



AVIATION



HIGHWAY



MARINE



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PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Manteo, North Carolina	<b>Accident Number:</b>	ERA13LA113
<b>Date &amp; Time:</b>	January 13, 2013, 11:45 Local	<b>Registration:</b>	N6537C
<b>Aircraft:</b>	Piper PA-34-200T	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Controlled flight into terr/obj (CFIT)	<b>Injuries:</b>	1 Fatal, 1 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The weather at the destination airport had reduced visibility and low drifting fog. According to the passenger, the flight was normal; the pilot acknowledged the reduced visibility report at the destination airport that was relayed by a pilot that landed ahead of the accident airplane. During the instrument approach, when the airplane descended through clouds, the pilot realized that the airplane was too far down the runway to safely land. The pilot then elected to enter a visual low traffic pattern rather than execute a missed approach procedure. However, the passenger stated that the barometric pressure was not reset during the approach. Thus, although the altimeters indicated that the airplane was at 410 ft mean sea level (msl) on the downwind leg, it was actually flying about 260 ft msl in the airport pattern before impacting water. Examination of the airplane wreckage revealed no evidence of any preimpact mechanical failures or malfunctions that would have prevented normal operation. Although a prohibited medical drug was found in the blood and urine of the pilot, the amounts found were not enough to be impairing. The pilot had a total flight experience of about 387 hours of which about 17 hours were in actual instrument meteorological conditions. The restricted visibility conditions at the time of the accident would have been conducive to the development of spatial disorientation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's attempted visual flight in instrument meteorological conditions while maneuvering at a low altitude in the traffic pattern, which resulted in spatial disorientation and impact with the water. Contributing was the pilot's lack of experience flying in actual instrument meteorological conditions.

## Findings

<b>Aircraft</b>	Altitude - Not attained/maintained
<b>Personnel issues</b>	Spatial disorientation - Pilot
<b>Environmental issues</b>	Fog - Contributed to outcome
<b>Personnel issues</b>	Monitoring equip/instruments - Pilot
<b>Personnel issues</b>	Use of equip/system - Pilot
<b>Personnel issues</b>	Decision making/judgment - Pilot
<b>Personnel issues</b>	Total instrument experience - Pilot

# Factual Information

## History of Flight

Approach	Miscellaneous/other
Approach	Controlled flight into terr/obj (CFIT) (Defining event)

On January 13, 2013, about 1145 eastern daylight time, a Piper PA-34-200T, N6537C, was destroyed after impacting Croatan Sound, following a missed approach to land at Dare County Regional Airport (MQI) Manteo, North Carolina. The private pilot was fatally injured and the passenger sustained minor injuries. The airplane was registered to and operated by a private individual. Instrument meteorological conditions prevailed, and an in-flight instrument flight rules flight plan was filed for the personal flight that was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. The flight departed Sanford-Lee County Airport (TTA), Sanford, North Carolina at an undetermined time.

According to ARTCC transcripts, at 1114, the accident pilot requested an instrument flight rules clearance to MQI. The controller responded and provided transponder code 3636 and the MQI altimeter setting of 30.17 inches of mercury. The pilot read back the information to controllers. At 1615, the controller told the accident pilot that he was in radar contact and was cleared to MQI, and to maintain five thousand feet mean sea level (msl). At 1619 the accident pilot told the controller that he had the MQI weather report and that he was requesting the GPS approach to runway 05 at MQI. The controller then cleared the accident airplane to fly direct to ALGTR intersection. At 1627, the controller directed the accident pilot to cross ALGTR intersection at or above two thousand feet msl, and that he was cleared for the GPS runway 05 approach into MQI. In addition, the accident pilot was to report inbound from ROWZO intersection. The accident pilot acknowledged the instructions from the controller and the reduced visibility report of "2 or 3" miles from a pilot who landed just prior to the accident airplane. At 1633, the accident pilot reported inbound from ROWZO intersection and that he would cancel his IFR clearance when able, on the current radio frequency. At 1645 the ARTCC controller attempted to reach the accident airplane on the radio. No distress calls were received and no further transmissions from the accident airplane were overheard on the radio.

