National Transportation Safety Board
Marine Accident Brief

Collision of Articulated Tug and Barge *Lucia/Caribbean*, Assisted by Tugboat *William S,* with Multiple Barges

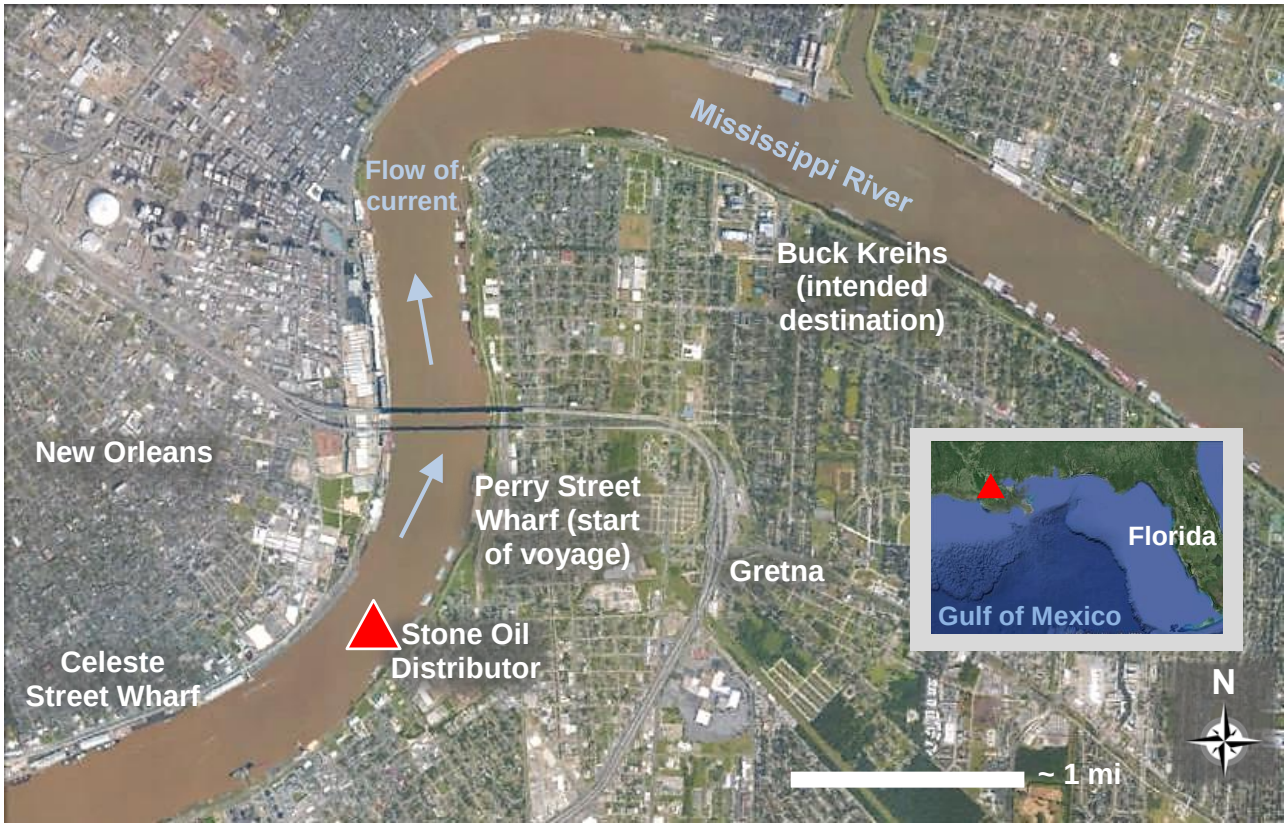
Accident no.	DCA16FM017
Vessel names	*Lucia/Caribbean* and *William S*
Accident type	Collision
Location	Lower Mississippi River, near mile* marker 96.5
Date	January 15, 2016
Time	0020 central standard time (coordinated universal time – 6 hours)
Injuries	None
Property damage	Estimated at $2,155,575
Environmental damage	Minor – estimated 40 gallons of diesel fuel released
Weather	Light misty rain, visibility 8 miles or less, east winds at 9 mph with gusts to 20 mph, air temperature 55°F, water temperature 48°F
Waterway information	Mississippi River near New Orleans, Louisiana, river stage 17.05 feet and falling, current about 5 mph, discharge (flow) rate about 1,285,000 cubic feet per second (ft^3/s)

