



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Sedona, Arizona	Accident Number:	WPR11FA236
Date & Time:	May 25, 2011, 15:50 Local	Registration:	N224MD
Aircraft:	EMBRAER-EMPRESA BRASILEIRA DE EMB-500	Aircraft Damage:	Substantial
Defining Event:	Runway excursion	Injuries:	2 Serious, 3 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

Following an uneventful flight, the flight crew briefed the arrival to the destination airport and set the calculated landing speeds. The captain and the first officer reported that during final approach, it felt like the airplane was “pushed up” as the wind shifted to a tailwind or updraft before landing near the runway number markings. Upon touchdown, the captain applied the brakes and thought that the initial braking was effective; however, he noticed the airplane was not slowing down. The captain applied maximum braking, and the airplane began to veer to the right; he was able to correct back to the runway centerline, but the airplane subsequently exited the departure end of the runway and traveled down a steep embankment.

A pilot-rated passenger reported that throughout the approach to landing, he thought the airplane was high and thought that the excessive altitude continued through and into the base-to-final turn. He added that the bank angle of this turn seemed greater than 45 degrees.

Recorded communication from the cockpit voice and data recorder (CVDR) revealed that during the approach to landing, the flight crew performed the landing checks, and the captain noted difficulty judging the approach. About 1 minute later, the recording revealed that the ground warning proximity system reported “five hundred” followed by a “sink rate, pull up” alert about 16 seconds later. Data from the CVDR revealed that about 23 seconds before weight-on-wheels was recorded, the airplane was at an indicated airspeed of about 124 knots and descending. The data showed that this approximate airspeed was maintained until about 3 seconds before weight-on-wheels. The recorded data further showed that the approach speed was set to 120 knots, and the landing reference speed (VREF) was set to 97 knots.

Using the reported airplane configuration and the 3.5-knot headwind that was reported at the time of the approach and landing, calculations indicate that the vREF speed should have been about 101 knots indicated airspeed, which would have required a landing distance of about 3,112 feet. Utilizing the same airplane configuration and wind condition with the flight’s reported 124 knot indicated airspeed just before touchdown, the landing distance was calculated to be about 5,624 feet. The intended runway for landing was 5,132-feet long with a 1.9 percent downward slope gradient, and a 123-foot long overrun area.

A postaccident examination of the airplane, including the braking system, revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. The pilot misjudged the airplane’s speed during the final approach, which resulted in runway overrun.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilots’ unstabilized approach and excessive airspeed during approach, which resulted in an insufficient landing distance to stop the airplane before overrunning the runway.

Findings	
Aircraft	Descent/approach/glide path - Not attained/maintained
Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Landing-landing roll	Runway excursion (Defining event)
Landing-landing roll	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On May 25, 2011, about 1550 mountain standard time, an Embraer-Empresa Brasileira DE EMB-500 airplane, N244MD, sustained substantial damage during a runway overrun during landing at the Sedona Airport (SEZ), Sedona, Arizona. The captain, who was the flying pilot, and two of the three passengers were not injured. The first officer and one passenger sustained serious injuries. The airplane was registered to a private individual and operated by Superior Air Charter LLC., doing business as Jet Suite Air, Long Beach, California, under the provisions of Title 14 Code of Federal Regulations Part 135. Visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed. The flight originated from San Jose, California, about 1420 Pacific daylight time, with an intended destination of SEZ.

Information provided by a Jet Suite representative indicated that the on-demand charter flight originated from San Jose, California, and the purpose of the flight was to transport three passengers to Sedona, Arizona. After arrival in Sedona, the flight was scheduled to depart for Oakland, California, to pick up additional passengers before returning to Los Angeles, California.

The captain reported that following an uneventful flight, he briefed the first officer about the arrival to SEZ. About 20 miles from the airport, the flight crew notified air traffic control that they had the airport in sight and subsequently canceled their instrument flight rules (IFR) flight plan and proceeded on a visual approach to the airport. The captain said that the flight overflew the airport and entered a left downwind leg for runway 21 while conducting the descent and approach checklist. The captain stated that when they were established on downwind, the landing checklist was completed and a calculated 99 knot landing reference speed (vREF) was determined. The captain further reported that as he turned base leg at an airspeed of about 120 knots, he thought the airplane was low, and applied slight back pressure on the control yoke to arrest the descent prior to turning final to runway 21.

