



National Transportation Safety Board

Marine Accident Brief

Contact of Towing Vessel *Rivers Wilson* and Tow with Norfolk Southern Railway Bridge

Accident type	Contact	No. DCA19FM025
Vessel names	<i>Rivers Wilson</i> and barges <i>TOUAX 956 B</i> and <i>PTC 851</i>	
Location	Tombigbee River, mile 90, Jackson, Alabama 31°29.67' N, 087°54.46' W	
Date	March 10, 2019	
Time	0100 central standard time (coordinated universal time – 6 hours) ¹	
Injuries	One minor	
Property damage	\$4,842,500 est.	
Environmental damage	None	
Weather	Visibility 10 miles, overcast, winds south at 10 knots, air temperature 72°F.	
Waterway information	The Tombigbee River is a 200-mile tributary of the Mobile River and has a maintained width of 200 feet and depth of 9 feet.	

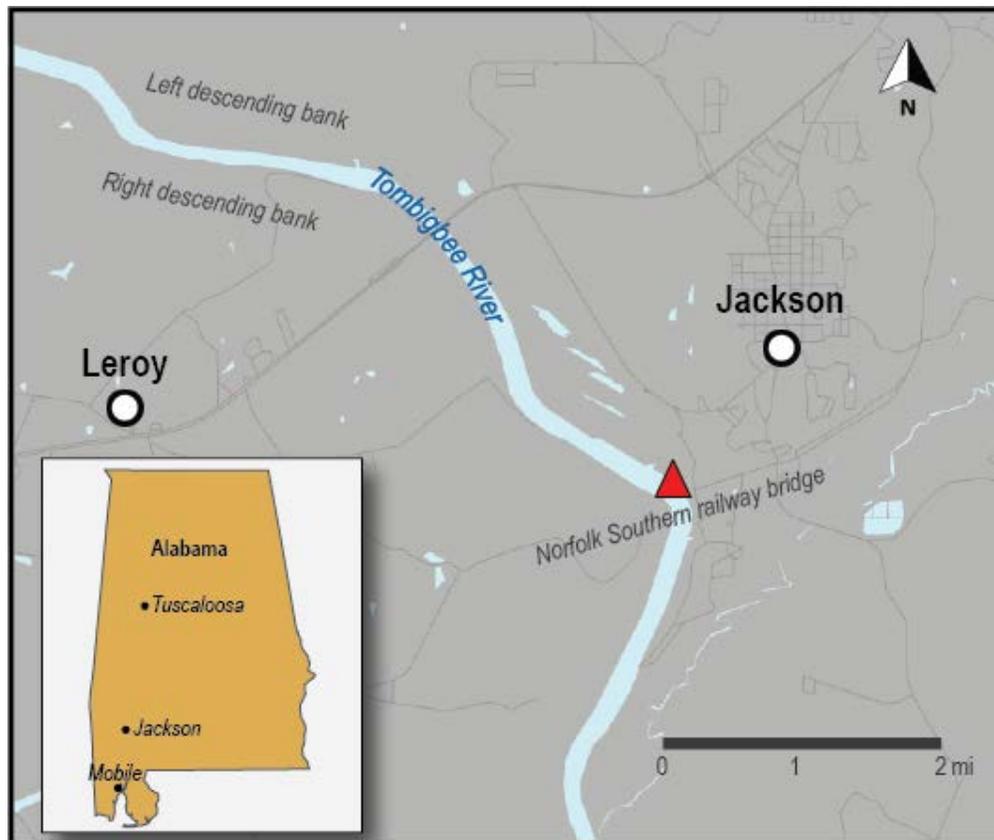
On March 10, 2019, at 0100 local time, the towing vessel *Rivers Wilson*, with 8 crewmembers and pushing six loaded barges, contacted the Norfolk Southern railway bridge near Jackson, Alabama. As a result, a bridge support was shifted out of position, and the tracks above deflected. Rail traffic was suspended for 27 hours until temporary repairs were made. One crewmember sustained a minor knee injury in the immediate response. No pollution was reported.



The *Rivers Wilson* moored in Mobile, Alabama, after the accident.

¹ The annual change to daylight savings time (coordinated universal time – 5 hours) occurred about 1 hour after the accident.

