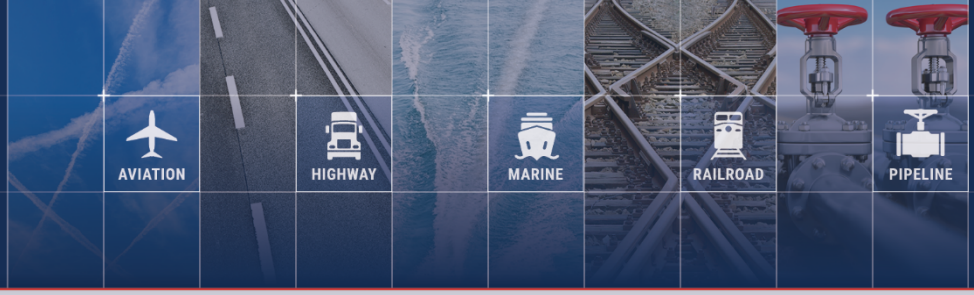

Aviation Investigation Final Report

Location:	Dougherty, Texas	**Accident Number:**	CEN09FA369
Date & Time:	June 18, 2009, 21:38 Local	**Registration:**	N182GT
Aircraft:	Cessna R182	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Radar data provided for the last portion of the accident flight depicted the airplane changing heading and altitude on several occasions. The airplane impacted an open field in a nose low attitude and was fragmented on impact. An examination of the airframe, engine, and airplane systems revealed no pre-impact anomalies. Weather information for the time of the accident depicted an area of light precipitation, consistent with the outflow boundary from a thunderstorm in the immediate vicinity of the accident location, at the time of the accident. Convective SIGMETS, METAR observations, and witness reports illustrated thunderstorm activity, brownout conditions, a dust storm, and the possibility of severe to extreme turbulence at the time of the accident. There was no record that the pilot had obtained a formal weather briefing from a recorded source. The pilot's flight logbook was located within the wreckage. A review of the logbook indicated that the pilot had logged no less than 412 hours; 45.5 hours in the make and model of the accident airplane, 17.7 hours at night, and 4.6 hours in simulated instrument meteorological conditions.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper decision to continue flight into known adverse weather conditions resulting in his inability to maintain aircraft control after penetrating the thunderstorm gust front. Contributing to the accident was the pilot's lack of preflight planning, failure to obtain a weather briefing, and the severe to extreme turbulence, blowing dust which produced brownout conditions associated with thunderstorm activity.

Findings

Personnel issues	Aircraft control - Pilot
Personnel issues	Weather planning - Pilot
Environmental issues	Thunderstorm - Effect on operation
Personnel issues	Decision making/judgment - Pilot
Aircraft	(general) - Capability exceeded
Environmental issues	Convective turbulence - Effect on operation
Environmental issues	Thunderstorm - Decision related to condition

Factual Information

History of Flight

Enroute-cruise	Windshear or thunderstorm
Enroute-cruise	Loss of control in flight (Defining event)

HISTORY OF FLIGHT

On June 18, 2009, at 2138 central daylight time, a Cessna R182, N182GT, piloted by a private pilot, was destroyed when it impacted terrain two miles north of Dougherty, Texas. A post impact fire ensued. Night instrument meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of Title 14 Code of Federal Regulation Part 91 without a flight plan. The pilot and pilot rated passenger were both fatally injured. The cross-country flight departed Houston Southwest Airport (KAXH), Houston, Texas, and was en route to Hale County Airport (KPVW), Plainview, Texas.

According to the UNICOM operator at KPVW, a female had contacted him via telephone earlier in the day to ensure that someone would be at the airport when they arrived later that evening. Approximately 2125 the pilot called the UNICOM frequency asking which runway was in use. Approximately 2140, the pilot called the UNICOM frequency again, asking about the weather at KPVW. The UNICOM operator attempted to contact the accident airplane at 2150 with no response.

Radar data, provided by the Federal Aviation Administration (FAA) in National Track Analysis Program (NTAP) format, depicted the accident flight from 2115 to the time of the accident. The airplane was at an encoded altitude of 6,400 feet on a north, northwesterly heading. The airplane track reversed course to a south, southeasterly heading and descended to an altitude of 6,000 feet. The airplane track reversed course again to a north, northwesterly track and climbed to an altitude of 6,500 feet. The airplane track changed a third time to an easterly heading, and then a fourth time to a westerly heading. The last radar return was recorded at 2138:19, 4,256 feet from the location of the main wreckage.

The airplane wreckage was located in a field on June 20, 2009, by a local resident.

PERSONNEL INFORMATION

The pilot, age 53, held a private pilot certificate with airplane single engine land privileges, last issued on March 8, 2007. He was issued a third class airman medical certificate on October 20, 2008. The certificate contained the limitation “must wear lenses for distant – possess glasses for near vision.”

