



National Transportation Safety Board

Marine Accident Brief

Collision and Sinking of Towing Vessel *Miss Natalie*

Accident no.	DCA15LM023
Vessel name	<i>Miss Natalie</i> , <i>George W Banta</i> tow
Accident type	Collision and sinking
Location	Lower Mississippi River, mile marker 162, Romeville, Louisiana
Date	May 30, 2015
Time	0755 central daylight time (coordinated universal time – 5 hours)
Injuries	One fatality
Property damage	Total loss of vessel, estimated at \$1.8 million
Environmental damage	None
Weather	Clear, visibility 10 miles, winds calm, air temperature 76°F, dew point 75°F, humidity 96%, pressure 30.06 inches.
Waterway information	The navigable channel in the Lower Mississippi River from Baton Rouge at mile marker 232.4 to New Orleans is 45 feet deep and 500 feet wide. Based on historical data, high-water surface currents may have ranged from 3.6 to 5.5 mph.

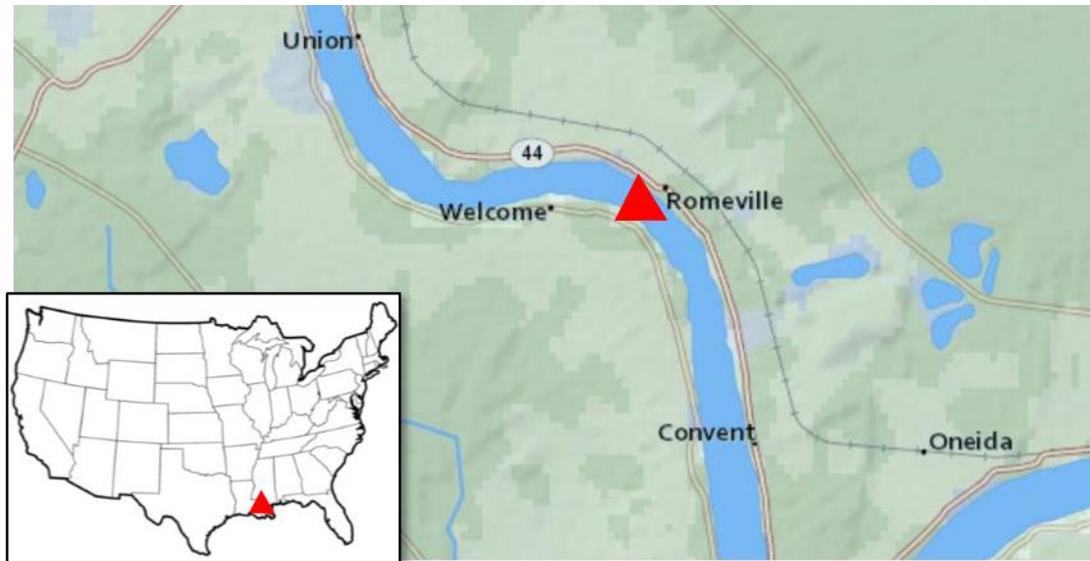
About 0755 local time on May 30, 2015, the uninspected towing vessel *Miss Natalie* collided with the tow of the uninspected towing vessel *George W Banta* while the *Miss Natalie* was attempting to remove one of the tow's barges. Shortly afterward, it capsized and sank on the Lower Mississippi River in Romeville, Louisiana. Four of the five crewmembers escaped, but one deckhand died. The vessel sustained an estimated \$1.8 million in damages rendering it a constructive total loss. No pollution was reported.



***Miss Natalie*. (Photo by Western Rivers Boat Management)**

*Unless otherwise noted, all miles in this report are statute miles, and all speeds are over the ground.