On January 15, 2016, at 0020 local time, the articulated tug and barge (ATB) *Lucia*/*Caribbean* collided with multiple barges at the Stone Oil Distributor facility on the right descending bank of the Mississippi River near mile marker 96.5 in Gretna, Louisiana. At the time, the ATB was attempting to maneuver into position for a downbound transit with the assistance of the tugboat *William S*. As a result of the accident, tank barge *Caribbean*'s port bow was holed, forward and above the waterline. The facility also sustained damage—specifically, the dock structure, one dock barge, and four tank barges. A downriver passenger ferry was also damaged. No injuries were reported.

ATB *Lucia/Caribbean* moored portside-to at the Port of New Orleans, Perry Street Wharf, after the accident.

* All miles in this report are statute miles.

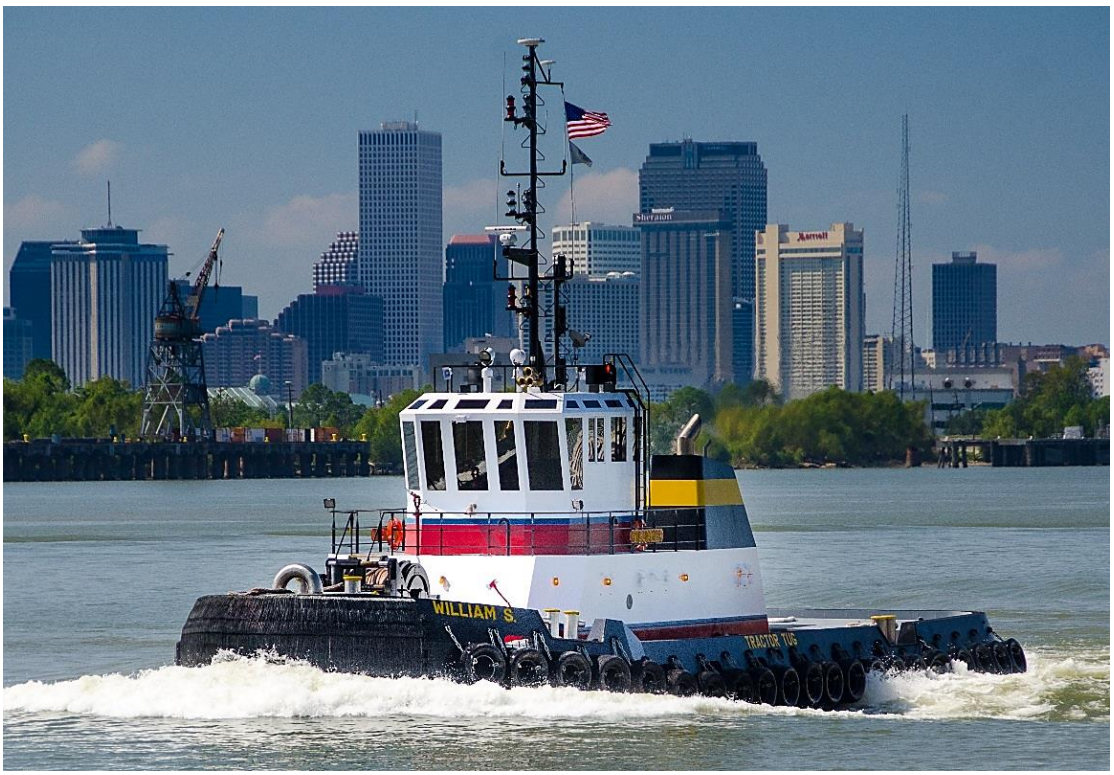
At 2100 on January 14, 2016, the ATB (tugboat *Lucia* and tank barge *Caribbean*) was moored port side to the dock (bow upriver) at Perry Street Wharf, located on the right descending bank of the Mississippi River near mile marker 95.9 in Gretna, Louisiana. The *Lucia*'s second mate, who had the 1800–0000 watch, and the vessel master were preparing to shift (move) the vessel from that location to the Buck Kreihs marine repair berth located downriver (to the northeast) at mile marker 92.1. Tank barge *Caribbean* was loaded with no. 6 fuel oil and had a draft of 28 feet 6 inches forward and 30 feet 6 inches aft.