The pilot's flight logbook was located within the wreckage. A review of the logbook indicated that the pilot had logged no less than 412 hours; 45.5 hours in the make and model of the accident airplane, 17.7 hours at night, and 4.6 hours in simulated instrument meteorological conditions. The pilot had logged 52.8 and 20.1 hours within the previous 90 and 30 days respectively. The pilot had logged 4.4 hours of night experience within the previous 90 days and 1.1 hours within the previous 30 days.

The pilot successfully completed the requirements of a flight review as required by CFR 61.56 on April 11, 2009. He received training in the Cessna 182 RG and obtained both a high performance and complex airplane endorsement on May 3, 2009.

The pilot rated passenger held a private pilot certificate; however, her medical certificate was not current. Flight time and experience for the passenger was not evaluated.

AIRCRAFT INFORMATION

The accident airplane, a Cessna R182 (serial number R18201504), was manufactured in 1980. It was registered with the FAA on a standard airworthiness certificate for normal operations. A Lycoming O-540 engine rated at 250 horsepower at 2,400 rpm powered the airplane. The engine was equipped with a two-blade, McCauley propeller.

The airplane was registered to and operated by the pilot, and was maintained under an annual inspection program. The maintenance records were not located. An invoice provided by Parker Aircraft LLC indicated that an annual inspection had been billed for on October 21, 2008. An additional maintenance entry was provided by another mechanic indicating general maintenance had been performed on April 10, 2009, at a tachometer time of 3,056.0 hours.

METEOROLOGICAL INFORMATION

The synoptic conditions over the Texas were favorable for high-based thunderstorms development during the afternoon and evening hours on June 18, 2209. The National Weather Service (NWS) Storm Prediction Center's Convective Outlook had expected a slight risk of severe thunderstorm development over the region and had issued an advisory for a line of thunderstorms over the Texas panhandle with the threat of strong locally damaging winds. The NWS Radar Summary Chart for 2120 depicted a solid line of thunderstorms west and northwest of the accident site, with the 2200 Surface Analysis Chart depicting an outflow boundary bowing outwards over western Texas, and the Texas panhandle, in the immediate vicinity of the accident site.

The Lubbock 1900 upper air sounding data depicted a warm dry low-level environment with an elevated lifted condensation level (LCL) and level of free convection (LFC) favorable for high-based convection. The sounding provided a Lifted Index of -6.3 and a K-Index of 40, which indicated an unstable atmosphere and a high probability of thunderstorms, with conditions also favorable for strong outflow winds and microbursts.

Geostationary Operations Environmental Satellite (GOES) imagery (visible and infrared) was obtained for the time period surrounding the accident. The data depicted cumulonimbus clouds to the northwest of the accident site. A cumulonimbus anvil cloud and middle level clouds were depicted directly above the accident site.

The Lubbock Doppler weather radar (WSR-88D) depicted a large area of echoes over the Texas panhandle with maximum reflectivity of 61 dBZ and intense to extreme precipitation along the leading edge, northwest of the accident site. A fine line was identified ahead of the band of echoes associated with an outflow boundary or gust front that was oriented in a north south direction was depicted moving through the accident site between 2135 and 2140.

The NWS had several Convective SIGMETs (Significant Airman's Meteorological Information) valid for areas north, south, and west of the accident site. Convective SIGMET 16C and 17 C warned of several areas of severe thunderstorms moving from 240 degrees at 30 knots, with cloud tops above 45,000 feet, and warned of potential hail to 1 inch and wind gusts to 70 knots. The advisory also implied severe to extreme turbulence, lightning, low-level wind shear, and localized instrument meteorological conditions were possible. There were no AIRMETS that impacted the route of flight.

The closest official weather observation station was Hale County Airport (KPVW), located in Plainview, Texas, 34 nautical miles (nm) northwest of the accident site at an elevation of 3,374 feet. The observations for KPVW reported strong southerly winds shifting to the west with the passage of the outflow boundary. At 2125 KPVW reported wind from 270 degrees at 18 knots gusting to 33 knots, visibility 2 ½ miles in heavy rain, scattered clouds at 800 feet agl, ceiling broken at 5,000 feet, overcast at 6,500 feet, temperature 19 degrees Celsius (C), dew point 17 degrees C, altimeter setting 29.97 inches of Mercury (Hg). The remarks indicated surface visibility varied from 1 ¾ to 5 miles. At 2145 KPVW reported, wind 270 degrees at 19 knots, gusting to 22 knots, visibility 10 miles in light rain, scattered clouds at 1,100 feet, ceiling broken 10,000 feet, overcast 11,000 feet, temperature 18 degrees C, dew point 17 degrees C, and altimeter 29.94 inches of Hg.