Upon turning final, he thought the airplane was high and reduced the power to idle. The captain stated that as the airplane neared the approach end of the runway, it felt like it was "pushed up" by a wind shift to a tailwind or an updraft and that the airplane touched down firmly near the runway number markings and he immediately applied brakes. During the landing roll, the captain felt that the initial braking was effective; however, he noticed the airplane was not slowing down, and applied maximum brakes. The captain stated that during

maximum brake application, the airplane began to veer to the right three times. He said that each time, he was able to steer the airplane back to the runway centerline, however, during the third time, the right main landing gear exited the runway surface; he steered the airplane back onto the runway surface; however, the airplane subsequently exited the departure end of the runway and traveled down an embankment.

The captain added that during the landing roll, he felt a loss of braking effectiveness from the left side that he corresponded with the antiskid system actuating. The captain could not recall the exact speed of the airplane at the time of touchdown, but recalled that the airplane was at about 120 knots during final approach and was slowing at the time of the landing.

The first officer reported that following an uneventful flight, air traffic control kept the airplane at 11,000 feet mean sea level (msl) until they had established visual contact with the airport. He recalled that when the flight was about 6 to 8 miles from SEZ, they informed air traffic control they had the airport in sight and subsequently canceled their IFR clearance. The first officer stated that the airplane was already slowed and that they extended the landing gear and lowered the flaps to the number one flap setting in order to descend. The first officer said that they entered the airport traffic pattern for runway 21 on a left crosswind prior to turning left downwind. After the airplane was established on the left downwind, a number two flap setting (26-degree deflection) was selected. The first officer further stated that the base leg and final approach was normal, noting the approach speed was 120 knots. During final approach to landing, the first officer felt the "wind pushing the airplane" followed by a firm landing around the 1,000-foot runway markers.

In a written statement, an airline transport pilot rated passenger seated in the left aft forward facing seat reported that they had an uneventful flight until the approach segment started. The passenger said that he started monitoring the flight closer when the pilot lowered the landing gear before they entered the airport traffic pattern. The passenger said that while looking out the window, he noted that the airplane seemed high. Shortly after this he could see the runway from a distance and assumed they would be landing on runway 3 since the runway had better terrain clearance and was uphill.

The passenger further reported that as the approach to landing began, he noticed that the flight was going to land on runway 21. As the flight started on the downwind leg, he thought the flight was high and felt that the excessive altitude continued through and into the base to final turn. The passenger stated that the bank angle of the base leg to final turn seemed greater than 45 degrees and that he was uncomfortable with the steep angle on the final approach. The passenger said that as the flight continued the descent on final and crossed high over the threshold, he thought the flight crew would initiate a go-around, however, the flight continued the approach to touchdown.

The passenger stated that the flight continued the landing roll and started to swerve both left and right. He said that this continued to get worse as the airplane progressed down the

runway. He added that in addition to the lateral movement, the airplane banked severely in both directions.

A witness, located in the airport terminal building, reported that he had received a landing request from the accident airplane on the common traffic advisory frequency. The witness responded to the landing request with the current automated weather observing system (AWOS) and informed the pilots that runway 3 was the uphill runway. The witness said that he attempted to transmit this information twice with no response. He further stated that he then observed the accident airplane land within the touchdown area on runway 21 and "fish tail" on the runway at a "high rate of speed" until it exited the departure end of the runway. The witness further reported that he observed the airplane strike a chain link fence and continue out of sight down an embankment.

PERSONNEL INFORMATION

The captain, who was the flying pilot, age 62, held an airline transport pilot certificate with airplane multi-engine land ratings, and a commercial pilot certificate with an airplane single-engine landing rating. The captain also held multiple type ratings in various transport category aircraft. A first-class airman medical certificate was issued to the pilot on March 10, 2011, with no limitations stated.

Review of company training records revealed that the captain underwent his most recent CFR Part 135 proficiency check for the accident make/model airplane on March 8, 2011. Company records showed that at the time of the accident, the captain had accumulated 23,970 hours of total flight time, of which 570 hours were in the accident make/model airplane, 51 hours in the previous 30 days, and 2 hours within the previous 24 hours.

