



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

May 6, 2020

Mary Pat McKay, MD, MPH
Chief Medical Officer

A. ACCIDENT: ERA17FA279; Philipp, MS

On August 16, 2017, about 0620 central daylight time, an Air Tractor AT-502B, N6082B, was substantially damaged when it impacted wooded terrain near Philipp, Mississippi. The commercial pilot was fatally injured. The airplane was operated by Midway Air Service as an aerial application flight conducted under the provisions of 14 Code of Federal Regulations Part 137. Instrument meteorological conditions prevailed and no flight plan was filed for the planned local flight that departed from a private airstrip in Minter City, Mississippi, about 0610.

B. GROUP IDENTIFICATION

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

C. DETAILS OF INVESTIGATION

1. Purpose

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

2. Methods

The FAA medical case review, toxicology findings, and the investigator's reports were reviewed. Relevant regulation and medical literature were reviewed as appropriate. Multiple attempts were made to obtain the autopsy report. However, as of 4/17/2020, the autopsy report had not yet been issued by the Mississippi Crime Lab. As a result, this investigation was performed without that information.

FAA Medical Case Review

According to the FAA medical case review, the 28 year old male pilot reported 1800 total flight hours as of his last medical exam, dated 3/30/2017. At that time, he was 70 inches tall and weighed 188 pounds.

He reported no chronic medical problems and no use of medications to the FAA. No significant abnormalities were identified on the physical exam and he was issued a second class medical certificate without limitations.

Autopsy

An autopsy was performed by the Mississippi Crime Lab. Multiple attempts were made to obtain the autopsy report. However, as of 4/17/2020, the autopsy report had not yet been issued.

Toxicology

Toxicology testing performed by the FAA's Forensic Science Laboratory identified diphenhydramine in heart blood and liver in amounts too low to quantify.

Medication Descriptions

Diphenhydramine is a sedating antihistamine used to treat allergy symptoms and as a sleep aid. It is available over the counter under the names Benadryl and Unisom. Diphenhydramine carries the following FDA warning: may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery).¹ Compared to other antihistamines, diphenhydramine causes marked sedation; it is also classed as a CNS depressant and this is the rationale for its use as a sleep aid. Altered mood and impaired cognitive and psychomotor performance may also be observed. In fact, in a driving simulator study, a single dose of diphenhydramine impaired driving ability more than a blood alcohol concentration of 0.100%.² The therapeutic range of diphenhydramine (range in which it is expected to cause effects) is 0.0250 to 0.1120 ug/ml.³ However, diphenhydramine undergoes postmortem redistribution; after death it can move back into pooled blood from storage sites. For diphenhydramine, postmortem central blood levels may increase by about three times.⁴

¹ Federal Aviation Administration. Civil Aerospace Medical Institute. Toxicology Drug Information: Diphenhydramine. Available from: <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50>. Accessed 03/18/2018.

² Weiler JM, B.J., Woodworth GG, Grant AR, Layton TA, Brown TL, McKenzie DR, Baker TW, Watson GS., Effects of fexofenadine, diphenhydramine, and alcohol on driving performance. A randomized, placebo-controlled trial in the Iowa Driving Simulator. Ann Intern Med 2000. 132(5): p. 354-63.

³ Federal Aviation Administration. Civil Aerospace Medical Institute. Toxicology Drug Information: Diphenhydramine. Available from: <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50>. Accessed 03/13/2018.

⁴ Han E, et. al., Evaluation of postmortem redistribution phenomena for commonly encountered drugs, Forensic Science International 2012;219: 265–271.

D. SUMMARY OF MEDICAL FINDINGS

The 28 year old male pilot had reported 1800 total flight hours as of his last medical exam, dated 3/30/2017. At that time, he was 70 inches tall and weighed 188 pounds. He had reported no chronic medical problems and no use of medications to the FAA.

An autopsy was performed by the Mississippi Crime Lab. Multiple attempts were made to obtain the autopsy report. However, as of 4/17/2020, the autopsy report had not yet been issued.

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