



National Transportation Safety Board

Marine Accident Brief

Subsea Pipeline Damage by Tug and Barge *Valiant/Everglades*

| | |
|-----------------------------|--|
| Accident no. | DCA15LM003 |
| Vessel name | Tug <i>Valiant</i> and barge <i>Everglades</i> |
| Accident type | Loss of propulsion/pipeline damage |
| Location | Gulf of Mexico about 120 nautical miles southeast of Galveston, Texas 28° 14' N, 92° 46' W |
| Date | November 17, 2014 |
| Time | 0600 central standard time (coordinated universal time – 6 hours) |
| Injuries | None |
| Damage | Natural gas pipeline: est. \$2 million |
| Environmental damage | None reported |
| Weather | Northerly wind 30 knots with gusts to 35 knots, visibility 8 nautical miles, wave height 8–10 feet |
| Waterway information | Gulf of Mexico, open water, East Cameron production field |

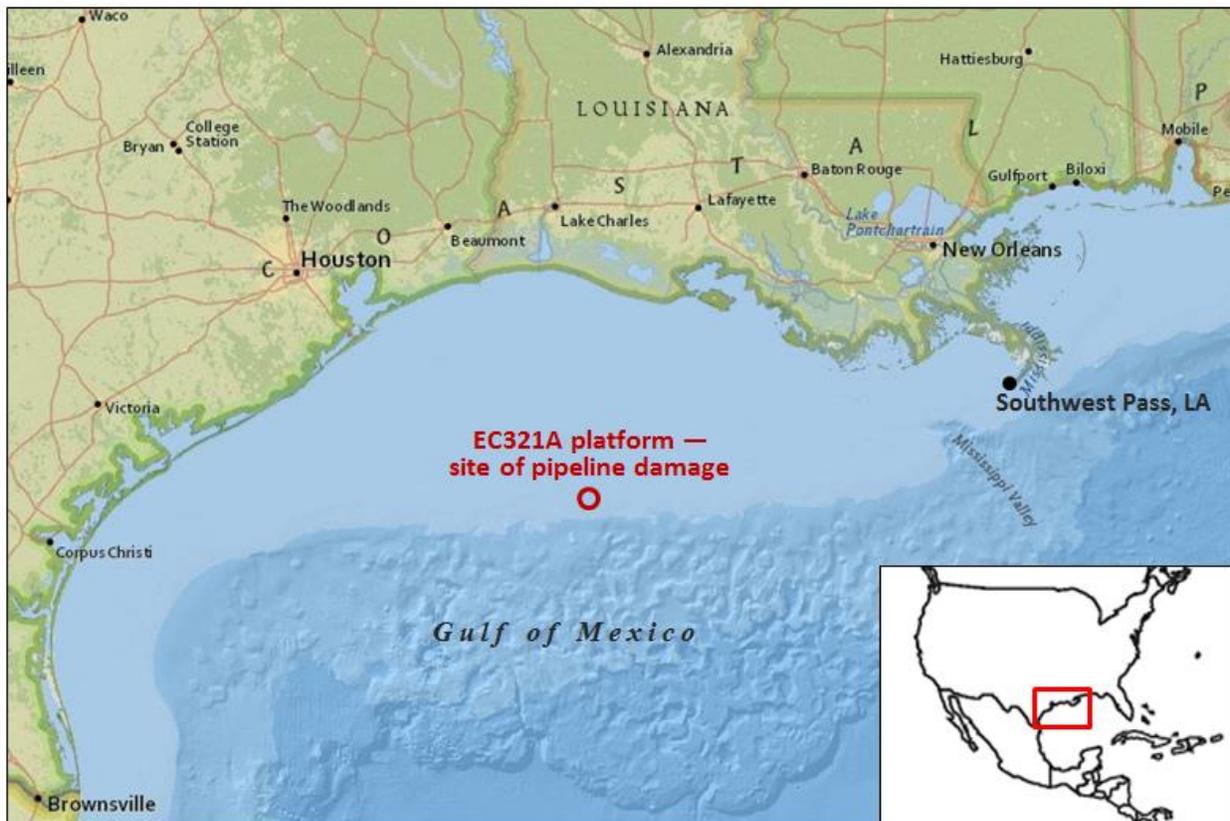
The articulated tug and barge (ATB) unit *Valiant/Everglades* lost propulsion and drifted to within about 20 yards of the East Cameron (EC) 321A production platform in the Gulf of Mexico, forcing the shutdown of the platform and evacuation of its 35 crewmembers about 0600 on November 17, 2014. The captain of the *Valiant* ordered the anchor dropped to slow the vessel until propulsion was restored, and in the process of backing away, the anchor ruptured a subsea pipeline, causing an estimated \$2 million in damage and the release of a total of about 249,800 mcf of natural gas.¹ Neither the platform nor the vessel was damaged, and no one was injured.