The first officer, who was the non-flying, age 32, held an airline transport pilot certificate with an airplane multi-engine land rating, and a commercial pilot certificate with an airplane single-engine landing rating. The first officer also held type ratings for various corporate jet aircraft. A first-class airman medical certificate was issued to the pilot on April 22, 2011, with the limitation stated "must wear corrective lenses."

Review of company training records revealed that the captain completed his most recent CFR Part 135 proficiency check for the accident make/model airplane on March 31, 2011. Company records showed that at the time of the accident, the captain had accumulated 1,886 hours of total flight time, of which 74 hours were in the accident make/model airplane, 38 hours in the previous 30 days, and 2 hours within the previous 24 hours.

AIRCRAFT INFORMATION

The six-seat, low-wing, retractable landing gear, pressurized t-tail airplane, serial number (S/N) 50000057, was manufactured in 2009. It was powered by two Pratt & Whitney Canada PW617F-E turbofan engines.

Review of the pilot operating handbook (POH) revealed that the main brakes are a brake-by-wire system controlled by either the Pilot or Copilot via rudder pedals. The rudder pedals actuate the pedal transducers that in turn send the brake inputs to the Brake Control Unit (BCU). The BCU, which is connected to the DC BUS 2, receives all brake interface signals and controls the Shutoff Valve (SOV) and both Brake Control Valves (BCV's) for braking capability. The POH states that "In case of hydraulic system failure, the Emergency/Parking brake is available and must be used carefully to stop the airplane."

The POH states in part, "...the antiskid protection system prevents tire skidding and maximizes brake efficiency according to the runway surface." The system controls the amount of hydraulic pressure applied to the brakes and, if necessary, reduces the wheel brake pressure in order to recover wheel speed and prevent tire skidding. The antiskid system is deactivated for wheel speeds below 10 knots. In addition, the antiskid protection is not available for the emergency/parking brake system.

The airplane was not equipped with thrust reversers, spoilers, leading edge slats, or a drag chute.

METEOROLOGICAL INFORMATION

A National Transportation Safety Board (NTSB) staff meteorologist prepared a factual report for the area and time frame surrounding the accident.

A review of the recorded weather data from the AWOS at SEZ revealed that 15 minutes prior to the time of the accident, wind was from 250 degrees at 3 knots, visibility 10 statute miles, clear sky, temperature 27 degrees Celsius, dew point minus 4 degrees Celsius, and an altimeter setting of 30.04 inches of Mercury. Recorded weather data about 5 minutes after the time of the accident recorded weather conditions as wind from 250 degrees at 5 knots, gusting to 14 knots, visibility 10 statute miles, clear sky, temperature 28 degrees Celsius, dew point minus 4 degrees Celsius, and an altimeter setting of 30.04 inches of Mercury.

A witness located within the airport terminal reported that upon initial communication with the flight crew, when they were inbound for landing, he reported the wind to be from 170 to 190 degrees at three to five knots.

For further weather information, see the Meteorological Factual Report within the public docket.

AIRPORT INFORMATION

The Sedona Airport (SEZ) is a non-towered airport that is situated on the top of a mesa near Sedona, Arizona, at an elevation of 4,830 feet mean sea level (msl). The airport features a 5,132-foot long and 100-foot wide asphalt runway (3/21), oriented on a heading of 032 degrees

and 212 degrees magnetic respectively. Airport management reported that runway 3 is typically used for calm or light wind conditions due to the up sloping gradient.

Runway 21 features a 1.9 percent downward slope gradient and is equipped with a precision approach path indication (PAPI) system. According to airport management, the PAPI for runway 21 was out of service at the time of the accident and a Notice to Airman (NOTAM) was active regarding the status of the PAPI. In addition, runway 21 features an overrun area of about 123 feet. Beyond the departure end of runway 21, down sloping terrain, varying between 40 to 45 degrees, and extended about 800 feet to the valley floor.

FLIGHT RECORDERS

The airplane was equipped with an L-3/Fairchild FA2100 cockpit voice and data recorder (CVDR). The unit was sent to the NTSB Research and Engineering Laboratory, Washington, DC for data extraction. The CVDR recorded 223 hours of data, which contained the accident flight.

The recorded data revealed that about 23 seconds before weight-on-wheels was recorded, the aircraft was on a heading of about 213 degrees magnetic, at an indicated airspeed of about 124 knots, descending through an altitude of 5,124 feet. The data showed that this approximate airspeed was maintained until about 3 seconds before weight-on-wheels. The indicated airspeed at first recording of weight-on-wheels was 117 knots.