Satellite image of the Mississippi River in the accident area. The ATB was being moved about 3 miles downriver (to the northeast) from the Perry Street Wharf to the Buck Kreihs marine repair berth when the ATB collided with barges at the Stone Oil Distributor facility.

The voyage plan entailed proceeding upriver (in about a south-southwest direction) from the Perry Street Wharf to an area near the left descending bank off the Celeste Street Wharf, near mile marker 96.6. There, the ATB would turn around (turning to port in this case) and allow the downbound river current in the area (and the pushing power of an assist tugboat) to swing the ATB around and begin the downriver portion of the transit to the repair berth.

To help shift the ATB, the *Lucia* master arranged for both a noncompulsory federal pilot and an assist tugboat. The *William S*, equipped with two azimuth stern drives (capable of delivering 360-degree propulsion thrust), arrived along the starboard side of the *Caribbean* at 2249 and stood by to await further orders from the vessel crew. The pilot arrived at the ATB soon thereafter, about 2330, and reported to the *Lucia* wheelhouse. About the same time, the chief mate on the *Lucia* who had the 0000–0600 watch also arrived in the wheelhouse to prepare for shifting the ATB. On board tugboat *William S* about 2345, a mate was operating the vessel with the assistance of a deckhand.



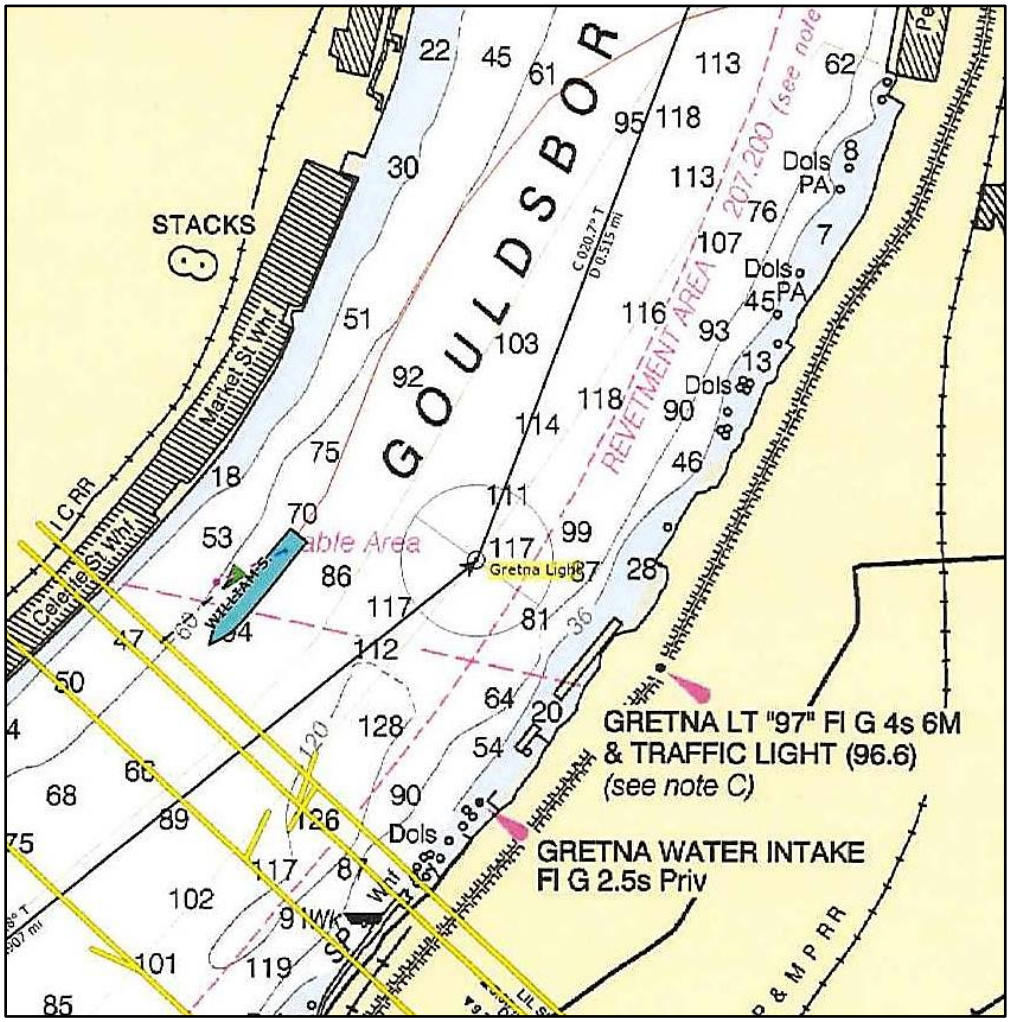
***William S* under way on the Mississippi River near New Orleans, Louisiana. Its permanently installed bow-fendering appears just forward of the vessel's name. (Photo by Bisso)**