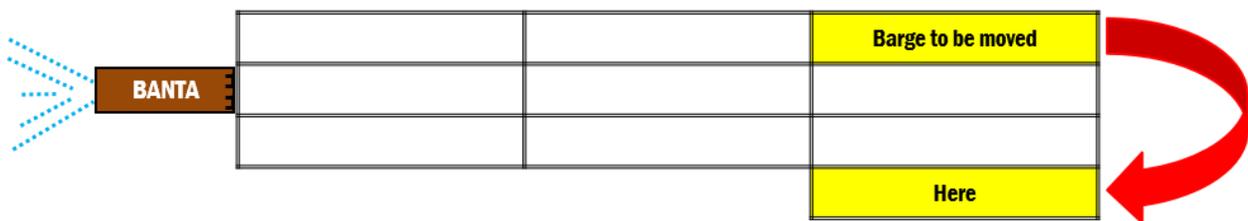
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**Red triangles identify the location of the collision on the Lower Mississippi River.
(Background by National Geographic MapMaker Interactive)**

The *Miss Natalie* was a fleet boat—a towboat used to assemble or dismantle larger tows in a limited geographic area known as a fleeting area. It got under way at 0530 from Convent, Louisiana, at mile marker 161, to check the moorings of barges in the fleeting area as well as pick up and drop off barges nearby on the Mississippi River.

Sailing upriver, the captain of the *George W Banta* contacted the captain of the *Miss Natalie* to inform him that he was pushing nine loaded barges and intended to drop off eight. With the nine barges in a three-by-three towing configuration, both captains agreed that the captain of the *Miss Natalie* would move the *George W Banta*'s port lead barge, which was the only barge carrying coal, to the starboard side of the tow to facilitate dropping off the other barges, whose cargo included soybeans and corn. Each barge was 200 feet long and 35 feet wide, with the exception of the coal barge that was 195 feet long.

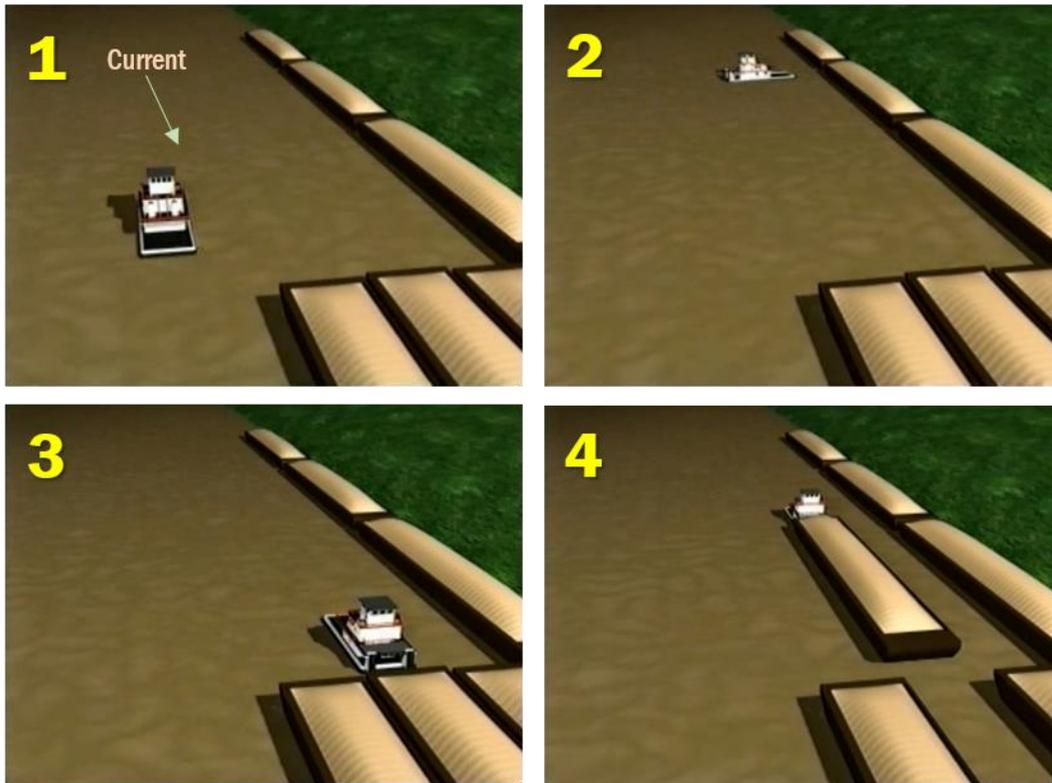


***Miss Natalie* intended to move the port lead barge to the outboard of the starboard lead barge of *George W Banta* tow.**

