



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Placedo, Texas	Accident Number:	CEN19FA003
Date & Time:	October 12, 2018, 18:31 Local	Registration:	N6135P
Aircraft:	Air Tractor AT502	Aircraft Damage:	Destroyed
Defining Event:	Low altitude operation/event	Injuries:	1 Fatal
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot was flying at a low altitude during an agricultural application flight when the airplane impacted a radio antenna tower. The airplane struck the main antenna near the top of the structure, separating the upper section of the tower. A representative of the operator reported that the accident flight was the first time the pilot had sprayed that particular field, which was located about 1/2-mile from the antenna. The pilot had reviewed satellite imagery before the flight in order to identify potential hazards and was aware of power lines running along the south edge of the field and the proximity of the antenna.

A witness reported that the airplane appeared to be level and flying along a road in the direction of the antenna. A second witness reported hearing the airplane fly over followed by the sound of the impact with the antenna tower. He subsequently observed the airplane descending toward the ground.

The airplane came to rest near the antenna tower along the two-lane road. The road was oriented toward the west-southwest which was nearly in line with the setting sun. The upper section of the antenna tower was intertwined with the right wing of the airplane at the accident site. The airplane was destroyed by impact forces and a postimpact fire. A postaccident examination did not reveal any anomalies consistent with a preimpact failure or malfunction. The antenna tower was marked in accordance with Federal Aviation Administration recommendations.

Weather conditions were good at the time of the accident with 10 miles visibility and no obscuration or precipitation. The sun was positioned about 6° above the horizon to the west-southwest. The accident occurred about 30 minutes before sunset.

It is likely that the pilot lost situational awareness relative to the antenna tower due to the close proximity of the application field, the power lines, and the antenna tower. In addition, the position of the sun at the time of the accident likely hindered the pilot's ability to see and avoid the antenna tower.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain clearance from the antenna tower, a known obstruction, during the agricultural application flight. Contributing to the accident was glare from the sun which hindered the pilot's ability to see and avoid the antenna tower.

Findings

Personnel issues	Identification/recognition - Pilot
Environmental issues	Glare - Effect on personnel
Environmental issues	Tower/antenna (incl guy wires) - Contributed to outcome

Factual Information

History of Flight

Enroute	Low altitude operation/event (Defining event)
Enroute	Collision with terr/obj (non-CFIT)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On October 12, 2018, at 1831 central daylight time, an Air Tractor AT-502B airplane, N6135P, impacted an antenna tower near Placedo, Texas. The pilot was fatally injured. The airplane was destroyed by impact forces and a postimpact fire. The airplane was registered to and operated by Coastal Flying Service Inc., Ganado, Texas, as a Title 14 *Code of Federal Regulations* (CFR) Part 137 aerial application flight. Visual meteorological conditions prevailed at the time of the accident. The flight was not operated on a flight plan. The local flight originated from the operator's private airstrip near Ganado, Texas, about 1730.

On the day of the accident, the pilot had completed two flights before the accident flight. The first flight departed about 0930 and the second about 1015. The accident flight was the third flight of the day. The airplane was fueled to about 3/4 capacity (120 gallons) before the flight. The application load consisted of about 460 gallons of herbicide.

According to a representative of the operator, this was the first time the pilot had sprayed that particular field. The southwest corner of the field was located 1/2-mile east-northeast of a radio antenna tower. Before the flight, they had reviewed the potential hazards using available satellite imagery. Of note were the power lines running along the south side of the field and the antenna tower.

A witness stated that he was outside in his yard, about 3 miles east-northeast of the radio antenna, when he observed the airplane fly over. The airplane seemed to be flying along the road in a west-southwesterly direction and appeared to be level. Nothing seemed to be out of the ordinary, except that it seemed to be flying more slowly than other agricultural airplanes. He recalled the airplane was flying at approximately the same height as the missing section of the antenna.

A second witness reported that he was at home, about 300 yards east of the radio antenna, when he heard the airplane fly over. After initially hearing the airplane, he recalled hearing the sound of it hitting the antenna and then the sound of an explosion. He went to a window and observed the airplane descending toward the ground. From the initial sound, he thought that the airplane was westbound immediately before striking the antenna.