After the voyage plan was discussed with everyone involved, the chief mate on the *Lucia* began preparations for getting under way. The *William S* was positioned bow-to on the *Caribbean*'s starboard side and nearly perpendicular, or 90 degrees, to the centerline of the ATB. Before the working towline was passed from the *William S* to the *Caribbean*, the mate on the *William S* asked via very high frequency (VHF) radio if enough of his vessel's bow-fendering was in contact with the hull plate of the *Caribbean*. The able seaman (AB) and the AB tankerman on the main deck of the *Caribbean* informed him that 1–2 feet of the *William S*' permanently installed bow-fendering was touching the tank barge below deck level. Once the mate on the *William S* acknowledged their response, he directed the deckhand on board his vessel to pass the towline to the crew on the *Caribbean*. The towline, which was deployed from the *William S*' bow winch, was secured to a mooring cleat on the tank barge, mounted about 165 feet from the *Caribbean*'s bow. The permanently installed bow-fendering on the *William S* was a rubber composite, 22 inches deep and 25 feet long, wrapped around the bulwark and hull. The fendering at the centerline extended from the top of the bulwark and down the hull for 8 feet 3 inches, and then gradually decreased in height (as it extended aft) to 5 feet, then 4 feet, and finally 3 feet.

At 0001, the chief mate on the *Lucia* ordered the *William S*, which was still bow-to at about 90 degrees to the *Caribbean*'s hull, to push at half throttle and then three-quarters' throttle. This maneuver was performed to keep the ATB pinned against the Perry Street Wharf while the crew let go of the mooring lines. The pilot was providing navigational direction to the chief mate on the *Lucia*, and the master remained in the wheelhouse to observe the operations. Once the mooring lines were let go, the *William S* was ordered to pull straight back at three-quarters' throttle, while the chief mate on the *Lucia* applied port rudder, then went astern on the port engine and ahead on the starboard engine to successfully clear the ATB from the position at the wharf.

Based on playback from the electronic chart system and extracted position data from the automatic identification system transmissions of both vessels, between 0002 and 0009 the ATB and the *William S* moved upriver and toward the left descending bank near the Celeste Street Wharf, as intended. During that portion of the transit, the towline of the *William S* was slacked off so that the tugboat could run parallel to and alongside the *Caribbean.*

About 0010, the ATB received permission from Vessel Traffic Service (VTS) New Orleans to begin its port turn and proceed downriver toward Buck Kreihs. The heading of the ATB and the *William S* was about 221 degrees at that time, and their speed over ground was about 1 mph.