Tug *Valiant* and barge *Everglades* under way in Port Arthur, Texas. (Photo by Kirby)

¹ mcf = thousands of cubic feet

Subsea Pipeline Damage by Tug and Barge *Valiant/Everglades*



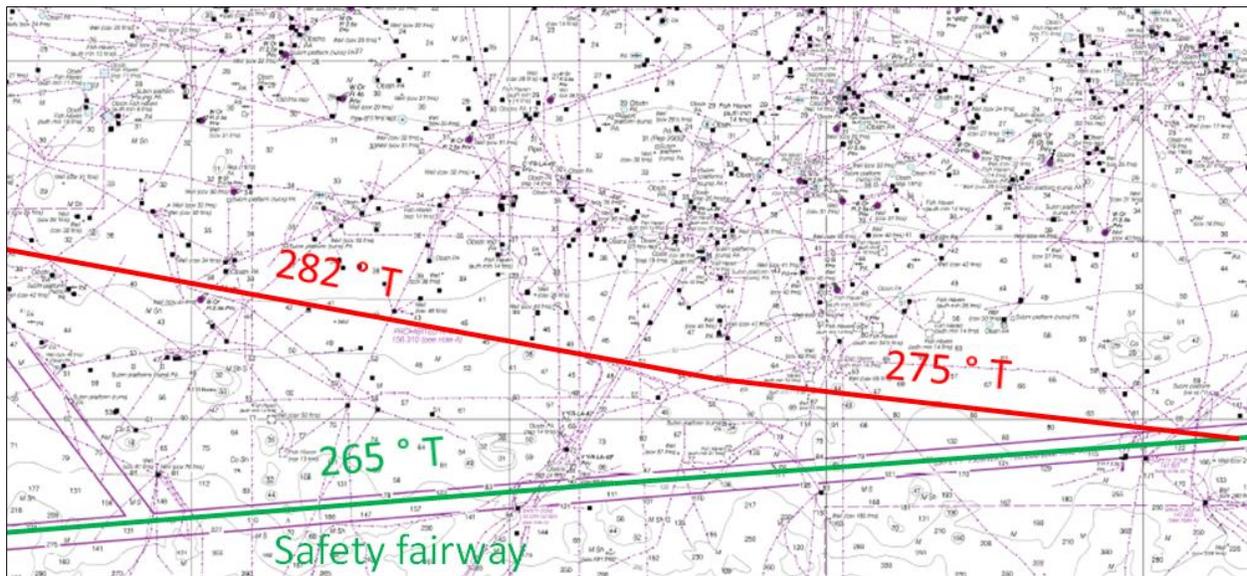
Site of production platform EC321A, where the *Valiant's* anchor damaged a subsea platform. (Background by National Geographic MapMaker Interactive)

Prior to getting under way, the captain directed the crew to make the vessel ready for sea and to expect rough sea conditions during transit. The *Valiant/Everglades* left anchorage in St. Charles, Louisiana, on November 15, 2014, in ballast, bound for Corpus Christi, Texas. After disembarking the pilot at 0500 on November 16 at Southwest Pass, Louisiana, the vessel headed for sea on a southwesterly course through a designated safety fairway with no obstructions or fixed structures. According to crewmembers interviewed, the tug and barge were secured for sea with all items lashed down and all watertight doors and openings closed.

No machinery or equipment anomalies were reported or documented prior to the vessel getting under way from St. Charles. Watchstanders said they observed nothing unusual in the time leading up to the event.