According to a witness, who was a pilot that landed about 15 minutes before the accident airplane, the automated weather observing system (AWOS) was inaccurate. The AWOS was reporting 10 statute miles visibility and the landing pilot reported the visibility to be 4 statute miles in fog. After landing, the landing pilot overheard the air route traffic control center (ARTCC) ask the accident pilot if he overheard the report of reduced visibility. The accident pilot acknowledged the report from the landing pilot. The landing pilot then put his airplane in the hangar and turned on his portable radio to listen to the accident airplane.

The landing pilot added that the airplane descended out of the clouds too far down the runway to safely land. "Unbelievably," the accident pilot reported turning for the visual downwind leg. The landing pilot stated that the fog and lower cloud ceilings were even worse in the accident pilot's direction. He also added that he did not overhear the pilot report a missed approach to ARTCC.

According to the passenger in the accident airplane, the pilot performed all of the preflight inspections of the airplane and did not report any malfunctions that would have precluded normal flight operations. She stated that she visually observed the pilot remove the fuel caps and verify sufficient fuel for the flight.

The passenger stated that as they descended through the clouds on the instrument approach, the airplane appeared too far down runway 05 to safely land, but she could see the intersecting runways of 17/35 below them. The accident pilot then made a left turn and leveled off on a downwind leg at 410 feet msl, and reported entering the downwind leg on the common traffic advisory frequency (CTAF). The passenger further stated that they entered a left turn for the base leg for runway 05 and announced the same on the CTAF. The passenger added that the airplane entered the clouds, the pilot stated "uh oh," added power, and the airplane impacted the water. The passenger also stated that the engines were running normally before the impact with the water.

A synopsis of communications between Washington ARTCC and the accident airplane is contained in the public docket.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	49
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Lap only
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	February 8, 2011
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	382 hours (Total, all aircraft)		

The pilot, age 49, held a private pilot certificate with ratings for airplane single-engine land, airplane multiengine land, and airplane instrument. Federal Aviation Administration (FAA) records show that his third-class medical examination was last updated on February 8, 2011. According to the pilot logbooks, the pilot received his instrument rating on August 18, 2011. The pilot's logbooks revealed 386.6 total flight hours, and a total of 17.4 actual instrument hours, before the accident flight.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N6537C
<b>Model/Series:</b>	PA-34-200T	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	34-7870164
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	March 26, 2012 Annual	<b>Certified Max Gross Wt.:</b>	4570 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	CONT MOTOR
<b>ELT:</b>	C91 installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	TSIO-360 SER
<b>Registered Owner:</b>	Greg Carlisle	<b>Rated Power:</b>	225 Horsepower
<b>Operator:</b>	Greg Carlisle	<b>Operating Certificate(s) Held:</b>	None

The six-seat, low wing, retractable gear airplane, was manufactured in 1978. A standard airworthiness certificate was issued on August 15, 2011. The airplane was powered by a Continental TSIO-360 engine and a Continental LTSIO-360 engine. The airplane propellers and maintenance logbooks were not recovered from the wreckage due to water submersion. Review of an invoice and/or work order revealed that the airplane's most recent annual inspection was completed on March 26, 2012 at a tachometer time of 469.3 hours.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	MQI, 13 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	11:35 Local	<b>Direction from Accident Site:</b>	50°
<b>Lowest Cloud Condition:</b>	Thin Overcast / 200 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Overcast / 200 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.14 inches Hg	<b>Temperature/Dew Point:</b>	15°C / 13°C
<b>Precipitation and Obscuration:</b>	N/A - None - Fog		
<b>Departure Point:</b>	Sanford, NC (TTA )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Manteo, NC (MQI )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class C

The MQI 1135 surface weather observation, located about 1 mile northeast of the crash location,

reported wind calm, visibility 10 statute miles, overcast skies at 200 feet msl, temperature 15 degrees C, dew point 13 degrees C, and an altimeter setting of 30.15 inches of mercury. However, a pilot report for reduced visibility at 2 or 3 miles was received by ARTCC and transmitted to the accident pilot and other aircraft in the area.

