



# Aviation Investigation Final Report

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<b>Location:</b>	Childersburg, Alabama	<b>Accident Number:</b>	ATL06LA035
<b>Date &amp; Time:</b>	January 13, 2006, 15:57 Local	<b>Registration:</b>	N87HK
<b>Aircraft:</b>	Cirrus SR22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation		

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## Analysis

The pilot obtained a full Direct User Access Terminal (DUATS) the night before the accident. The briefing was not valid for the time of the accident. The National Weather Service (NWS) issued AIRMET Zulu update 3 for icing and freezing level data valid from 1445 CST until 2100 CST. The advisory warned of occasional moderate to mixed icing-in-clouds and in precipitation between 3,000 to 8,000 feet. The departure airport and the accident site were within the boundaries of the advisory. The pilot requested an abbreviated DUATS weather briefing at 1244 EST for his route of flight between Birmingham, Alabama, and Orlando, Florida. The in-flight advisories were to expire at 1500 CST. The briefing provided several adverse weather phenomena impacting the route of flight from icing, turbulence, and thunderstorms. The pilot stated he was not aware of AIRMET ZULU UPT 3, that was issued by the NWS before he departed Birmingham. The airplane was equipped with an XM Satellite radio. The AIRMET was transmitted by the NWS and over the XM radio installed in the airplane. The airplane is not certified for flights into icing conditions. The pilot stated the flight departed from runway 24 and he contacted the air traffic controller on the radio. The airplane was identified by radar and the pilot was instructed to climb to 7,000 feet direct to Hande intersection. The airplane entered the clouds at 5,000 feet on autopilot climbing at 120 knots. Upon reaching 7,000 feet the airplane encountered icing conditions. The pilot informed the controller that he would like to climb to 9,000 feet which was approved. As the airplane reached the cloud tops in visual flight conditions at 8,000 feet the airplane began to buffet. The pilot looked at his airspeed indicator and it indicated 80 knots. The airplane stalled, entered a spin back into instrument flight conditions. The pilot deployed the ballistic parachute system and informed the air traffic controller of his actions. The airplane descended under the parachute canopy into the trees..

## Probable Cause and Findings

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

The pilot's inadequate preflight planning, failure to obtain a current weather briefing, and his decision to operate the airplane into a known area of icing outside the airplanes certification standards resulting in the aircraft accumulating ice, a loss of airspeed, an inadvertent stall/spin and subsequent collision with trees.

## Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER  
Phase of Operation: CLIMB - TO CRUISE

### Findings

1. WEATHER CONDITION - ICING CONDITIONS
2. (C) PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
3. (C) PREFLIGHT BRIEFING SERVICE - NOT USED - PILOT IN COMMAND
4. (C) FLIGHT INTO KNOWN ADVERSE WEATHER - ATTEMPTED - PILOT IN COMMAND

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Occurrence #2: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: CLIMB - TO CRUISE

### Findings

5. AIRSPEED(VS) - NOT POSSIBLE - PILOT IN COMMAND
6. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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Occurrence #3: IN FLIGHT COLLISION WITH OBJECT  
Phase of Operation: DESCENT - EMERGENCY

### Findings

7. OBJECT - TREE(S)

## Factual Information

### HISTORY OF FLIGHT

On January 13, 2006, at 1557 central standard time (CST), a Cirrus SR22, N87HK, registered to Trench Shoaring Systems Inc., operating as a 14 CFR Part 91 business flight, had an in flight loss of control while climbing in instrument icing flight conditions in the vicinity of Childersburg, Alabama. Visual meteorological conditions prevailed and an instrument flight plan was filed. The airplane received substantial damage. The airline transport rated pilot and two passengers reported no injuries. The flight departed Birmingham International Airport, Birmingham, Alabama, enroute to Orlando, Florida, on January 13, 2006, at 1544.