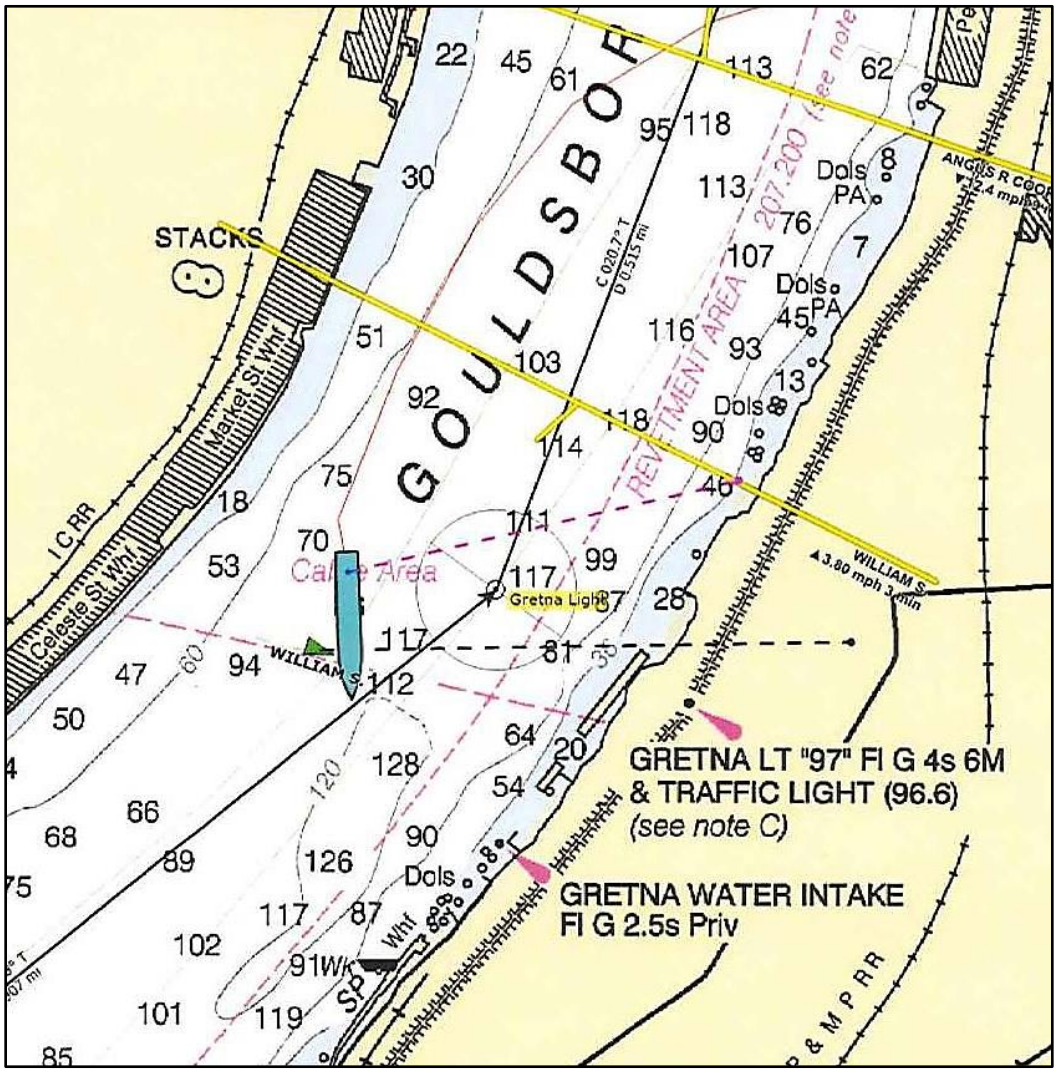


Still image extracted from playback of the electronic chart system on board the *Lucia* at 0011. The ATB is identified as one unit, light blue in color. *William S* is the green triangle to the left. (Source: Kirby Offshore Marine)

In preparation for the turning maneuver, the mate on the *William S* repositioned the tugboat so that it was once again about perpendicular to the centerline of the ATB. At 0011, the chief mate on the *Lucia* put the rudders to full port and the throttle at half astern, and then ordered the mate on the *William S* to push full ahead (100-percent throttle) on the *Caribbean*'s hull. The mate on the *William S* verbally acknowledged the full-ahead command.