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Area of accident where the *Rivers Wilson* contacted the railway bridge, as indicated by the red triangle. (Background Source: Google Maps)

Background

The *Rivers Wilson* was a 125-foot, 2,800-horsepower towboat built by Nashville Bridge Company (NABRICO) in 1958 as the *Lady Rose-Mary* for Inland Oil and Transport. At the time of the accident, it was owned and managed by Graestone Logistics, though manned by Parker Towing employees on the accident voyage. The six barges were either owned or rented by Parker. The company planned to have the *Rivers Wilson* on a designated run from Mobile, Alabama, to Nucor Steel in Tuscaloosa, Alabama.²

The railway bridge over the Tombigbee River at milepost 88.2 was constructed in 1949. Operated by Norfolk Southern Railway, the rail line that ran over the bridge did not carry passenger trains. The vertical-lift drawbridge was operated locally by a bridge tender and normally left open; the bridge tender estimated three to seven towboats transited the bridge daily. The piers that supported the bridge were numbered 1 through 5 from east to west and had fendering on Pier 2 only. Norfolk Southern employees had operated the railway bridge remotely from their Decatur, Alabama, facility for 7 or 8 months, until January 2019, when the bridge was struck and the cameras disabled. The bridge was struck at least four times between January 2019 and March 2019, including this accident.

² Nucor Steel is located at mile 337 on the Black Warrior River.

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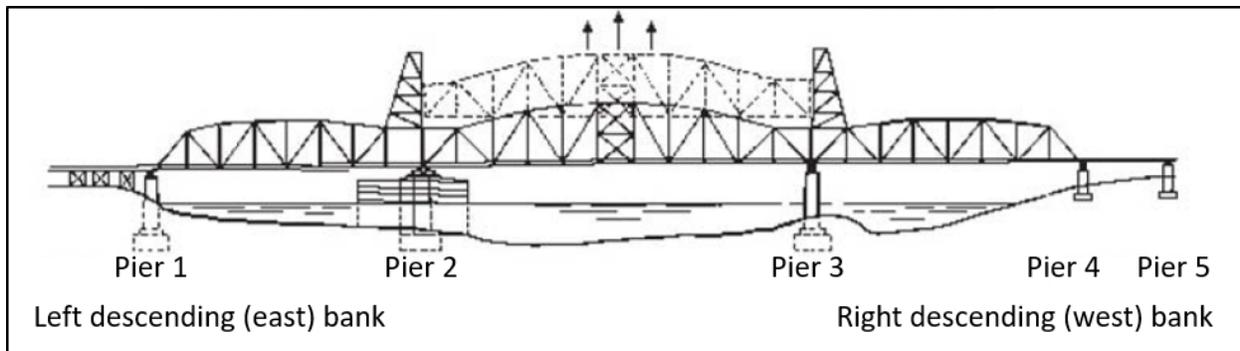


Diagram of the Norfolk Southern railway bridge at Jackson, viewed from upriver. (Source: US Army Corps of Engineers; annotated by the NTSB)

The Black Warrior-Tombigbee River System is a 9-foot-deep, 200-mile-long channel that extends 45 miles above Mobile to the vicinity of Birmingham, Alabama. The closest river gage to the railway bridge was less than a mile upstream at Leroy, Alabama, at mile 89, and read 29.4 feet (5.4 feet above flood stage) at the time of the accident. The river had crested on January 26. Norfolk Southern had contacted the US Coast Guard on March 2 and again on March 6 and requested the waterway be closed, since water was above the fender system lights, rendering them inoperable. The Coast Guard issued a broadcast notice to mariners but placed no restrictions on river traffic. Likewise, the US Army Corps of Engineers locks at Coffeeville, 26 miles above the bridge, were operational with no restrictions.

The Corps of Engineers installed four lateral training dikes above the bridge on the right descending bank in the spring of 2017.³ The dikes' purpose was to "stabilize the navigation channel, reduce dredging, and stabilize the bank erosion threatening utility lines and the railroad bridge."⁴ The *Rivers Wilson* captain noted that utility power line towers near the right descending bank had been replaced at least twice due to erosion.

Accident Events

The *Rivers Wilson*, with a crew of eight, including a captain and a pilot, assembled a six-barge tow at the Cooper Fleeting Area, just north of Mobile, on March 8, as ordered by Parker Towing. The barges were each loaded with approximately 1,600 short tons of direct reduced iron (DRI).⁵ The original order was for eight barges, but the captain decided to take only six, as this was his first trip with the *Rivers Wilson*. The tow was configured three barges wide by two barges long. Each barge was 200 feet long by 35 feet wide. The deepest draft of the tow was the *Rivers Wilson*, at 10 feet.