The pilot stated he obtained a full weather briefing before departing Fulton County Airport, Atlanta, Georgia, enroute to Birmingham, Alabama, using the Direct User Access Terminal computer system. Icing conditions were forecast between 8,000 to 16,000 feet. The pilot filed his flight plan for a cruising altitude of 7,000 feet. The pilot stated the airplane is not equipped with de-icing boots or a TKS system, and is not certified for flight into icing conditions. The pilot was not aware of the National Weather Service (NWS) AIRMET Zulu UPT 3, that was in effect from 1445 CST to 2100 CST. The Airmet was transmitted by the NWS and over the XM Satellite Radio installed in the airplane. The advisory warned of occasional moderate to mixed icing-in-clouds and in-precipitation between 3,000 and 8,000 feet.

The pilot stated he departed from runway 24 and was instructed by the control tower to contact Birmingham Approach Control. The pilot contacted approach control and the airplane was identified in radar contact while climbing through 1,500 feet. The controller informed the pilot to proceed direct to Hande intersection and the flight was subsequently cleared to climb to 7,000 feet. The pilot stated the airplane entered the clouds at 5,000 feet and his climb speed was 120 knots. Upon reaching 7,000 feet the airplane encountered icing conditions. The pilot informed the controller he was encountering trace icing conditions at 1553 and requested clearance to climb to 9,000 feet. The controller cleared the pilot as requested and informed him, "cirrus eight seven hotel kilo uhh that's been uhh pretty much the uhh norm all day climb and maintain nine thousand." The pilot entered a 500 foot per minute climb into the autopilot and initiated the climb to 9,000 feet. As the airplane reached the clouds tops at 8,000 feet in visual flight conditions, the airplane began to buffet. The pilot looked at his airspeed indicator and it indicated 80 knots. The airplane stalled, the nose pitched down, and the airplane started spinning to the left while reentering instrument flight conditions. The pilot reduced power, neutralized the flight controls, and applied right rudder with negative results. The pilot activated the Cirrus Airframe Parachute System, and the parachute system deployed. The pilot informed the controller at 1557, "Birmingham Approach cirrus eight seven hotel kilo we have uhh experienced icing we have uhh had a stall we're under the parachute we're an emergency situation." The airplane descended to the ground under the parachute canopy, collided with trees, and came to a complete stop about four feet above the ground. All personnel exited the airplane and the 911 emergency operators were contacted on a cell phone. Emergency

personnel arrived and the pilot and two passengers were transported to a local area fire department.

#### PERSONNEL INFORMATION

Review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was issued an airline transport pilot certificate on December 15, 2005, with ratings for airplane single engine land, multiengine land, and instrument airplane. The pilot was issued a ground instructor certificate on December 12, 2005. In addition, the pilot was issued a flight instructor certificate on September 15, 2004, with ratings for airplane single engine land, multiengine land, and instrument airplane. The pilot's last biennial flight review was conducted on April 10, 2005. The pilot held a second class medical issued on September 29, 2005, with the restriction "Must wear corrective lenses. Not valid for any class after September 30, 2006." The pilot reported on the NTSB Pilot/Operator Aircraft accident/Incident Report that he had accumulated 12,773 total flight hours of which 681 hours are in the Cirrus SR22, and 617 hours as an instructor pilot in the SR22. In addition, the pilot completed the Cirrus Standardized Instructor Course on March 21, 2005.

#### AIRCRAFT INFORMATION

Review of the airplane logbooks revealed the last recorded annual inspection was conducted on October 6, 2005, and the Hobbs time was 544.0 hours. The airplane has flown 61 hours since the last annual inspection. The altimeter, encoder, and static system test were conducted on July 13, 2004.

#### METEOROLOGICAL INFORMATION

The closest weather reporting facility to the accident site was from Thomas C. Russell Field, Alexander County, Alabama, located 27 miles southeast of the accident site. The airport has an Automated Weather Observation System without any human augmentation. The 1600 surface weather observation was: wind 280 degrees at 10 knots gusting to 18 knots, winds variable 239 degrees to 299 degrees, visibility 10 miles, scattered clouds at 4,400 feet agl, ceiling overcast at 5,000 feet, temperature 52 degrees Fahrenheit, dew point temperature 39 degrees Fahrenheit, and altimeter 29.80. Remarks: Automated observation system without a precipitation discriminator, lighting distant southeast and south.