### Airport Information

<b>Airport:</b>	Dare County Regional Airport MQI	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	13 ft msl	<b>Runway Surface Condition:</b>	Wet
<b>Runway Used:</b>	05	<b>IFR Approach:</b>	Global positioning system;RNAV
<b>Runway Length/Width:</b>	4305 ft / 100 ft	<b>VFR Approach/Landing:</b>	Full stop;Go around;Traffic pattern

### Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	1 Minor	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal, 1 Minor	<b>Latitude, Longitude:</b>	35.901111,-75.701385(est)

The airplane was recovered from the water about 1,000 yards to the southwest of the approach end of runway 05 at MQI. Postaccident examination of the airplane by FAA inspectors noted that the fuselage section remained intact with crushing damage to the fuselage nose, top, and sides. The empennage section was torn from the fuselage. The vertical stabilizer was intact and still connected to the left horizontal stabilizer. The right horizontal stabilizer was torn from the empennage section. Further examination of the recovered airframe and flight control system components revealed no evidence of preimpact mechanical malfunction.

The right and left wings were torn from the airplane, breached, and destroyed. Both wing flaps remained attached to the wings and corresponded to the cockpit selector, which was in the full down position.

The left and right engines were recovered from the water and sent to the manufacturer for further examination. On March 25 and 26, 2013, the engines were disassembled with oversight from a NTSB investigator. No preaccident mechanical malfunctions or failures were found with the engines. A detailed report of the engine examinations is contained in the public docket. Both propellers were not recovered from the water.

All three landing gear were destroyed and corresponded with the cockpit selector handle in the down position. Both fuel mixtures were full rich and both propeller rpm handles were full forward. The right

throttle was full forward and the left throttle was about 1/2 inch from full forward, exhibiting contact from the instrument panel.

Flight control continuity was established to all of the flight controls and surfaces. The flight control cables were compromised in numerous locations and the separations exhibited signatures indicative of overload failure and or salvage team separation.

Examination of the pilot's altimeter revealed that the instrument was found set at 30.00 inches of mercury, 150 feet lower than the reported altimeter setting at the time of the accident. In an interview with the passenger, she stated that she remembers the pilot setting the altimeters before takeoff from TTA. She also added that the airplane altimeters were not reset before landing at MQI.

## **Medical and Pathological Information**

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An autopsy of the pilot was performed on January 15, 2013 by the Office of Forensic Pathology - Brody School of Medicine at Eastern Carolina University, Greenville, North Carolina. The cause of death was reported as asphyxia due to neck injuries and drowning.

The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. The report stated that the test was negative for carbon monoxide and ethanol. Indomethacin of an undetermined amount was detected in the urine. Indomethacin is used to treat pain or inflammation caused by many conditions such as arthritis, gout, ankylosing spondylitis, bursitis, or tendinitis. Lorazepam was detected in the blood and urine. Lorazepam is a prescription benzodiazepine that is used for the management of anxiety disorders and for insomnia.

## **Additional Information**

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According to FAA Advisory Circular 60-4A "Pilot's Spatial Disorientation," "Surface references and the natural horizon may at times become obscured, although visibility may be above visual flight rule minimums. Lack of natural horizon or surface reference is common on over-water flights, at night, and especially at night in extremely sparsely populated areas or in low visibility conditions. A sloping cloud formation, an obscured horizon, a dark scene spread with ground lights and stars, and certain geometric patterns of ground lights can provide inaccurate visual information for aligning the aircraft correctly with the actual horizon. The disoriented pilot may place the aircraft in a dangerous attitude."

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Murray, Patrick
<b>Additional Participating Persons:</b>	Clinton Festa; FAA/FSDO; Greensboro, NC Kurt Gibson; Continental Motors; Mobile, AL Ron Maynard; Piper; Vero Beach, FL
<b>Original Publish Date:</b>	October 27, 2014
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=86016">https://data.nts.gov/Docket?ProjectID=86016</a>

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