National Transportation Safety Board
Aviation Accident Final Report

Location:	Gaithersburg, MD	**Accident Number:**	DCA15MA029
Date & Time:	12/08/2014, 1041 EST	**Registration:**	N100EQ
Aircraft:	EMBRAER EMB-500	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	6 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The NTSB's full report is available at http://www.ntsb.gov/investigations/AccidentReports/Pages/AccidentReports.aspx. The Aircraft Accident Report number is NTSB/AAR-16/01.

On December 8, 2014, about 1041 eastern standard time, an Embraer EMB-500 airplane (marketed as the Phenom 100), N100EQ, registered to and operated by Sage Aviation LLC, crashed while on approach to runway 14 at Montgomery County Airpark (GAI), Gaithersburg, Maryland. The airplane impacted three houses and the ground about 3/4 mile from the approach end of the runway. A postcrash fire involving the airplane and one of the three houses, which contained three occupants, ensued. The pilot, the two passengers, and the three people in the house died as a result of the accident. The airplane was destroyed by impact forces and postcrash fire. The flight was operating on an instrument flight rules (IFR) flight plan under the provisions of 14 Code of Federal Regulations (CFR) Part 91. Visual meteorological conditions prevailed at the time of the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's conduct of an approach in structural icing conditions without turning on the airplane's wing and horizontal stabilizer deice system, leading to ice accumulation on those surfaces, and without using the appropriate landing performance speeds for the weather conditions and airplane weight, as indicated in the airplane's standard operating procedures, which together resulted in an aerodynamic stall at an altitude at which a recovery was not possible.

Findings

Personnel issues	Lack of action - Pilot (Cause)
Environmental issues	Conditions/weather/phenomena - Effect on equipment (Factor)

Factual Information

The NTSB's full report is available at http://www.ntsb.gov/investigations/AccidentReports/Pages/AccidentReports.aspx. The Aircraft Accident Report number is NTSB/AAR-16/01.

On December 8, 2014, about 1041 eastern standard time, an Embraer EMB-500 airplane (marketed as the Phenom 100), N100EQ, registered to and operated by Sage Aviation LLC, crashed while on approach to runway 14 at Montgomery County Airpark (GAI), Gaithersburg, Maryland. The airplane impacted three houses and the ground about 3/4 mile from the approach end of the runway. A postcrash fire involving the airplane and one of the three houses, which contained three occupants, ensued. The pilot, the two passengers, and the three people in the house died as a result of the accident. The airplane was destroyed by impact forces and postcrash fire. The flight was operating on an instrument flight rules (IFR) flight plan under the provisions of 14 Code of Federal Regulations (CFR) Part 91. Visual meteorological conditions prevailed at the time of the accident.

History of Flight

Enroute-descent	Structural icing
Approach-IFR final approach	Loss of control in flight (Defining event) Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Airline Transport; Flight Instructor	**Age:**	66, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane Single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With Waivers/Limitations	**Last FAA Medical Exam:**	02/07/2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	04/28/2014
Flight Time:	4736.5 hours (Total, all aircraft), 135.9 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	EMBRAER	**Registration:**	N100EQ
Model/Series:	EMB-500	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	50000082
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	11/14/2014, Continuous Airworthiness	**Certified Max Gross Wt.:**	10472 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo Jet
Airframe Total Time:	633.8 Hours as of last inspection	**Engine Manufacturer:**	P&W CANADA
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	PW617F-E
Registered Owner:	SAGE AVIATION LLC	**Rated Power:**	0 hp
Operator:	SAGE AVIATION LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	GAI	**Distance from Accident Site:**	
Observation Time:	1035 EST	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 2100 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	Overcast / 3200 ft agl	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.61 inches Hg	**Temperature/Dew Point:**	-1°C / -7°C
Precipitation and Obscuration:			
Departure Point:	Chapel Hill, NC (IGX)	**Type of Flight Plan Filed:**	IFR
Destination:	Gaithersburg, MD (GAI)	**Type of Clearance:**	IFR
Departure Time:	0945 EST	**Type of Airspace:**	

Airport Information

Airport:	MONTGOMERY COUNTY AIRPARK (GAI)	**Runway Surface Type:**	Asphalt
Airport Elevation:	538 ft	**Runway Surface Condition:**	Unknown
Runway Used:	14	**IFR Approach:**	Global Positioning System; RNAV
Runway Length/Width:	4202 ft / 75 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	3 Fatal	**Aircraft Explosion:**	None
Total Injuries:	6 Fatal	**Latitude, Longitude:**	39.180278, -77.180556

Administrative Information

Investigator In Charge (IIC):	Timothy LeBaron	**Report Date:**	06/21/2016
Additional Participating Persons:	Patrick Hempen; Federal Aviaton Administration; Washington, DC Earl Chapman; Transportation Safety Board of Canada Thiago Lirio; Aeronautical Accidents Investigation and Preventio		
Publish Date:	06/21/2016		
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=90473		

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.