The Birmingham International Airport, Birmingham, Alabama, 1553 surface weather observation located 29 miles northwest of the crash site was: wind 270 degrees at 15 knots gusting to 21 knots, visibility 10 miles, ceiling broken at 3,600 feet, overcast at 4,400 feet, temperature 48 degrees Fahrenheit, dew point temperature 37 degrees Fahrenheit, and altimeter 29.83.

The closest upper air sounding or rawinsonde observation (RAOB) was from the NWS at 1800 CST for Shelby County Airport (KBMX), Alabama, site number 72230, located approximately 18 miles west of the accident site. The sounding indicated several low-level temperature inversions layers where temperature increased with altitude, the first was at the surface to 598 feet, and the second layer was between 8,500 to 9,658 feet. The freezing level was identified at

4,000 feet and supported icing conditions from the freezing level to approximately 9,000 feet where relative humidity exceeded 75 percent.

The Geostationary Operations Environmental Satellite number 12 (GOES-12) data was obtained from the National Climatic Data Center (NCDC) and displayed on the National Transportation Safety Board's Man-computer Interactive Data Access System (McIDAS) workstation. The GOES-12 infrared image for 1602 CST on January 13, 2006, depicted a band of enhanced cumulus clouds extending from South Carolina southwestward into Georgia, northern Florida, and into the Gulf of Mexico. Behind the convective band was an area of low stratiform form clouds extending across Georgia, Alabama, Mississippi, Tennessee, and into Kentucky. The accident site was obscured by the low stratiform cloud cover, which had a radiative cloud top temperature of 264.90 degrees Kelvin (K) or -8.26 degrees C over the accident site, which corresponded to cloud tops near 8,500 feet. An overcast layer of stratiform clouds to stratocumulus clouds extended over central Alabama, which supported light rime type icing in clouds.

At 1445 CST the NWS Aviation Weather Center issued AIRMET Zulu update 3 for icing and freezing level data, which was valid until 2100 CST. This was the initial issuance of this AIRMET that extended over portions of Arkansas, Tennessee, Mississippi, and Alabama. The advisory warned of occasional moderate to mixed icing-in-clouds and in-precipitation between 3,000 and 8,000 feet. The conditions were expected to end by 2100 CST west of Dyersburg, Tennessee (DYR), Sidon, Mississippi (SQS), to La Grange, Georgia (LGC), and continue elsewhere and end by 0300 CST. The departure airport and accident site were located within the boundaries of this advisory.

AIRMET Tango update 3 was also current at 1445 CST through 2100 CST for turbulence over portions of Oklahoma, Texas, Arkansas, Tennessee, Louisiana, Mississippi, Alabama, and coastal waters. The advisory warned of occasional moderate turbulence below 8,000 feet due to strong low-level winds. The conditions were expected to continue beyond 2100 CST through 0000 CST. The accident site was also within the boundaries of this advisory.

Several pilot reports (PIREPs) were obtained over Alabama surrounding the period of the accident. The reports are as follows and are in standard format:

Montgomery (MGM) routine pilot report (UA); Over - 25 miles south of Selma (SEM); Time - 1915Z; Flight level - unknown; Type aircraft - Beechcraft Bonanza single engine airplane (BE36); Turbulence - moderate to severe between 7,000 and 4,000 feet; Remarks - instrument meteorological conditions (IMC).

Tuscaloosa (TCL) routine pilot report (UA); Over - 20 miles southeast of Tuscaloosa (TCL); Time - 2012Z; Flight level - 7,000 feet; Type aircraft - Beechcraft King Air multiengine turboprop (BE20); Icing - light rime type icing from 7,000 to 5,000 feet.

Huntsville (HSV) routine pilot report (UA); Over - Huntsville (HSV); Time - 2027Z; Flight level - 7,000 feet; Type aircraft - Embraer regional Jet (E135); Sky cover - broken at 3,500 feet with tops at 6,000 feet; Wind - from 270 degrees at 50 knots; Icing - trace.