The weather deteriorated throughout the afternoon of November 16, with seas estimated by the crew to be 6 to 10 feet and winds at 30 knots from the southeast. About 1800, the captain went to the wheelhouse and spoke with the chief mate, who was on watch from 1600 to 2000, regarding the weather conditions. By radio, he contacted another vessel in the vicinity that was outside the safety fairway. That vessel's operator informed the captain that the route they were following had no hazards from any oil rigs or production platforms. Based on this information, the captain decided to change the voyage plan to proceed out of the safety fairway to a more westerly track in favor of better sea conditions. The course change took the *Valiant/Everglades* towards the port of Galveston, where the captain intended to use the inshore fairway to Aransas Pass and onward to Corpus Christi. This route, according to the captain, would avoid the worst of the forecast weather conditions.

Subsea Pipeline Damage by Tug and Barge *Valiant/Everglades*



Excerpt from NOAA chart 11340 indicating planned route through safety fairway (in green) and modified route sailed (in red).

The National Weather Service reported a cold front was moving eastward across the northern Gulf of Mexico and the southern United States at the time of the accident. The nearest weather reporting station, which was about 13 miles away, reported north winds at 28 to 33 knots with gusts up to 40 knots around the accident time. The air temperature was 52°F with a dew point of 46°F, and visibility was 8.7 miles. Wave heights were estimated to be 6 to 8 feet.

At 0400, the chief mate took over the navigational watch. He stated the vessel was on a westerly course at 282 degrees true and was making 6.5 knots at full ahead speed. About 0455, he received a bow ram air pressure alarm in the upper wheelhouse where he was located. This alarm indicated that the locking mechanism, known as the Bludworth system, between the tug and barge was losing air pressure, which presented a risk of the tug and barge separating. The chief mate called the chief engineer, who was on duty in the engine room, regarding the problem. The chief engineer then began to work on determining the source of the loss of air pressure.

About 0500, the engines idled down to 200 rpm without any operator input, and the chief mate called the captain to inform him of the problem and request that he come to the wheelhouse. The captain arrived in the wheelhouse minutes later and took the vessel out of autopilot and put the rudders hard to starboard to keep the bow to the seas. He then called the chief engineer on the telephone and was told that the source of the loss of air pressure had not yet been identified.

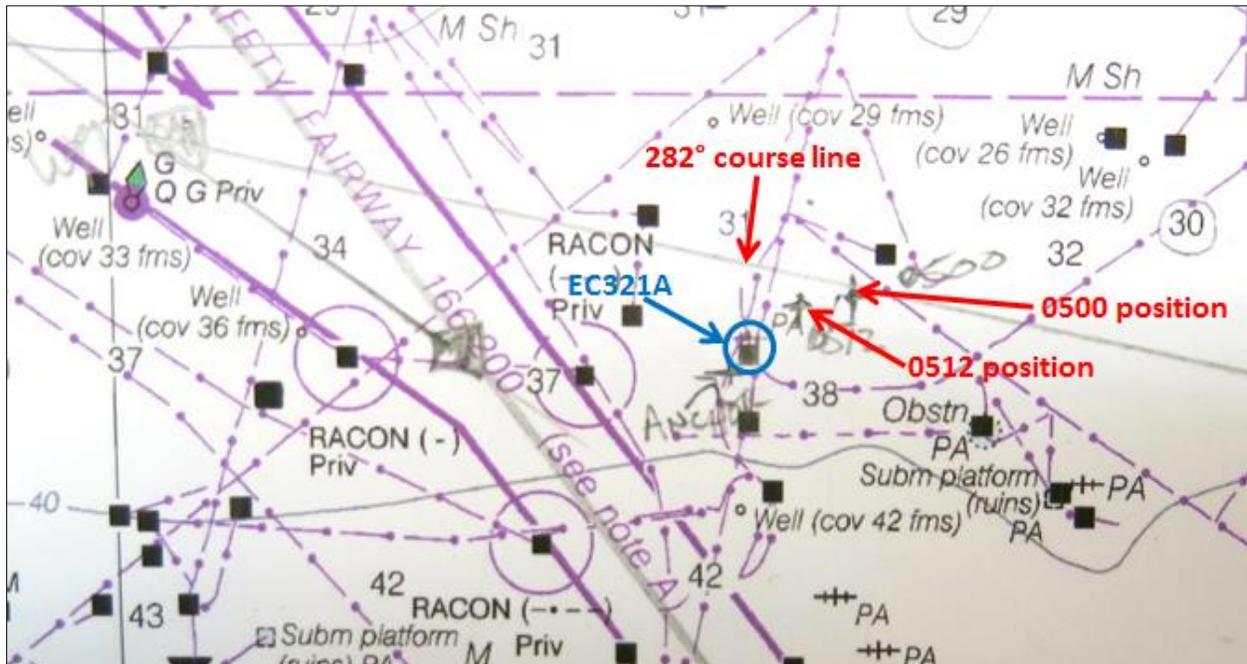
The *Valiant* was fitted with two MaK type 6Mu551AK reversible, medium-speed diesel engines. To change from ahead to astern, the engine had to be stopped and then started in the opposite direction. These main engines relied on control air to regulate engine speed. Loss of control air pressure would result in an engine's pneumatic governor reducing engine speed to idle.