About 0750 and less than a half mile from the *George W Banta*, the *Miss Natalie* captain informed the *George W Banta* captain that he was going to “downstream” in order to relocate the barge. Downstreaming is a procedure in which a towboat moves downstream with the current in order to approach and land on another object, such as a fleet, dock or another tow. Generally, this maneuver involves a fleet boat heading “downstream toward [a tow], preferably with the engines in reverse,” as described in a report and illustrated in a video by the US Coast Guard and the American Waterways Operators. This procedure “allows the [fleet] boat to move toward [a tow] at a slower speed than the current, idling in place if necessary. ... The [fleet boat] will face up to

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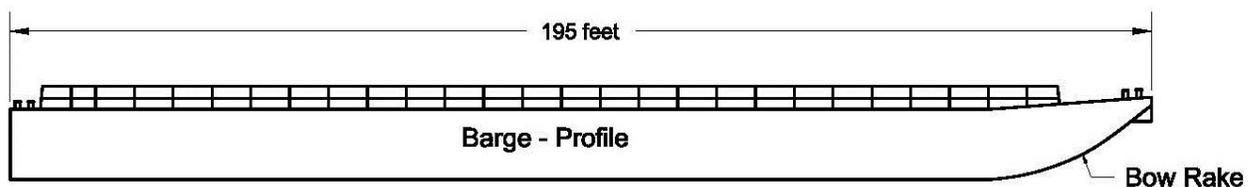
the barge squarely, deckhands will tie off to the barge, and the [fleet] boat will back out the barge to remove it from the [tow].” When downstreaming on a moving tow, it is critical to the maneuver that the tow heading upriver maintains 0-mph speed over the ground as the fleet boat approaches.



In still images from a video on downstreaming by the Coast Guard and the American Waterways Operators, the fleet boat (1) moves up river against the current before (2) turning around to (3) face up to the barge and (4) remove it.

However, the captain of the *George W Banta* questioned the plan to downstream and asked if there was an alternative. At the time, the surface current may have been as high as 5.5 mph (based on a comparison between the current river stage and the historical US Army Corps of Engineers’ river current data) and therefore swift. The captain of the *Miss Natalie*, nonetheless, assured the *George W Banta* captain that he had accomplished this task numerous times. According to his interview with Coast Guard investigators, he had conducted hundreds of downstreaming maneuvers while working in fleeting operations since 2007.

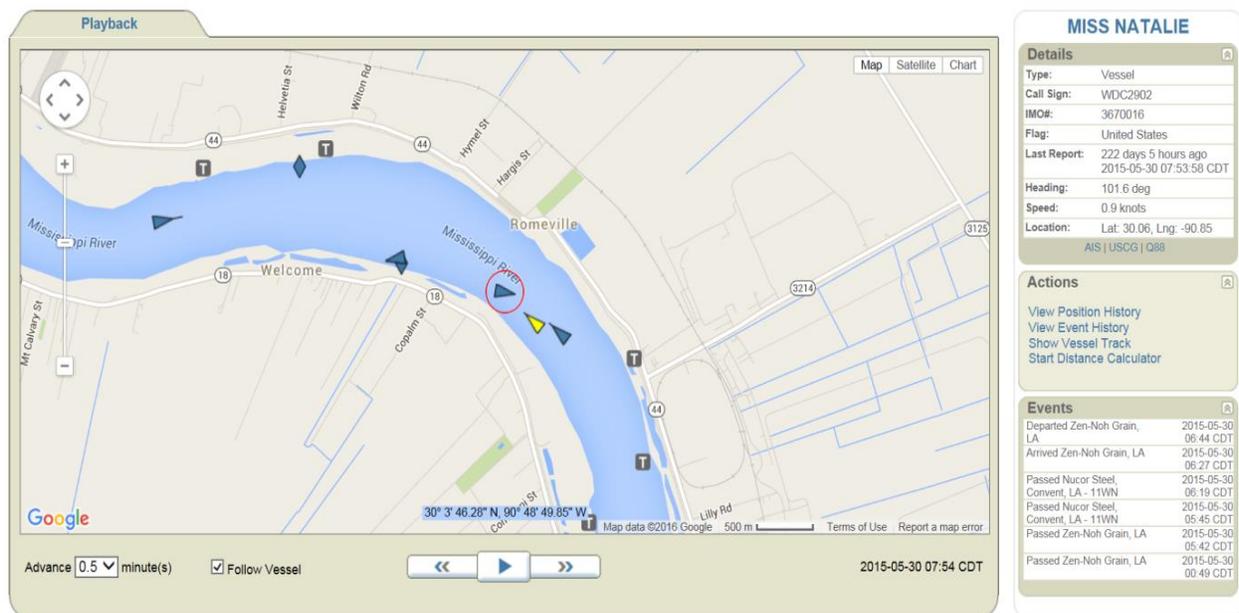
About 0753, the *George W Banta* captain said that he was at idle speed moving up river against the current on the left-descending bank near mile marker 162. (Automatic identification system [AIS] data shows the vessel’s speed at 3.22 mph around this time.)