The recorded data showed that the avionics displays had the approach speed (vAPP) set to 120 knots, approach climb speed (vAC) set to 107 knots, and the landing reference speed (vREF) was set to 97 knots.

The Engine Indication and Crew Alerting System (EICAS) parameters showed no messages of anti-skid failure, low hydraulic pressure, or emergency brake low pressure. Further, no master warnings or caution messages were recorded. There were also no failures or anomalies of the anti-skid or brake system recorded.

The CVDR contained two hours of recorded communication from captain's and first officer's audio panels in addition to the cockpit area microphone. The recordings revealed that at 1539, the captain briefed the visual approach to runway 21, noting that landing speeds were set. At 1548, the flight crew was cleared for the visual approach to SEZ by Air Traffic Control (ATC) and subsequently canceled their IFR clearance. The recording revealed that shortly after, the captain requested that the first officer call Sedona Unicom and verify that the traffic pattern to runway 21 was left hand. The Unicom operator informed the flight crew that the traffic pattern was left hand and that runway 3 was sloped uphill. Communications between the flight crew revealed that they discussed the runway slope and agreed it was not a factor.

At 1551:20, the first officer reported on the airports Common Traffic Advisory Frequency (CTAF) that the flight was at 8,500 feet entering a left crosswind for runway 21. The radio transmission was immediately followed by the Unicom operator reporting wind was from 170

degrees at 5 knots. At 1552:34, the flight crew performed the landing checks and noted the airspeed was "a-appish." The captain noted difficulty judging the approach and shortly thereafter mentioned an unreferenced number of forty-eight hundred." At 1553:26, the first officer reported on CTAF that the airplane was on left base for runway 21. At 1553:42, the ground warning proximity system (GPWS) reported "five hundred" followed by a "sink rate, pull up" alert 16 seconds later to which the captain replied "yeh, I gotchy'a." The recordings captured the sound of touchdown at 1554:06.

For further information, see the Cockpit Voice Recorder and Flight Data Recorder reports within the public docket.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed that the airplane came to rest upright on an approximate 40-degree incline, oriented on a heading of about 335 degrees magnetic, approximately 386 feet beyond the departure end of runway 21. A section of chain link fence, located about 40 feet beyond the departure end of runway 21 was damaged and displaced throughout the wreckage debris path. Numerous damaged trees with heights between 2 and 15 feet were noted along the debris path. A large area of displaced cactus and sage brush was noted about 291 feet beyond the departure end of runway 21 and extended to the main wreckage.

Examination of runway 21 revealed that a skid mark, consistent with the left main wheel began about 1,621 feet from the approach end of runway 21. A secondary skid mark, consistent with the right main landing gear began about 1,771 feet from the approach end of the runway. The skid mark, consistent with the left main landing gear was found to be semi intermittent from the first identified point to the end of the runway. The skid mark consistent with the right main landing gear continued from the first identified point, to the end of the runway, with the exception of one area just beyond taxiway 8, where evidence of the right main landing gear exiting the runway surface for about 300-feet was observed. The skid marks both appeared consistent with the airplane being oriented along the runway centerline, however, progressively tracked towards the right side of the runway and back to the runway centerline three times.

The left and right main landing gear appeared to be intact and remained attached to their respective mounts. Both the left and right main landing gear tires rotated freely by hand and appeared to be inflated. No evidence of flat spots was observed on the tire surfaces. Both tire surfaces exhibited a rough, sandpaper like texture.

TESTS AND RESEARCH

The Break Control Unit (BCU), manufactured by Meggitt Aircraft Braking Systems, part number 900050343, serial number JUL10-1203 was removed from the airframe and examined at the manufacturer under supervision of the NTSB IIC. Recorded data within the BCU was downloaded using company software. Review of the recovered data revealed no stored faults

related to the accident flight. The BCU was installed on a test bench and functionally tested. The BCU operated normally with no anomalies noted.