Pilot Information

Certificate:	Commercial	Age:	40,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Single
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	May 29, 2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	February 24, 2018
Flight Time:	6687 hours (Total, all aircraft), 2102 hours (Total, this make and model)		

The pilot's logbook was not available to the NTSB. At the time of his most recent Federal Aviation Administration (FAA) airman medical certificate application, dated May 28, 2018, the pilot reported a total flight time of 6,500 hours with 200 hours flown within the past 6 months. His most recent flight review was completed in February 2018. He had completed a knowledge and skill test for agricultural aircraft pilot operations on February 24, 2017, and had flown for the operator for about 6 years.

Information provided by the FAA indicated that the pilot was involved in an accident in July 2017 while flying the accident airplane (NTSB No. GAA17CA385). The pilot was focused on some electrical power lines while maneuvering at low altitude during an agricultural application flight. Shortly after clearing the power lines, the airplane impacted a 30 ft tall tower located in his flight path. The pilot noted that he had verified the location of the tower when he circled the first time, but that his focus was on a house and clearing the power lines immediately before the collision. There were no anomalies with respect to the airplane before striking the tower. The cause of the accident was attributed to the pilot's failure to see and avoid the tower.

Records provided by the pilot's cellphone provider indicated that two calls originated from the pilot's cellphone during the time of the flight. The first was initiated at 1741:47 and lasted for 21 minutes and 22 seconds. The second was initiated at 1804:34 and lasted for 6 seconds. Based on this information, the pilot's cellphone was not in use as the time of the impact with the antenna tower.

Aircraft and Owner/Operator Information

Aircraft Make:	Air Tractor	Registration:	N6135P
Model/Series:	AT502 B	Aircraft Category:	Airplane
Year of Manufacture:	1995	Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	502B-0286
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	October 14, 2017 Annual	Certified Max Gross Wt.:	8000 lbs
Time Since Last Inspection:		Engines:	1 Turbo prop
Airframe Total Time:	9428 Hrs as of last inspection	Engine Manufacturer:	Pratt & Whitney Canada
ELT:	Not installed	Engine Model/Series:	PT6A-34AG
Registered Owner:		Rated Power:	750 Horsepower
Operator:		Operating Certificate(s) Held:	Agricultural aircraft (137)
Operator Does Business As:	Coastal Flying Service Inc.	Operator Designator Code:	9CRG

The airplane was issued a restricted category special airworthiness certificate in February 1995. The operator purchased the airplane in March 2011. The most recent annual inspection was completed on October 14, 2017, at which time, the airframe had accumulated 9,428 hours total time in service. The annual inspection maintenance logbook entry included the notation, "recovered aircraft after off field landing due to prop strike." It also noted that both wings were repaired, and the left horizontal stabilizer and elevator assemblies were replaced. An overhauled engine and a new propeller assembly were installed at that time. An engine inspection was conducted on August 1, 2018, and about 248 hours had accumulated since installation/annual inspection.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	VCT, 115 ft msl	Distance from Accident Site:	10 Nautical Miles
Observation Time:	18:51 Local	Direction from Accident Site:	325°
Lowest Cloud Condition:	Few / 3500 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	130°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.86 inches Hg	Temperature/Dew Point:	27°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ganado, TX (PVT)	Type of Flight Plan Filed:	None
Destination:	Ganado, TX (PVT)	Type of Clearance:	None
Departure Time:	17:30 Local	Type of Airspace:	Class G

A representative of the operator recalled that it was clear with an east-southeast wind of about 10 knots at the time of the accident flight; a "beautiful day." A witness recalled that weather as sunny and partly cloudy, with no restrictions to visibility.

At the time of the accident, the sun was positioned about 6° above the horizon, at an azimuth of 258° (west-southwest). Sunset occurred at 1901.