The captain ordered the chief mate to wake up the crew so they could help determine the cause of the problem and run air hoses from the air compressor on the barge back to the engine room on the tug. At the time, the *Valiant* was relatively close to and drifting towards production platform EC321A, which was about 2.4 nautical miles southwest of the ATB. The chief mate estimated the vessel was drifting at 2.5 knots. For a short time, the chief engineer got the starboard engine back online, but the propulsion was insufficient to change course away from

Subsea Pipeline Damage by Tug and Barge *Valiant/Everglades*

EC321A. The captain maintained hard starboard rudder as the engine crew worked to determine the source of the loss of air pressure.

As the tug and barge drifted to within about 1 nautical mile of the platform, both the captain and chief mate used the vessel's electronic chart system (ECS) to determine the water depth and presence of pipelines on the sea floor running to and from the platform. The captain ordered the crew of the barge to prepare the anchor windlass. As the captain was aware of the presence of pipelines in the area and that the crew was making progress in rigging the additional air hoses from the compressor on the barge, he decided to delay letting the anchor go to slow the vessel. He stated the anchor was his last resort as only "one start" of the engines was needed to restore the propulsion.



Portion of NOAA chart 11340 used by the *Valiant* crew, with vessel position at 0500 and 0512 and course line (labeled in red) relative to EC321A.

As the ATB continued to drift toward the platform, the captain sounded five short blasts on the tug's whistle to alert the platform crew of the situation. He then sounded the general alarm on board the tug and contacted the platform by VHF radio. The chief mate called the nearby offshore supply vessel *Penny F* for assistance. Once on scene, the *Valiant* captain asked the *Penny F* crew to connect the mooring wire and rope tail from the starboard winch on the barge. Once connected, the *Penny F* pulled on the tug and barge, which slowed the rate of closure on the platform. The rope tail of the wire eventually parted, however, leaving the *Penny F* unable to assist further.

The chief engineer ordered an additional air compressor started, and the air hose from the barge compressor was run through the top provision hatch on the tug and connected to an air tank in the port-side generator room. The first engineer, who was at the air control station searching for the source of the loss of air pressure, opened the watertight door leading to the aft deck of the tug and heard the towing winch engine running and the sound of high-pressure air. Recognizing this was a potential source of the air leak, he stepped onto the deck where he noticed the starting air valve handle for the towing winch was in the open position. He closed the starting air valve and then closed the fuel valve to the winch engine, and air pressure began to return to the system. The first engineer noted that the vessel was rolling heavily and the aft deck was awash.

Subsea Pipeline Damage by Tug and Barge *Valiant/Everglades*

When the *Valiant* was about 500 feet from platform EC321A, the captain ordered the anchor let go. As the anchor began to fetch up on the bottom, the vessel's movement toward the platform began to slow. The captain then noticed air pressure building up and was able to start the port engine in astern propulsion, noting this was the best option to clear the platform. He momentarily ordered the rudders 10 degrees to port, but when this had no effect in clearing the bow from the platform, he went back hard to starboard. The starboard engine started moments later, and he backed on both engines. The anchor chain tightened, and he ordered more chain paid out and continued to back until the ATB was clear of the platform. A witness on EC321A estimated the *Valiant/Everglades* was about 20 yards from the platform at its closest point below the platform's survival craft.