Starboard-side profile of the port lead barge in *George W Banta*’s tow with the rake forward.

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The *Miss Natalie* captain told investigators that he intended to approach the barge facing up on its raked end. At 07:53:30, as the vessels were 650 feet apart, the *Miss Natalie* captain began approaching the port lead barge of the *George W Banta* tow, drifting with the current with the engines astern. (AIS data confirms the reduction in speed of the *Miss Natalie* from 3.68 mph at 07:53:18 to 1.04 mph at 07:53:58, seconds before the collision.) Deckhand no. 2 said that he and deckhand no. 4 noticed that the tow, however, was still moving toward them as the *Miss Natalie* was beginning to face up to it. Deckhand no. 4 alerted the captain, who then backed down the vessel. But when they reached within about 2 feet of the port lead barge with the rudders amidships, the stern swung quickly to port, pinning the portside of the tugboat across the head of the *George W Banta*'s tow. The *Miss Natalie* captain responded by placing all four engines full ahead and moving his rudders back and forth. Next, he put all four engines in reverse to separate his vessel from the barge but was unsuccessful. (The captain claimed he had no issues with the engines or steering equipment during the accident.)



PortVision AIS data of *Miss Natalie* (circled in red) and *George W Banta* tow (in yellow) at 07:54.

After the *Miss Natalie* became pinned sideways in front of the *George W Banta* tow at about 07:54:47, the captain said his vessel started listing to starboard at a 45-degree angle. (AIS data also reveals that the *Miss Natalie* was moving at nearly the same speed and direction as the *George W Banta*, which was traveling at 2.42 mph, indicating that the *George W Banta* was pushing the *Miss Natalie* after it became pinned.) The force of the river current on the starboard side below the main deck combined with the force from the forward movement of the tow on the port side—specifically, where the top of the barge's rake contacted the *Miss Natalie* above the main deck—together caused the *Miss Natalie* to capsize. As the *Miss Natalie* was pinned under the barge rakes, water entered through two open doors on the main deck flooding the hull and consequently sinking the vessel. (A photo taken during the salvage of the *Miss Natalie* shows these two portside doors were open. Investigators could not determine if the two doors on the starboard side were also open at the time of the accident.)

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Immediately after the collision, the captain of the *Miss Natalie* made a Mayday call on very high frequency (VHF) radio channels 67 and 72. After failing to reach the general alarm button, he grabbed his life jacket stored next to him. While he was trying to don his life jacket, water swept him out through the front window of the wheelhouse.

Deckhands no. 2 and no. 4 were already on the main deck near the bow at the time of the collision. Deckhand no. 2 jumped from the listing *Miss Natalie* onto the *George W Banta* tow, while deckhand no. 4 attempted to open the portside watertight door of the first deck above the main deck to yell for the other two deckhands. But “suction,” said deckhand no. 4, would not allow him to open the door. He too jumped to safety onto the tow.