However, about 3 minutes later, at 0014, the mate on the *William S* advised the *Lucia* that he was pushing at only 40-percent throttle because he was concerned about the fendering and "riding

upon the barge." At the time, the approximate heading of the *Lucia* was 178 degrees and that of the *William S* was 136 degrees. The *Lucia*'s course over ground was 076 degrees and its speed over ground 2.88 mph. After the mate on the *William S* expressed his concern to the chief mate on the *Lucia*, the AB and the AB tankerman on the *Lucia* re-examined the point of contact between the *Caribbean*'s hull and the bow of the *William S*. They advised the mate on the *William S* both verbally and visually (using thumbs-up) that about 1–1.5 feet of fendering was still touching the barge's hull.

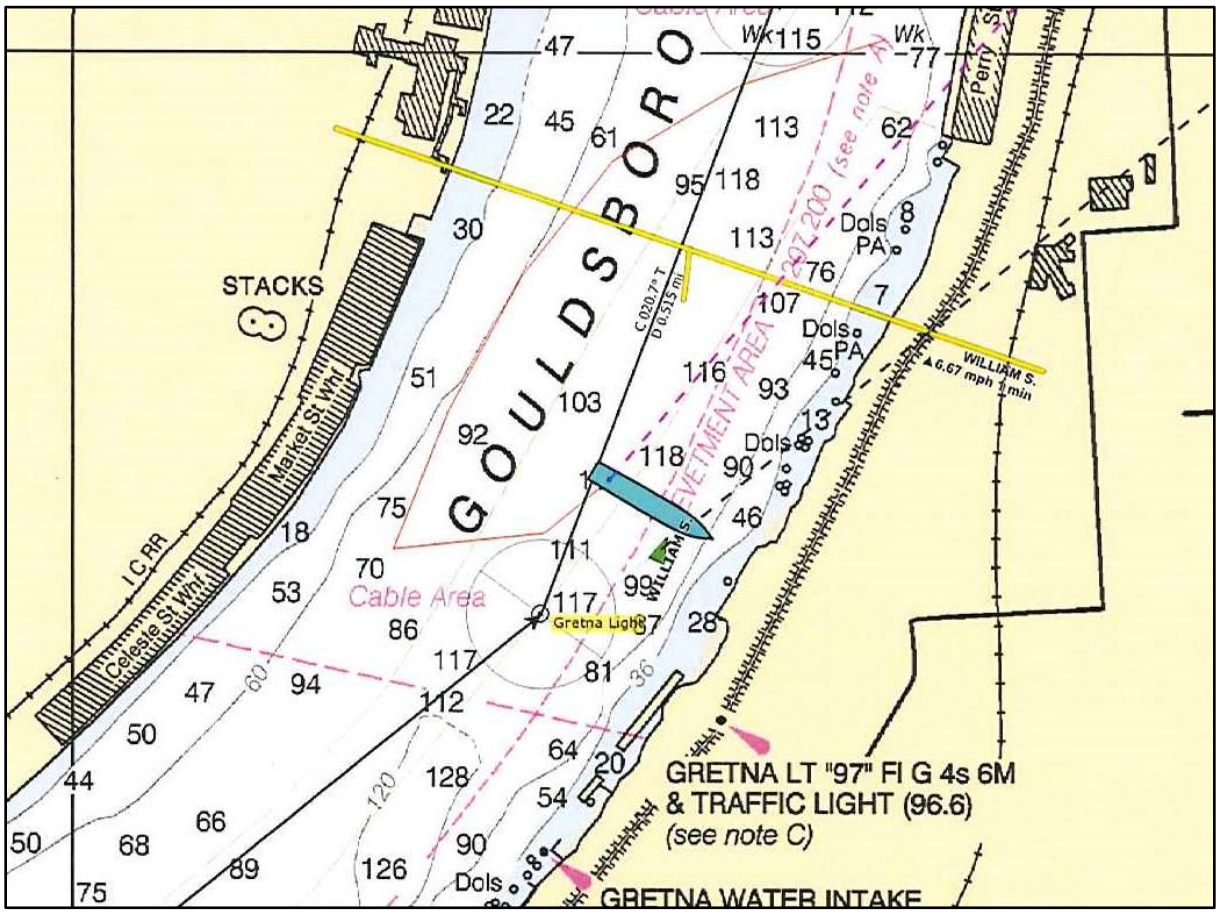


Still image extracted from playback of the electronic chart system on board the *Lucia* at 0014. The ATB is light blue in color; tugboat *William S* is green. (Source: Kirby Offshore Marine)