Airport Information

Airport:	Private PVT	Runway Surface Type:	Grass/turf;Gravel
Airport Elevation:	57 ft msl	Runway Surface Condition:	Dry
Runway Used:	18	IFR Approach:	None
Runway Length/Width:	2100 ft / 50 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	In-flight
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	28.705833,-96.804443

The accident site was located about 700 ft west-southwest of the antenna. The airplane came to rest adjacent to a two-lane paved roadway. The main wreckage consisted of the fuselage, wings, and empennage. A section of the antenna tower structure was intertwined with the right wing. The fuselage nose section, including the firewall and engine, had separated and were located in a roadway ditch about 25 ft east of the main wreckage. The propeller had separated from the engine. It came to rest in a ditch on the opposite side of the road about 125 ft west of the main wreckage. The outboard right wing and right horizontal stabilizer were separated and located at the accident site.

A postaccident airplane examination did not reveal any anomalies consistent with a preimpact failure or malfunction. A detailed summary of the examination is included in the docket associated with the investigation.

Documentation obtained from the Federal Communications Commission revealed that the antenna tower involved in the accident was constructed in January 1992. The overall height of the tower was 118.6 meters (389.1 ft) above ground level (agl); 132.9 meters (436.0 ft) above mean sea level. The tower was painted with alternating bands of aviation orange and white. It was also equipped with flashing red obstruction lights. The top-mounted light could not be evaluated to determine if it was operational because the upper section of the tower had separated during the accident. The intermediate level light was operational after the accident.

FAA Advisory Circular (AC) 70/7460-1L recommended standards for marking and lighting obstructions that have been deemed a hazard to air navigation. The AC noted that any structure exceeding 200 ft agl should be marked and/or lighted. Communications towers should be painted with a pattern of alternate bands of aviation orange and white for recognition during day lighting conditions. Flashing red or white obstruction lights should be used for recognition during night lighting conditions.

A review of the Houston sectional chart current at the time of the accident revealed that the antenna tower involved was accurately depicted.

Medical and Pathological Information

The Travis County Medical Examiner's Office in Austin, Texas, performed an autopsy of the pilot on October 15, 2018. The pilot's death was attributed to blunt force injuries sustained in the accident. Toxicology testing performed at the FAA Forensic Sciences Laboratory was negative for all drugs in the testing profile.

Organizational and Management Information

The operator had been issued an FAA operating certificate and operations specification for agricultural aircraft operations under Title 14 *CFR* Part 137. An Air Tractor AT-402A airplane was also included on the certificate. The pilot was listed as the chief supervisor and point-of-contact for the operator.

Preventing Similar Accidents

Preventing Obstacle Collisions in Agricultural Operations

Accidents involving collisions with obstacles, including poles, wires, guy wires, meteorological evaluation towers (MET), or trees, are among the most common types of agricultural aircraft accidents. Some collisions involved obstacles that the pilots did not see (even during survey flights) but others involved obstacles that were known to the pilot and/or had characteristics that would make them visibly conspicuous.

Agricultural pilots should do the following:

- Maintain a quick-reference document (paper or electronic) at the operations base that contains field maps, charts, photographs, and details of all known obstacles.
- Frequently review current aeronautical charts for information about obstacles.
- Before leaving the ground, spend time becoming familiar with all available information about the target field and programming navigation equipment. Such preflight action can help reduce the potential for confusion or distraction in flight.
- Conduct aerial surveys of the target field but do not rely solely on an aerial survey to identify potential obstacles.
- Conduct regular ground surveys of fields. Some towers can be erected in hours, and obstacles can change since you last worked that field. Speak with farmers and land owners to raise awareness about obstacle hazards.
- When possible, use ground crews. They may be in a better position to see certain obstacles and help you ensure that your aircraft remains clear of them.
- Watch for shadows and irregularities in growth patterns to help identify obstacles. Use GPS and other technology to maintain awareness of obstacle locations.
- Be aware that workload, fatigue, sun glare, and distractions in the cockpit can adversely affect your ability to see, avoid, or remember obstacles. Heavier loads and higher density altitudes can affect the performance of your aircraft.

The National Agricultural Aviation Association's Professional Aerial Applicators' Support System reminds pilots that, when ferrying an aircraft or transitioning between sites, flying above 500 feet reduces obstacle collision risks: "Ferry Above Five and Stay Alive."

See http://www.nts.gov/safety/safety-alerts/documents/SA_035.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Frank Fortmann; FAA Flight Standards; San Antonio, TX Kyle Schroeder; Air Tractor Inc.; Olney, TX
Original Publish Date:	November 6, 2019
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98466

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).