Deckhands no. 1 and no. 3, who were awakened by the collision, had met in the hallway between their rooms on the first deck above the main deck. Deckhand no. 1 told deckhand no. 3, “We are going down, let’s get the hell out of here.” During a post-accident interview, deckhand no. 1 told investigators that he saw deckhand no. 3 return to his stateroom. After climbing out of the starboard side watertight door of the first deck above the main deck, deckhand no. 1 climbed over the *Miss Natalie* and jumped onto one of the *George W Banta* barges. Deckhands from both vessels pulled the *Miss Natalie* captain from the water.



Salvage of *Miss Natalie*, October 20, 2015. (Photo by Coast Guard)

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The *Miss Natalie* sank at approximately 0756, based on the last AIS position information recorded at 07:56:18. When the vessel was salvaged five months later on October 20, 2015 (a delay due to the high-water conditions), the remains of the deceased crewmember (deckhand no. 3) were found on the second deck, one deck above the accommodation deck and one deck below the wheelhouse.

“In a downstreaming casualty, the towboat may have difficulty approaching the barge and facing off to it squarely. If the towboat meets the barge at an angle, and if there is a strong enough current, the boat may become pinned sideways against the barge. In these cases, water may rise up onto the deck and enter the vessel itself through doors or windows. The vessel may capsize and sink or, if it is pinned under the rakes of the barges, be pulled down under the fleet itself. Survivors or witnesses have described incidents as happening with surprising speed, with the vessel sinking in less than one minute. Crewmembers who are not able to climb onto the fleet or rescue vessels are at extreme risk.”

—*Reducing Downstreaming Incidents*, a report by the Coast Guard and the American Waterways Operators.

A quality action team (QAT) formed through a partnership between the Coast Guard and the American Waterways Operators conducted a risk assessment of downstreaming accidents and made recommendations for safely employing this maneuver. Its findings were published in the 1997 report *Reducing Downstreaming Incidents* and later produced for a public information video titled *Downstreaming Techniques for the Inland Waterways: Better Safe Than Sorry*.¹ Essentially, it found that “downstreaming is a common procedure and one that is done without incident under most conditions,” noting an average of just 1.6 downstreaming-related towboat sinkings a year between 1992 and 1996. However, “under swift current conditions, usually associated with high river events, downstreaming has resulted in vessel sinkings and several crew fatalities.”

The QAT recommended that, prior to making an attempt to downstream, wheelhouse personnel should:

- ensure that doors and windows on the first deck are closed and secured;
- ensure that the fleet boat has adequate freeboard aft; and
- manage factors such as the placement of barges so that the box ends face upstream when practical.

In the case of the *Miss Natalie*, the characteristics of the downstreaming operation mirrored almost exactly those that the QAT associated with vessels at risk for capsizing:

- **Swift-river current**, as high as 5.5 mph
- **Opened doors on main deck**, namely, the two aft doors on the port side

¹ For an online copy of the report, visit <http://www.americanwaterways.com/initiatives/safety-environmental-sustainability/coast-guard-awo-safety-partnership>, where it is listed under “Mid-America Regional Quality Steering Committee.” To view the video, visit <https://vimeo.com/134966988>.

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- **Low freeboard**
- **Upstream-facing rakes** on the tow's lead barges

Also adding to the safety risk was the speed of the *George W Banta* tow at about 2 mph. In fact, the QAT strongly states, “As a rule [downstreaming on line tows] should be avoided,” because “if the tow moves at a critical moment, the downstreaming boat may be swept under the rake end of a barge very quickly.” That is exactly what happened in this accident: the forward movement of the tow and its portside contact with the *Miss Natalie* at a location above the main deck added to the heeling moment from the river current on the starboard side. The two exterior forces acting on the opposite sides of the vessel, one low and one high, rolled the vessel to starboard along its longitudinal axis, thereby capsizing the vessel.