A performance study was completed using the flight data provided by the Flight Data Recorder (FDR) specialist group and was used to analyze the aircraft's final approach path. The airplane's glide slope during the last 1.5 nautical miles (NM) of flight was approximately 3.7 degrees. The aircraft's speed as it touched down was about 128 knots airspeed, 123 knots ground speed, and an indicated airspeed of 117 knots. During the aircraft's last 30 seconds of the descent, the airplane's descent rate was approximately 1,374 feet per minute. The recorded data showed that the aircraft touched down within the first 1,500 feet of runway. The captain applied the wheel brakes and the first officer did not apply the brakes throughout the landing roll. The thrust lever angles had been brought back to zero about one mile before touchdown and remained there for about 24 seconds after weight on wheels, where they were advanced to a thrust lever angle of about 70-degrees, or the maximum detent.

For further information, see the Performance Study report within the public docket.

According to an Embraer representative, data from the CVDR and weight calculations showed that the airplane's gross weight was about 9,128 pounds. The landing was performed with flaps in a 26-degree setting (flap 2/3 position), with no anti-ice or de-ice systems operating.

Using the Approach Flaps 1 and Landing Flaps 3 Engine ANTI-ICE OFF/ON – WINGSTAB OFF reference chart in Section 5, page 5-20 of the Airplane Flight Manual (AFM), the vREF speed for the given conditions and a weight of 9,500 pounds was 104 knots indicated airspeed.

The Embraer representative reported that inputting the aircraft weight of 9,128 pounds, 26-degree flap setting, anti-ice off, altimeter setting of 30.04 inches of mercury, runway slope of -1.9 percent, airport elevation of 4,830, outside air temperature of 82.4 degrees Fahrenheit, and dry runway condition, and dry runway condition into the software Opera version 4.1, the calculated vREF speed was 101.5 knots indicated airspeed.

The unfactored landing distance extrapolated from the Unfactored Landing Distance (ft) Engine ANTI-ICE Off/On – Wingstab OFF – Flaps 3 reference chart in Section 5, page 5-25, altitude 5,000 feet, and 0 knot headwind, was about 3,112 feet.

When using the indicated airspeed of 124.5 knots when the airplane crossed 50-feet above ground level according to data recorded by the FDR, and into a 3.5 knot headwind, the unfactored landing distance calculated by software Operate version 4.1 was found to be about 5,624 feet.

Pilot Information

Certificate:	Airline transport; Commercial	Age:	62, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 10, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 8, 2011
Flight Time:	23970 hours (Total, all aircraft), 570 hours (Total, this make and model), 51 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	Age:	32, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	April 22, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 31, 2011
Flight Time:	1886 hours (Total, all aircraft), 74 hours (Total, this make and model), 38 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	EMBRAER-EMPRESA BRASILEIRA DE	Registration:	N224MD
Model/Series:	EMB-500	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	50000057
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	May 9, 2011 Continuous airworthiness	Certified Max Gross Wt.:	10516 lbs
Time Since Last Inspection:		Engines:	2 Turbo fan
Airframe Total Time:	1052 Hrs as of last inspection	Engine Manufacturer:	Pratt & Whitney Canada
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	PW617F-E
Registered Owner:	DR LOKESH S TANTUWAYA MD INC	Rated Power:	1695 Lbs thrust
Operator:	Superior Air Charter LLC	Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:	Jet Suites	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	SEZ,4830 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	15:55 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots / 14 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	250°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	28°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Jose, CA (SJC)	Type of Flight Plan Filed:	IFR
Destination:	Sedona, AZ (SEZ)	Type of Clearance:	IFR
Departure Time:	14:20 Local	Type of Airspace:	

Airport Information

Airport:	Sedona Airport SEZ	Runway Surface Type:	Asphalt
Airport Elevation:	4830 ft msl	Runway Surface Condition:	Dry
Runway Used:	21	IFR Approach:	Visual
Runway Length/Width:	5132 ft / 100 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious, 2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious, 3 None	Latitude, Longitude:	34.848331,-111.78833(est)

Administrative Information

Investigator In Charge (IIC):	Cawthra, Joshua
Additional Participating Persons:	Mirlo E Ochoa; Federal Aviation Administration; Scottsdale, AZ Daniel S Marimoto; Embraer; Ft. Lauderdale, FL Alex Wilcox; JetSuite; Irvine, CA Brian Coulter; JetSuite; Irvine, CA Kevin Kurko; Meggitt Aircraft Braking Systems; Dayton, OH
Original Publish Date:	August 29, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=79221

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](#).