³ The inland towing industry refers to the shorelines of western rivers as the left and right banks when traveling (facing) downstream. The left bank is called the *left descending bank*, and the right bank is called the *right descending bank*.

⁴ The Mississippi River channel is primarily made up of moving sand and is therefore prone to changes in depth. A *training dike* is used to keep the river navigable by moving sediment out of the navigation channel, thus reducing the need for dredging.

⁵ DRI is iron ore that has been heated to remove oxygen and other impurities prior to processing into steel. DRI cargo is pyrophoric, that is, it can spontaneously ignite when exposed to air.

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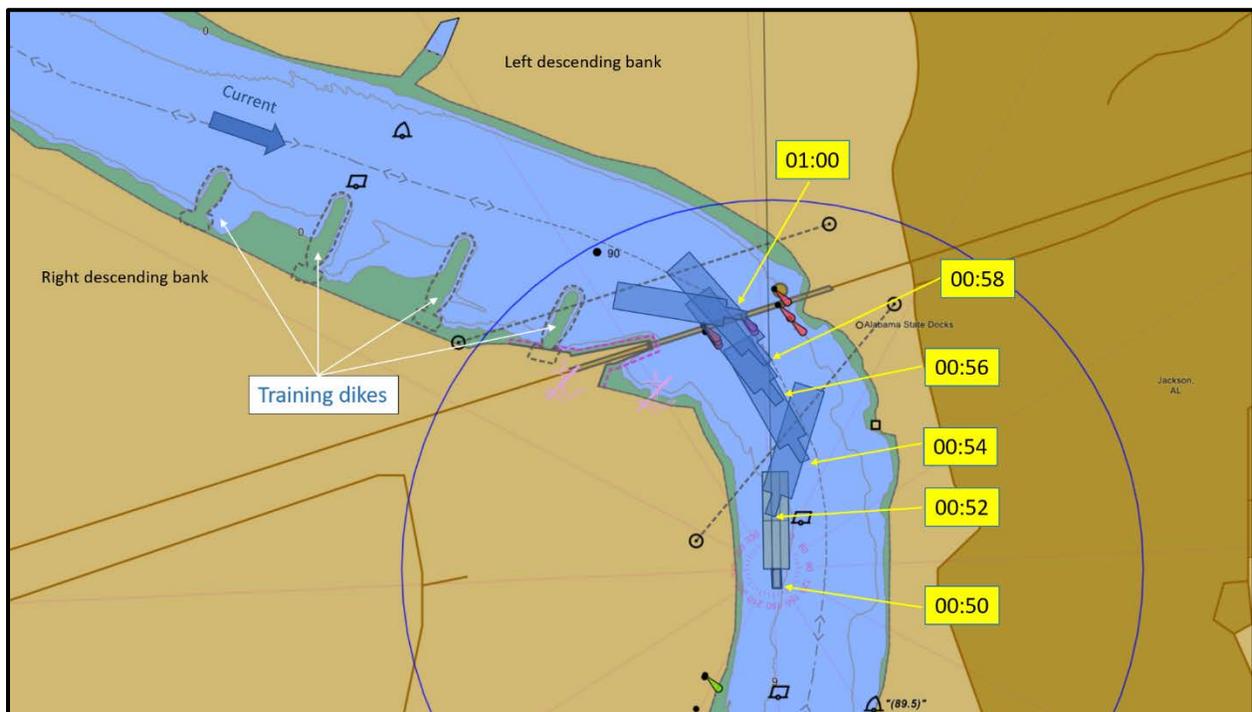
	Port	
	TOUAX 956 B	PTC-851
	PTC-601	TRS-358R5
<i>Rivers Wilson</i>	TAF-915B	TRS-359R5
	Starboard	

Simplified towing arrangement of the 6-barge tow on the accident voyage.

The vessel left the fleeting area about 2040 on the night of March 8, upbound on the river for Nucor Steel in Tuscaloosa, and averaging 3.5 mph on the passage until the accident. The captain stated that the current was approximately 8 miles per hour (mph). The vessel stopped at mile 66 at 1505 on March 9 to fix an oil leak on the starboard engine. Afterwards, while maneuvering through bends in the river, near Whitehorse Bend at mile 26, the vessel “bogged...down,” losing speed to 1.5 mph. Likewise, the captain

lost speed at Carney’s Bluff, near mile 79, about 2000.

