

# National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



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**MEDICAL**

Specialist's Factual Report

July 29, 2024

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## **A. ACCIDENT**

Location: Morgan City, Louisiana  
Date: October 26, 2022

## **B. MEDICAL SPECIALIST**

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National Transportation Safety Board  
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## **C. DETAILS OF THE INVESTIGATION**

### **1.0 Purpose**

This investigation was performed to evaluate the pilot for potentially impairing substances and potentially impairing medical conditions.

### **2.0 Methods**

The Federal Aviation Administration (FAA) final medical case review and the pilot's autopsy report and toxicology report were reviewed, as were selected pre-crash medical records from the pilot's primary care physician, who was also an aviation medical examiner (AME). Selected investigator reports (including records of conversations with the surviving passengers) and relevant regulation and medical literature were also reviewed.

## **D. FACTUAL INFORMATION**

### **1.0 Pre-Crash Medical Records**

Records were requested for 3 years prior to the crash from the 63-year-old male pilot's primary care physician's practice. According to these records, the pilot had a history of high blood pressure for which he had been prescribed the prescription medication losartan since December 2020 with no subsequent dosage changes and no documented adverse side effects. The pilot's last primary care visit was October 12, 2022 (2 weeks before the crash), for routine health maintenance (this was also his last visit for an aviation medical examination, which his primary physician conducted). The primary care visit note from that date did not document any complaints from the pilot. Physical examination and electrocardiography were performed. No concerns were noted and the pilot was instructed to follow up as needed.

## **2.0 FAA Medical Case Review**

The FAA medical case review confirmed that the pilot's last aviation medical examination was on October 12, 2022. At that time, he reported 4400 total civilian flight hours. He was 71 inches tall and weighed 210 pounds. He reported using the prescription blood pressure medication losartan and having a history of high blood pressure, for which he was qualified under Conditions AMEs Can Issue (CACI) criteria. No significant issues were identified, and he was issued a first-class medical certificate limited by a requirement to have available glasses for near vision.

## **3.0 Autopsy Report**

Parish Forensics performed the pilot's autopsy for St. Mary Parish. According to the pilot's autopsy report, his cause of death was helicopter crash into ocean and his manner of death was accident. The forensic pathologist noted evidence of drowning. Coronary artery disease was present, with approximately 30-40% narrowing of the left anterior descending coronary artery and right coronary artery and approximately 5-10% narrowing of the left main coronary artery by plaque. The left circumflex coronary artery was without narrowing. The heart muscle was described as diffusely softened with no focal areas of scarring or accentuated softening or hardening. Microscopic examination of heart muscle cells showed moderate to severe enlargement of the cellular nuclei. Heart weight was 425 grams (normal heart weight is roughly 290-510 grams for a male of body weight 210 pounds and roughly 300-530 grams for a male of the pilot's autopsy body weight of 230 pounds). Thicknesses were 0.7 cm for the left cardiac ventricle free wall (normal is roughly 0.9-1.6 cm), 0.3 cm for the right cardiac ventricle free wall (normal is roughly 0.2-0.6 cm), and 1 cm for the interventricular septum (normal is roughly 1-1.8 cm).<sup>1</sup> The heart valves were unremarkable. The intima of the aorta had severe calcific atherosclerosis. The arteries at the base of the brain had mild atherosclerosis. Structural evaluation of the brain was without evidence of natural disease. The pulmonary arteries of the lungs were free of clots. Microscopic examination of kidney tissue identified rare segmentally sclerosed glomeruli. The remainder of the pilot's autopsy did not identify any other significant natural disease.

## **4.0 Toxicology**

### **4.1 FAA Toxicology Results**

The FAA Forensic Sciences laboratory performed toxicological testing of postmortem specimens from the pilot.<sup>2</sup> This testing detected ethanol at 0.024 g/dL in

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<sup>1</sup> Kitzman DW, Scholz DG, Hagen PT, Ilstrup DM, Edwards WD. Age-related changes in normal human hearts during the first 10 decades of life. Part II (maturity): a quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. *Mayo Clin Proc.* 1988;63(2):137-146. doi:10.1016/s0025-6196(12)64946-5.

<sup>2</sup> The FAA Forensic Sciences laboratory has the capability to test for around a thousand substances including

blood and 0.016 g/dL in urine. N-propanol and losartan were also detected in blood and urine.

## 4.2 Descriptions of Detected Substances

Ethanol is the intoxicating alcohol in beer, wine, and liquor, and, if consumed, can impair judgment, psychomotor performance, cognition, and vigilance.<sup>3</sup> 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.<sup>4</sup> Alcohol consumption is not the only possible source of ethanol in postmortem specimens. Ethanol can sometimes be produced by microbes in a person's body after death.<sup>5,6</sup>

N-propanol is another alcohol that can be produced by microbes in a person's body after death. Detection of n-propanol in a postmortem specimen is potentially indicative of postmortem microbial activity in the specimen, but does not necessarily mean that microbial activity produced ethanol.<sup>5,6</sup>

Losartan is a prescription medication commonly used to treat high blood pressure. Losartan is not generally considered impairing.

## E. SUMMARY OF MEDICAL FACTS

The 63-year-old male pilot had a history of high blood pressure treated with the prescription medication losartan. His primary physician was also an aviation medical examiner (AME). The pilot's last primary care visit and aviation medical examination were on October 12, 2022. At that time, his high blood pressure was qualified under Conditions AMEs Can Issue (CACI) criteria. He was issued a first-class medical certificate limited by a requirement to have available glasses for near vision.

According to the pilot's autopsy report, his cause of death was helicopter crash into ocean and his manner of death was accident. The forensic pathologist noted evidence of drowning. Coronary artery disease was present, including 30-40% narrowing of the left anterior descending coronary artery and right coronary artery by

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toxins, prescription and over-the-counter medications, and illicit drugs.

<sup>3</sup> Cook CCH. Alcohol and aviation. *Addiction*. 1997;92(5):539-555.

<sup>4</sup> [14 Code of Federal Regulations § 91.17](#).

<sup>5</sup> 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.

<sup>6</sup> Boumba VA, Exadactylou P, Velivasi G, Ziavrou KS, Fragkouli K, Kovatsi L. The frequency of ethanol, higher alcohols and other low molecular weight volatiles in postmortem blood samples from unnatural deaths. *Forensic Sci Int*. 2022;341:111503. doi:10.1016/j.forsciint.2022.111503.

plaque. The heart muscle was described as diffusely softened. There was no focal scarring of the heart muscle although heart and kidney tissue showed some microscopic abnormalities. Severe aortic atherosclerosis and mild intracranial atherosclerosis were present. The remainder of the pilot's autopsy did not identify other significant natural disease.

The FAA Forensic Sciences laboratory performed toxicological testing of postmortem specimens from the pilot. This testing detected ethanol at 0.024 g/dL in blood and 0.016 g/dL in urine. N-propanol and losartan were also detected in blood and urine.

Submitted by:

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