



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

January 29, 2019

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Chief Medical Officer

A. ACCIDENT: ERA17FA131; Minter City, MS

On March 19, 2017, about 1600 central daylight time, an Air Tractor AT-602, N2049D, registered to and operated by Sturdivant Brothers Flying Service, Inc., under the provisions of 14 Code of Federal Regulations Part 137 as an aerial application flight, collided with trees and terrain near Minter City, Mississippi. The commercial pilot was fatally injured, and the airplane was destroyed by impact and a postcrash fire. Visual meteorological conditions prevailed at the time and no flight plan was filed for the local flight that originated about 30 minutes earlier from the company airstrip.

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, autopsy report, toxicology findings, and the investigator's reports were reviewed.

FAA Medical Case Review

According to the FAA medical case review, the 68 year old male pilot had reported 29,943 total hours of flight experience as of his last aviation medical exam, dated 01/16/2017. At that time, he was 67 inches tall and weighed 203 pounds. The pilot had reported childhood hay fever and asthma to the FAA, but no ongoing medical conditions. He reported no use of any medications. No abnormalities were identified during the

examination and he was issued a second class medical certificate limited by a requirement to have available glasses for near vision.

Autopsy

According to the autopsy performed by the Mississippi State Medical Examiner's Office, the cause of death was asphyxia from unknown causes and the manner of death was accident. No significant natural disease was identified. Examination of the body was limited by the severity of post mortem fire damage.

Toxicology

Toxicology testing performed by the FAA's Bioaeronautical Sciences Research Laboratory identified acetaminophen in urine and dextromethorphan, its metabolite dextrorphan, doxylamine and pseudoephedrine in urine and cardiac blood. The level of doxylamine in cardiac blood was 0.145 ug/ml.

[Acetaminophen is an analgesic and fever reducer available over the counter and commonly marketed with the name Tylenol. Dextromethorphan is a cough suppressant available in many over the counter cough and cold preparations. Pseudoephedrine is a decongestant commonly marketed with the name Sudafed. Products containing this drug are only available "behind the counter" but do not require a prescription. These drugs are not considered impairing in usual doses.

Doxylamine is a first generation sedating antihistamine available over the counter in a number of products intended to treat colds, allergies, and insomnia. Doxylamine causes central nervous system depression and carries this warning, "May cause central nervous system depression, which may impair physical or mental abilities; patients must be cautioned about performing tasks which require mental alertness (eg, operating machinery or driving)."¹ The usual blood levels thought to be associated with effects from this drug are between 0.050 and 0.150 ug/ml. Doxylamine undergoes post mortem redistribution; central levels may be elevated above peripheral or antemortem levels by an average of about 2.5 times.²]

Chemicals in the Spray Solution

According to multiple witness interviews, loaders for the company placed the following in the sprayer while the pilot was in the plane's cockpit:

18.75 gallons of Roundup Powermax

¹ Drugs.com. Professional information for: Doxylamine. <https://www.drugs.com/ppa/doxylamine.html>
Accessed 12/18/2018.

² Eunyoung Han, Eunmi Kim, Hyojeong Hong, Sujin Jeong, Ji Hyun Kim, Sangwhan In, Heesun Chung, Sangki Lee. Evaluation of postmortem redistribution phenomena for commonly encountered drugs. Forensic Science International 2012;219:265-271.

20 gallons of 2,4-D
150 ounces of Valent Valor SX
6 gallons 2 pints DuPont Avatar Select
1 gallon Sanders Seed Company Surfactant
5 ounces of PointBlank WM Deposition Aid/Drift Retardant
375 gallons of water

Many of these chemicals can be irritating after exposure via skin or eye contact or by inhalation.

D. SUMMARY OF MEDICAL FINDINGS

The 68 year old male pilot had reported no chronic medical conditions and use of no medications to the FAA.

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