



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report **January 13, 2020**

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A. ACCIDENT: CEN19FA117; Harlingen, Texas

On April 9, 2019, about 1033 central daylight time, an Air Tractor AT-502 airplane, N7314D, collided with high-voltage power transmission lines and terrain while maneuvering at a low altitude near Harlingen, Texas. The commercial pilot was fatally injured, and the airplane was destroyed during impact and a postimpact fire. The airplane was owned by the pilot and operated by Rowland Dusters under Title 14 *Code of Federal Regulations (CFR)* Part 137 without a flight plan. Day visual meteorological conditions prevailed at the accident site. The local agricultural application flight departed a private airstrip, near Raymondville, Texas, about 1005.

B. GROUP IDENTIFICATION

No group was formed for the medical evaluation in this accident.

C. DETAILS OF 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 and the pilot's autopsy, and FAA Forensic Sciences laboratory toxicology¹ reports were reviewed. Other pertinent scientific and regulatory issues were reviewed.

FAA Medical Case Review

According to the FAA medical case review, the 77-year-old male pilot held a second class medical certificate with the limitation that he wear corrective lenses. At the time of the most recent exam (3/27/2019), the pilot reported 25,000 total hours of civil flight

¹ The FAA Forensic Sciences Laboratory tests for more than 1,300 substances including toxins, common prescription and over-the-counter medications as well as illicit drugs. See: <http://jag.cami.jccbi.gov/toxicology/>.

experience. The pilot reported taking no medications and having no medical conditions. No significant medical issues were identified by the aviation medical examiner.

Autopsy

According to the autopsy performed by the Cameron County Forensic Pathology Department, Harlingen, Texas, the cause of death was blunt force trauma due to plane crash and the manner of death was accident. No significant natural disease was identified.

Toxicology

FAA Forensic Sciences Laboratory toxicology testing of heart blood detected the sedating antihistamine diphenhydramine at 0.605 micrograms per milliliter (µg/mL); diphenhydramine was also detected in liver tissue. Diphenhydramine is a sedating antihistamine (commonly marketed as Benadryl) and is available over the counter in many products used to treat colds, allergies, and insomnia. The therapeutic range is 0.025 to 0.100 µg/mL and it has a half-life of 3 to 14 hours.² Diphenhydramine undergoes postmortem distribution and central levels may be two to three times higher than peripheral levels.³

D. SUMMARY OF MEDICAL FINDINGS

At the time of the accident, the 77-year-old male pilot held a second class medical certificate with a limitation that he wear corrective lenses. He reported no medication use or medical conditions.

According to the autopsy, the cause of death was blunt force trauma due to plane crash and the manner of death was accident. No significant natural disease was identified. FAA postmortem toxicology testing detected diphenhydramine in heart blood at 0.605 µg/mL and in liver tissue.

² Federal Aviation Administration. Updated 1/16/19. Forensic Toxicology's WebDrugs. Diphenhydramine. <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50>.

³ Han, E, E Kim, H Hong, S Jeong, J Kim, S In, H Chung, and S Lee. 2012 Evaluation of postmortem redistribution phenomena for commonly encountered drugs. *Forensic Sci Int*. 219(1-3):265-271.