At this time, the chief mate and the pilot on the *Lucia* were growing concerned about the ATB's position in the water. The unit was being carried downriver and not turning at the anticipated rate of turn to port. The chief mate on the *Lucia* then instructed the AB and the AB tankerman to proceed to the *Caribbean*'s bow and start calling out distances between the *Caribbean* and barges moored at the Stone Oil Distributor facility on the river's right descending bank.

At the direction of the pilot, the chief mate on the *Lucia* tried to use the vessel's twin screws' capability to assist with the swing by going full astern on the port side and full ahead on the starboard side. However, the maneuver was unsuccessful. The master and the pilot then ordered the chief mate to bring both of the *Lucia*'s engines to full astern to keep the ATB from drifting further across the

river, but by this time the ATB was nearly perpendicular to the right descending bank and drifting downriver due to the current.



Still image extracted from playback of the electronic chart system on board the *Lucia* at 0016. The ATB is light blue; *William S* is green. (Source: Kirby Offshore Marine)

At 0020, the port bow of the *Caribbean* struck tank barge *S-35*, which was moored in the outermost position at the Stone Oil Distributor facility's dock no. 6 and partially loaded with 489,000 gallons of diesel fuel. The impact holed the port bow of the *Caribbean* and damaged the dock, two other tank barges (the *S-32* and the *S-39*), and a barge used as a floating dock (dock barge no. 6). Tank barge *S-35* broke loose and began drifting downriver, as did the *S-32*, the *S-39*, and dock barge no. 6, which were connected to each other as a unit. About 40 gallons of diesel fuel spilled from hoses that failed when dock barge no. 6 separated from the shore structure.

Moments after the collision, the pilot assumed the helm of the *Lucia*, and the master and the chief mate initiated emergency procedures as well as notified VTS. The pilot ordered the mate on the *William S* to go astern at full throttle, and, with the *William S*' assistance, the ATB was backed out into the river and positioned with the bow upstream. This way, the ATB could hold position using its own propulsion. The *William S* was then released to help retrieve the adrift barges, which had subsequently struck two other tank barges, the *S-19* and the *AGT-3601* (both empty), moored at Stone Oil Distributor facility's dock no. 7. Those two tank barges also broke loose from the dock and began drifting downriver as a unit, still connected to each other.

Damaged forward portside bow of tank barge *Caribbean* after the collision. (Photo by Coast Guard)

VTS watchstanders requested, via VHF radio broadcast, assistance with recovering and securing the adrift barges. Several local towing vessels responded to the request, including the *Big Sam*, the *Josephine Anne*, the *Stone Strait*, the *Mr Pete*, and the *Angus R Cooper*.

Tank barge *S-35* grounded on the river's right descending bank and was held in place by the *Angus R Cooper*. Before the other vessels assisting with the recovery effort could collect the adrift barges, one of the barges struck and damaged the starboard side of the passenger ferry *Col. Frank X. Armiger*, which was shut down for the evening and moored at the Algiers Ferry Landing at mile marker 94.8.

Towing vessel *Angus R Cooper*, holding damaged tank barge *S-35* against the right descending bank of the Mississippi River. The Crescent City Connection bridge is visible in the background. (Photo by Coast Guard)

At 0125, the *William S* returned to where the *Lucia* was holding position and assisted the ATB with maneuvering back to its original mooring location at the Perry Street Wharf. The ATB was re-moored there about 0200.

Investigators determined that the navigation equipment on the *Lucia* and the *William S* was operating satisfactorily, and crewmembers stated there were no known concerns with steering, propulsion, or other vital systems on either vessel at the time of the collision. Postaccident toxicological testing was performed on all crewmembers in safety-sensitive positions, and the results were negative.