Platform EC321A with Coast Guard HH-65 helicopter on deck and platform's survival craft at right. (Photo by Penny F crew)

On EC321A, the crew mustered after hearing the danger signal from the *Valiant*. They donned survival gear and went to their primary muster station, which had access to their survival craft. There they noticed the area below the survival craft might be struck by the *Valiant* so they proceeded to their secondary muster station on board. The platform manager notified the US Coast Guard of the situation, and a helicopter from Air Station Houston was sent to assist.

Once clear of the platform, the captain ordered the anchor to be recovered. While heaving, the crew experienced a problem with the windlass and the captain continued to back astern so they could work on the problem. The captain recalled they had managed to recover approximately 200 feet of anchor chain before they could not recover any more. After multiple attempts, the captain called the company to report the situation and the fouling of the anchor. He requested permission to cut the anchor chain, which was granted.

The *Valiant/Everglades* remained in the area until 0950, when the Coast Guard authorized the crew to depart. A civilian helicopter was sent to the area at the request of the platform

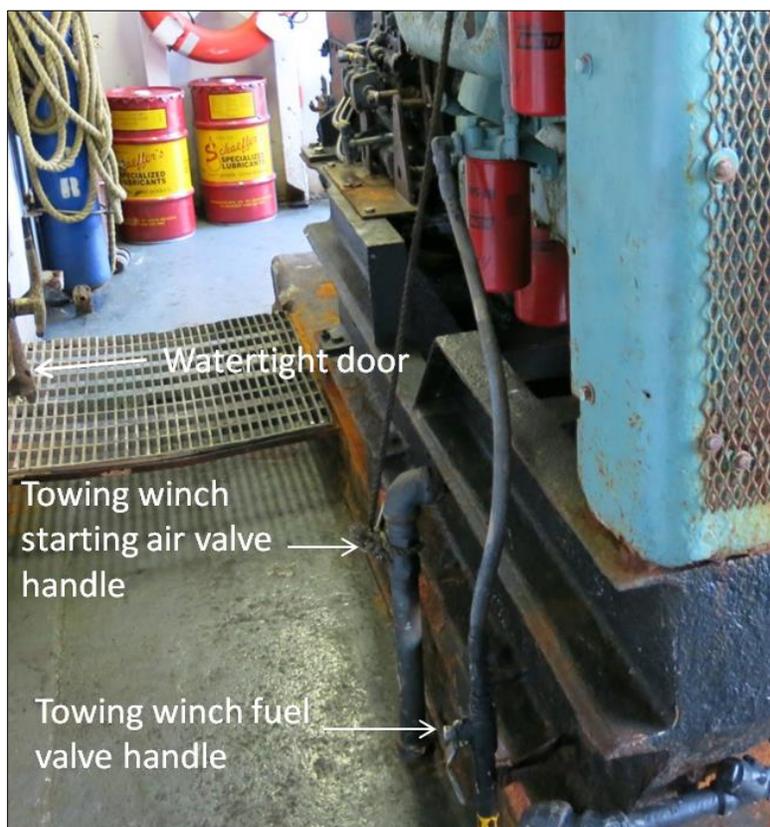
Subsea Pipeline Damage by Tug and Barge *Valiant/Everglades*

supervisor to help evacuate the platform's crew to a nearby platform. Three persons remained on EC321A to continue shut down activities and were eventually evacuated later that day.