Anniston (ANB) routine pilot report (UA); Over - 40 miles south of Huntsville (HSV); Time - 2020Z; Flight level - 12,000 feet; Type aircraft - Canadair regional jet (CRJ); Turbulence - moderate from 16,000 to 12,000 feet; Remarks - from Memphis Center (ZME).

Huntsville (HSV) routine pilot report (UA); Over - Huntsville (HSV); Time - 2056Z; Flight level - 6,000 feet; Type aircraft - Cirrus single engine airplane (SR22); Sky cover - tops of clouds at 6,000 feet; Icing - light rime icing.

Birmingham (BHM) routine pilot report (UA); Over - 15 miles west of Birmingham (BHM); Time - 2117Z; Flight level - 8,000 feet; Type aircraft - Cessna multiengine airplane (C310); Sky cover - overcast with tops at 7,800 feet; Temperature - minus 2 degrees C at 6,000 feet and minus 8 degrees C at 8,000 feet; Icing - light-to-moderate rime type icing from 6,000 to 7,800 feet; Remarks - clear above 7,800 feet.

Birmingham (BHM) urgent pilot report (UUA); Over - 4 miles west of Sylacauga (SCD); Time - 2200Z; Flight level - 9,000 feet; Type aircraft - Cirrus single engine airplane (SR22); Icing - severe icing between 7,700 and 9,000 feet; Remarks - aircraft abandoned due to severe ice buildup

The NWS archive Current Icing Potential (CIP) product closest to the time of the accident. The CIP for 7,000 feet indicated an approximately .7 or 70 percent probability of icing conditions over the central Alabama, in the vicinity of the accident site.

The pilot of N87HK obtained a full weather briefing before departing Fulton County Airport, Atlanta, Georgia (KFTY), using the Direct User Access Terminal (DUAT) computer system. A printout of that briefing was obtained through CSC DUAT (previously known as DynCorp) by the Safety Board, and reviewed for its completeness. The records indicate that the pilot of N87HK filed an IFR flight plan at 1938 EST on January 12, 2006, and received the first DUAT low-altitude weather briefing for the route from Fulton County Airport, Atlanta (KFTY) to Birmingham (KBHM), and at 1942 EST filed a flight plan for the route from Birmingham (KBHM) to Orlando (MCO), with a planned departure time of 1530 EST, and obtained a low-altitude weather briefing. The briefing was complete with regards to the products included; however, it was not valid or timely for the period of the accident, with all the products expiring before the flight departed Atlanta.

A second DUAT "abbreviated weather briefing" was obtained at 1040 EST for the route between Atlanta (KFTY) and Birmingham (KBHM). The forecast for Birmingham expected thunderstorms until 1000 CST, with rain showers in the vicinity through 2000 CST. The winds aloft data valid for Birmingham for use between 1200 and 2300 CST expected the winds at 6,000 feet from 290 degrees at 36 knots, with a temperature of -6 degrees C or 21degrees Fahrenheit.

The briefing also included an AIRMET Zulu update 2 for portions of northern Alabama, Mississippi, Louisiana, Arkansas, Tennessee, Missouri, Iowa, Wisconsin, Michigan, the Great Lakes, Illinois, Indiana, and Kentucky. The advisory was valid at 1500 CST, and expected occasional moderate rime to mixed icing in-clouds and in-precipitation from the freezing level to 16,000 feet. The conditions were expected to move eastward and continue beyond 1500 CST.

The freezing level over Alabama was identified at 8,000 feet. The route of flight and the accident site were clear of this advisory at this time.

At 1244 EST a DUAT "abbreviated weather briefing" was requested for the route between Birmingham (KBHM) and Orlando (KMCO). The briefing included notice to airmen (NOTAMs), observations (METARs), radar reports (SD), Pilot Reports (UA), terminal forecasts (TAFs), winds and temperature aloft data (FD), and in-flight weather advisories (SIGMETs (WS), AIRMETs (WA), Center Weather Advisories (CWA), Convective SIGMETs (WST), and Severe Weather Forecast Alerts (WW)). While the content was sufficient, all of the in-flight advisories were to expire by 1500 CST and new ones issued. The briefing provided several adverse weather phenomena impacting the route of flight from icing, turbulence, and thunderstorms.