The next closet weather observation station was Lubbock Preston Smith International Airport (KLBB), Lubbock, Texas, located 40 miles west-southwest of the accident site at an elevation of 3,282 feet msl. Lubbock also reported a wind shift from the south to the west at 2040 with wind gusts to 51 knots and visibility ¾ of a mile in blowing dust, followed by light rain and thunderstorms. At 2102 a special observation at KLBB reported, winds 280 degrees at 25 knots, gusting to 35 knots, visibility 4 miles in blowing dust, scattered 3,000 feet agl, ceiling broken at 6,000 feet, overcast at 12,000 feet, temperature 22 degrees C, dew point 16 degrees, and altimeter 29.91 inches of Hg. The remarks section reported a peak wind gust of 35 knots at 2055 CDT, with cumulonimbus clouds in the distance west through northwest, moving northeast.

According to the United States Naval Observatory, Astronomical Applications Department Sun

and Moon Data, the sunset was recorded at 2100 and the end of civil twilight was 2129. The moon rose at 0608 and set at 2119 on the day of the accident.

Two witnesses in the area at the time of the accident described wind speeds between 60 and 70 miles per hour, and blowing dust and dirt, consistent with a windstorm and brownout conditions.

There was no record of the pilot obtaining a formal weather briefing from the FAA Automated Flight Service Station (AFSS) or the Direct User Access Terminal Service (DUATS).

WRECKAGE AND IMPACT INFORMATION

The accident scene was located in a dormant cotton field at a field elevation of 3,100 feet msl. The wreckage was fragmented and consisted of fragments of the left and right wing assemblies, empennage, fuselage, and engine assembly.

A ground scar two feet wide and 25 feet long characterized the initial impact point that terminated at a large impact crater. Dirt and debris was pushed out of the large crater in the direction of impact. The crater was three to four feet deep and contained fragmented remains on instruments, engine hoses, and wires. The engine and propeller assembly was partially buried in this hole with the lowest end at a depth of six feet.

A debris path extended from the impact crater in an easterly direction towards the main wreckage. The path was 85 feet wide by 138 feet long and contained the fragmented remains of engine accessories, hoses, wires, both the left and right wing assemblies, and various cabin components.

The main wreckage consisted of the bent and burned remains of the empennage, fuselage, and forward cockpit and cabin area. Rudder and elevator cables were continuous from the forward fuselage aft to their respective termination points in the empennage. Aileron cables were continuous; however, several points of separation were noted with features consistent with overload separation. Debris fanned out from the main wreckage for an additional 250 feet.

The engine was recovered from the impact crater. The propeller assembly remained attached and both propeller blades were bent aft 90 degrees around the engine housing. Both blades exhibited leading and trailing edge polishing and chordwise scratches on the blade face. The engine could not be rotated through due to impact damage. A bore scope examination of each cylinder revealed signatures consistent with normal operation. Engine accessories were destroyed and their functionality could not be established.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the Texas Tech University Health Sciences Center –

Division of Forensic Pathology, Lubbock, Texas, on June 22, 2009, as authorized by the Justice of the Peace in Floyd County. The autopsy concluded that the cause of death was “blunt force injuries.”

During the autopsy, specimens were collected for toxicological testing to be performed by the FAA’s Civil Aerospace Medical Institute, Oklahoma City, Oklahoma (CAMI Reference #200900135002). No blood was received by the FAA laboratory and tests for carbon monoxide and cyanide were not performed. Ethanol and propanol were detected in the liver, muscle, and kidney tissue. Methanol was detected in the liver and butanol was detected in the muscle. Results were negative for drugs.

The wreckage was discovered two days following the accident and there was a delay in the recovery of the bodies. Putrefaction was noted on the toxicology report.

Pilot Information

Certificate:	Private	**Age:**	53,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 20, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 11, 2009
Flight Time:	412 hours (Total, all aircraft), 45 hours (Total, this make and model), 53 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N182GT
Model/Series:	R182	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18201504
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	December 21, 2008 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	O-540 SERIES
Registered Owner:	On file	**Rated Power:**	250 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	PVW	**Distance from Accident Site:**	34 Nautical Miles
Observation Time:	22:45 Local	**Direction from Accident Site:**	330°
Lowest Cloud Condition:	Scattered / 1100 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 10000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	19 knots / 22 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.94 inches Hg	**Temperature/Dew Point:**	18°C / 17°C
Precipitation and Obscuration:			
Departure Point:	Houston, TX (KAHX)	**Type of Flight Plan Filed:**	None
Destination:	Plainview, TX (KPVW)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	33.971389,-101.083335

Administrative Information

Investigator In Charge (IIC):	Rodi, Jennifer
Additional Participating Persons:	Arturo Castillo; FAA Flight Standards District Office; Lubbock, TX Steve Miller; Cessna Aircraft Company; Wichita, KS John Butler; Lycoming Engines; Arlington, TX
Original Publish Date:	April 22, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74091