcohol consumption, ethanol distributes relatively evenly throughout body water. Alcohol consumption is not the only possible source of ethanol in postmortem specimens. Ethanol may sometimes be produced by microbes in a person's body tissues after death, potentially elevating ethanol levels in some postmortem specimens more than in others. Postmortem ethanol production is made more likely by extensive trauma, which can spread microbes and introduce microbes from the external environment.^{4,5}

Submitted by:

Turan Kayagil, MD, FACEP
Medical Officer

¹ In tissue, concentrations in g/hg are approximately equivalent to concentrations in g/dL.

² Cook CCH. Alcohol and aviation. *Addiction*. 1997;92(5):539-555.

³ [14 Code of Federal Regulations § 91.17](#).

⁴ Kugelberg FC, Jones AW. Interpreting results of ethanol analysis in postmortem specimens: a review of the literature. *Forensic Sci Int*. 2007;165(1):10-29. doi:10.1016/j.forsciint.2006.05.004.

⁵ Johnson RD, Lewis RJ, Angier MK, Vu NT. The formation of ethanol in postmortem tissues. Federal Aviation Administration. DOT/FAA/AM-04/4. February 2004. <https://rosap.ntl.bts.gov/view/dot/58226>. Accessed February 7, 2025.