A pilot report included in that briefing for BHM indicated that 30 miles south of Vulcan (VUZ) at 1004 CST, a pilot flying a Cessna Citation business jet reported light to moderate rime type icing between 14,000 and 17,000 feet.

The registered owner of N87HK subscribes to XM Satellite Radio Inc. or specifically XM Satellite Weather, which provides alphanumeric weather data and graphics, such as surface analysis charts, NEXRAD weather radar sites, and displays of the current in-flight weather advisories. In reviewing XM Satellite Radio Inc, records it was noted that AIRMET Zulu 3 was issued at 1450 CST. The times of the AIRMETs are broadcast are at 02, 14, 26, 38, and 50-minutes past the hour, or every 12-minutes.

#### WRECKAGE AND IMPACT INFORMATION

The wreckage was located in a wooded area adjacent to the Childersburg-Fayetteville Highway, 8,000 block, in the vicinity of Childersburg, Alabama. On scene examination of the airplane was conducted by the FAA and the airplane manufacturer.

#### MEDICAL AND PATHOLOGICAL INFORMATION

No toxicology specimens were requested from the pilot by the NTSB and local law enforcement personnel.

#### TEST AND RESEARCH

Review of the Cirrus Design SR22 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual states in Section 2, Limitations, "This airplane is certified for the following flight operations: Day-Night-VFR-IFR (With required equipment) Flight into known icing is prohibited." Section 5, Performance Data states, the airplane will stall at 69 knots calibrated airspeed or 70 knots indicated airspeed with a 0 degree bank angle and 0 degrees flap at 3,400 pounds. The manual further states in Section 2, Limitations, Maneuver Limits, "Acrobatic maneuvers, including spins are prohibited. Note, Because the SR22 has not been certified for spin recovery, the Cirrus Airframe Parachute System (CAPS) must be deployed if the airplane departs controlled flight."

The compact flash card was removed from the airplane and forwarded through the FAA to the manufacture for readout of the Emax data. The data was consistent with the events as stated by the pilot. The data revealed that Airmet Zulu UPT 3 was transmitted over the XM radio to the airplane..

## ADDITIONAL INFORMATION

The wreckage and compact flash card was released to Atlanta Air Recovery, Griffin, Georgia, on February 17, 2006.

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	63, Male
<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>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	September 1, 2005
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	April 1, 2005
<b>Flight Time:</b>	12773 hours (Total, all aircraft), 681 hours (Total, this make and model), 12753 hours (Pilot In Command, all aircraft), 285 hours (Last 90 days, all aircraft), 64 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		



## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cirrus	<b>Registration:</b>	N87HK
<b>Model/Series:</b>	SR22	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	296
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	October 1, 2005 Annual	<b>Certified Max Gross Wt.:</b>	3400 lbs
<b>Time Since Last Inspection:</b>	61 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	605 Hrs at time of accident	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	I0550-N7B
<b>Registered Owner:</b>	Trench Shoaring Systems Inc.	<b>Rated Power:</b>	310 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	ALX,686 ft msl	<b>Distance from Accident Site:</b>	27 Nautical Miles
<b>Observation Time:</b>	16:00 Local	<b>Direction from Accident Site:</b>	140°
<b>Lowest Cloud Condition:</b>	Scattered / 4400 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Overcast / 5000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots / 18 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	280°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.79 inches Hg	<b>Temperature/Dew Point:</b>	11°C / 4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Birmingham, AL (BHM )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Orlando, FL (ORL )	<b>Type of Clearance:</b>	
<b>Departure Time:</b>	15:44 Local	<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	2 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Smith, Carrol
<b>Additional Participating Persons:</b>	David W Hargett; Birmingham FSDO-08; Birmingham, AL Bradley T Miller; Cirrus Design; Duluth, MN
<b>Original Publish Date:</b>	October 25, 2021
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=63102">https://data.ntsb.gov/Docket?ProjectID=63102</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).