While the QAT video recommends that operators approaching a fleet should always line up with the current, not the fleet, because “the fleet may sit at an angle to the current,” lining up with the current when approaching the *George W Banta* tow, similarly, would have been difficult in a bend on a river. In a bend, the current flows in a curve rather than in a straight line. When the *Miss Natalie* was squaring up to the barge slowly in a bend of the river, the current may have applied force on its starboard side, instead of on its stern, which caused the vessel to pivot to port.

Furthermore, according to the QAT report, vessels with “1350 horsepower or less are the most likely to become involved in a downstreaming incident,” unlike “larger boats [which] are generally powerful enough to avoid becoming pinned against fleets or other fixed facilities.” The *Miss Natalie*'s 1600 horsepower engine may have been able to overcome the force of the current alone, but, in this accident, it was not powerful enough to escape the forward moving *George W Banta* tow.

As another recommendation from the QAT report, companies are advised to support the judgment of vessel operators and not encourage them to perform any maneuver they are not comfortable executing. The *Miss Natalie* captain, who said he had downstreamed hundreds of times, told investigators he had the authority to make go/no-go downstreaming decisions. Sometimes, he added, his company would advise him to refrain from performing the operation based on a high-river stage. The Coast Guard officially raises high-water awareness by issuing a *Marine Safety Information Bulletin* when the river gauge on the Mississippi River at mile marker 102.8 reaches 12 feet. On the day of the accident, the river gauge measured slightly below the Coast Guard's benchmark, at 11.65 feet; therefore, the decision to downstream was left at the discretion of the captain.²

Both the vessel company's vice president for operations and the New Orleans fleet manager said they had read the QAT report and thus were aware of its contents, including providing captains the authority to decide when not to downstream. The fleet manager told investigators that he had hired the captain based on his extensive experience in downstreaming as a fleet boat captain. Believing his choice was appropriate in that moment, the captain said he would have made the same decision given the opportunity again under the same circumstances.

² Although the QAT report focuses on incidents involving high water, a risk may exist even if the water level is near a high-river stage.

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Probable Cause

The National Transportation Safety Board determines that the probable cause of the sinking of the towing vessel *Miss Natalie* was its captain's decision to downstream on a line-haul tow given the prevailing conditions. Contributing to the sinking was the *George W Banta* tow moving ahead as the *Miss Natalie* approached rather than holding its position in the river.

Caution during Downstreaming

Downstreaming accidents can occur even when it's not high water as defined by the local high water action plans. Owners and operators should encourage mariners to be aware of prevailing conditions and assess risks, especially when choosing to downstream on a line-haul tow. As this accident demonstrates, line-haul tow captains and pilots must hold their position as the fleet boat approaches and therefore must assess whether they can accomplish the maneuver given their tow and prevailing conditions.

Update on Downstreaming Procedures

On June 20, 2016, the Coast Guard issued a final rule, "Inspection of Towing Vessels" that included 46 *Code of Federal Regulations* 140.610(e), requiring all doors on the main deck to be closed when a vessel is downstreaming. Neither the QAT report or the risks associated with downstreaming was discussed.

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Vessel Particulars

Vessel	<i>Miss Natalie</i>	<i>George W Banta</i>
Owner/operator	Quality Marine Services Inc.	M/V George LLC
Port of registry	Little Rock, Alaska	Baton Rouge, Louisiana
Flag	United States	United States
Type	Towing vessel	Towing vessel
Year built	1980	1954
Official number (US)	621619	266928
IMO number	None	5129095
Construction	Steel	Steel
Length	59.1 ft (18 m)	95.8 ft (29.2 m)
Draft	7.6 ft (2.3 m)	8.4 ft (2.6 m)
Beam/width	28.5 ft (8.7 m)	30 ft (9.1 m)
Gross tonnage	143 gross tons	267 gross tons
Engine power	1600 hp (1193 kW);	2400 hp (1790 kW)
Persons on board	5	4

NTSB investigators worked closely with our counterparts from Coast Guard Sector New Orleans throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA15LM023.

Issued: September 20, 2016

The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under Title 49 *United States Code*, 1131. This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.

The NTSB does not assign fault or blame for a marine casualty; rather, as specified by NTSB regulation, “[NTSB] 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*, 831.4.

Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by conducting investigations 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*, 1154(b).