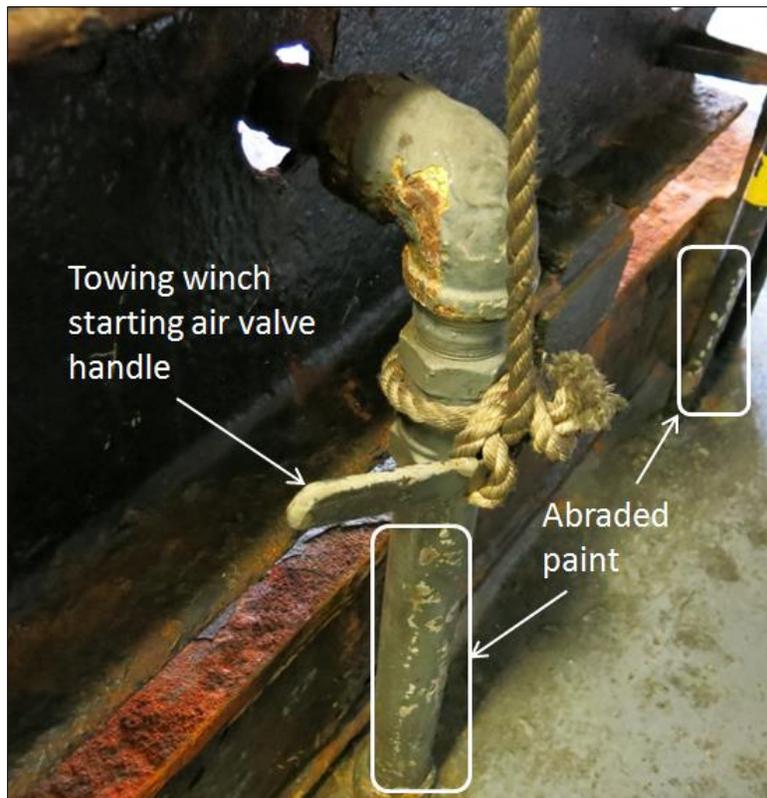
The vessel crew later found the source of the air leak was an air valve that supplied starting air to the towing winch engine on the *Valiant's* aft weather deck. Post-accident inspection and testing indicated the valve was operable but required only minimal force to open it, with no securing mechanism in place to protect it from unintentional opening. The investigation could not determine if the valve had been opened by the force of water on deck or by a loose object hitting the handle. *Valiant* crewmembers said the deck had been awash in the heavy seas. According to one, empty grease drums that had been secured on deck could not be found after the accident, suggesting they had come free. Additional crew statements indicated loose items such as buckets also were missing, but items mounted on the bulkhead directly adjacent to the towing winch appeared to be in place and undamaged. Investigators could not determine if any of these objects had been displaced before the accident, but no crewmembers recalled having to replace any of these objects.

During the post-accident survey, abraded paint was noticed on the starting air pipe, likely due to impact from a solid object, but no loose equipment was found in the area. The investigation did not determine why the valve had moved to the open position.

All crew, except for the chief mate and chief engineer on watch had been sleeping when the vessel began to lose propulsion, and none reported being on deck or in the vicinity of the towing winch during the hours the before the discovery of the loss of air pressure.



Towing winch motor and locations of starting and fuel valve handles and watertight door into accommodation.



Close-up of starting air valve (in closed position) for towing winch engine with recent paint damage (rope was not in place at time of accident).

A survey carried out by the pipeline owner stated that the anchor had dragged across six subsea pipelines and completely severed one 16-inch natural gas pipeline. The pipeline owner reported that 223,000 mcf of natural gas was released as a result of the rupture. An additional 26,800 thousand cubic feet was later released in a controlled manner to clear the line.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the damage to the subsea natural gas pipeline was the anchor from the *Valiant/Everglades* dragging across the pipeline after the vessel lost starting air pressure and propulsion due to the opening of an unprotected air system valve on deck.

Vessel Particulars

| Vessel | <i>Valiant</i> | <i>Everglades</i> |
|-------------------------------|--|----------------------------|
| Owner/operator | Kirby Offshore Marine, LLC | Kirby Offshore Marine, LLC |
| Port of registry | Philadelphia, PA | Philadelphia, PA |
| Flag | US | US |
| Type | Tug | Tank barge |
| Year built | 1980 | 1980 |
| Official number (US) | 634811 | 630287 |
| Construction | Steel | Steel |
| Length | 129 ft (39 m) | 474 ft (144 m) |
| Draft | 21 ft (6 m) | 21 ft (6 m) |
| Beam/width | 43 ft (13 m) | 84 ft (25 m) |
| Tonnage | 947 gross tons | 15,126 gross tons |
| Engine power, manufacturer | 3,997 HP (2,940 kW) MaK type 6Mu551AK | — |
| Propulsion | Twin, fixed-pitch | — |
| Persons on board | 10 | 0 |

For more details about this accident, visit <http://www.nts.gov> and search for NTSB accident ID DCA15LM003.

NTSB investigators worked closely with our counterparts from US Coast Guard Marine Safety Unit Port Arthur throughout this investigation.

Adopted: July 31, 2015

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 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.” 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 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. 49 *United States Code*, Section 1154(b).