When investigators asked the mate on the *William S* why he did not push at full-ahead throttle to initiate the turn to port, he explained that, when he initially applied full throttle, the tugboat's bow rose up on the hull of the *Caribbean*. He said that he did not want any steel-to-steel contact between his vessel and the barge, which could cause damage. He further stated that he normally took directions and followed orders, except when they put his vessel and crew in danger.

The pilot told investigators that, about a dozen times previously, he had performed the maneuver of coming off the Perry Street Wharf, heading upriver, and then turning around for a downbound transit, yet never had a problem. He also stated that he had worked with the *William S* on multiple occasions. When he arrived at the *Lucia* on the night of the accident, he was pleased to learn that the *William S* would be assisting with the maneuver because, as he said, vessels with azimuth stern drives are "much more maneuverable than a conventional" tugboat, and "can get at an angle that's much better for pushing and pulling."

The *William S* was hired specifically to assist the *Lucia* and the *Caribbean* with undocking, maneuvering, and shifting to the Buck Kreihs marine repair facility downriver. The hiring of an assist tugboat and a pilot was not required by Coast Guard regulations or any other authority, rather, the *Lucia*'s operational policy mandated it as a risk-reduction method. Required at all times and regardless of weather and waterway conditions, using an assist tugboat and pilot was meant to offset the river current and the detrimental effect that a reduced flow of water across the *Lucia*'s rudders could have on steering and overall maneuverability when the ATB was turning and transiting in the waterway.

On the night of the accident, once the undocking maneuver was initiated, both the *Lucia* and the *William S* were under the direction of the chief mate on the *Lucia*, who, in turn, was supervised by the *Lucia* master and directed by the pilot. The chief mate on the *Lucia* was not only commanding the navigation of his own vessel, but was also giving commands to the mate on the *William S* related to the position, direction, and throttle input. Furthermore, according to the mate on the *William S*' own assessment, those commands should be properly executed in a timely manner, unless they placed the vessel and/or its crew in danger.

In this case, investigators found no evidence that the commands from the chief mate on the *Lucia* to the *William S* endangered either vessel or its crew. Based on the river conditions, the vessel configuration, and other relevant operational considerations, the commands were reasonable, prudent, and performed successfully by both vessel crews several times previously.

The concern of the mate on the *William S* about damage from possible steel-to-steel contact did not rise to the level of a measurable safety risk to either vessel or its crew. Even if such damage had occurred (such as hull plate inset and damaged hand railings), it would have been largely cosmetic.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision of ATB *Lucia*/*Caribbean*, assisted by tugboat *William S*, with multiple barges at the Stone Oil Distributor facility was the decision by the mate on the *William S* to not fully execute the navigational commands provided to him.

Vessel Particulars

Vessels	*Lucia*	*Caribbean*	*William S*
Owner/operator	Penn Maritime, Inc.	Penn Maritime, Inc.	Bisso Towboat Company
Port of registry	Philadelphia, Pennsylvania	Philadelphia, Pennsylvania	New Orleans, Louisiana
Flag	United States	United States	United States
Type	Towing vessel	Tank barge	Towing vessel
Year built/builder	1995/Moss Point Marine, Stamford, Connecticut	1995/Alabama Shipyards, Mobile, Alabama	2012/Main Iron Works, Houma, Louisiana
Official number (US)	1029758	1027617	1239737
IMO number	8899562	1518420	N/A
Construction	Welded steel	Welded steel	Welded steel
Length	127 ft (38.7 m)	460 ft (140.2 m)	96 ft (29.3 m)
Draft	16.6 ft (5.1 m)	29 ft (9.5 m) loaded, FW	16.5 ft (5.1 m)
Beam/width	38 ft (11.6 m)	72 ft (21.9 m)	38 ft (11.6 m)
Gross/net tonnage	254/172	8,327/2,498	195/38
Engine power; manufacturer	7,010 hp (5,227 kW) 2 – Electro-Motive Diesel,16-645F	N/A	4,000 hp (kW); 2 – Caterpillar 3516C
Persons on board	9 crew, 1 pilot	Unmanned	4 crew

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA16FM017.

Adopted: August 9, 2016

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

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).