The pilot came on watch at 2300 on March 9, when the vessel was near mile 84.⁶ The pilot anticipated higher current in the vicinity of the Jackson fleeting area, south of the railway bridge, due to narrowing in the river. He had a planned an abort point there, should he not be able to maintain 2 mph. The *Rivers Wilson* reached the abort point at 2400, making between 2.5 and 3 mph, and the pilot continued north.



Select positions of the *Rivers Wilson* and barges on the Tombigbee River near mile 90 before the accident. Note the training dikes upriver of the bridge on the right descending bank (Background source: Corps of Engineers; vessel data: Graestone)

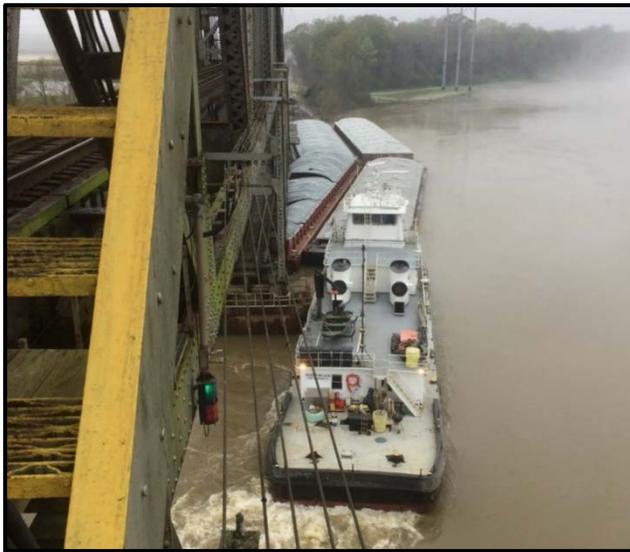
The upbound *Rivers Wilson* called the bridge tender on the Norfolk Southern railway bridge on VHF channel 13 at 0002 to request a bridge opening. This was the first towing vessel to arrive

⁶ The relief occurred slightly earlier than normal due to the planned change to daylight savings time early the next morning.

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since the bridge tender had come on duty at 1900, and the bridge was already open, which the tender communicated to the towing vessel. The vessel continued its passage towards the bridge at 1.3–2.4 mph, favoring the right descending bank as it approached the bridge. The vessel slowed in the current to 2.0 mph at 00:53, and the lead barge reached the bridge at 00:54, still favoring the right descending bank.

The bridge tender noticed the vessel was slowing as the tow passed under the bridge and asked the pilot if he was about to “stall out.” The pilot noticed he was moving about 1.5 mph to port with no forward way. The bridge tender radioed that the pilot would have to “make it smoke black to get up through there” (meaning apply full engine power), to which the pilot replied, “Looks like I may be fixing to touch up on you, too.” The lead barges were pointing towards the dikes at this point, and the pilot then asked the tender how deep the jetties (training dikes) were on the right descending bank, hoping he could pass over them.



The *Rivers Wilson* and tow, on the north side of the bridge at sunrise on March 10, after the two starboard barges were recovered. (Source: Norfolk Southern)

At 0058, the aftermost 15 feet of the port aft barge, *TOUAX 956 B*, contacted the bridge pillar (pier 3), and the whole tow pivoted to port. The port facing wire broke, and a winch wire on the port side parted, as did three coupling wires on the port side, after which the *TOUAX 956 B* went partially under the bridge, ripping open the barge covers and exposing the DRI to the elements. The lead barge, *PTC 851*, also contacted a pier and was damaged. The *Rivers Wilson* laid up against pier 3 of the drawbridge. With the current on the beam, the towboat was unable to extract itself or the barges from the bridge.

take off the starboard facing wire to avoid capsizing the vessel should the *TOUAX 956 B* go under the bridge completely.

The pilot sounded the general alarm. One deckhand tripped and injured his left knee in the response. The captain then had his crew

The captain called the Coast Guard by radio, as did the bridge tender by phone. The tender was able to lower the bridge at 1230; however, dislodged rail left the bridge out of service to train traffic. The initial repair estimate for the bridge and rail was \$4,842,500.

The barges were recovered with the assistance of two other towboats. The *Rivers Wilson* continued with two loaded and two empty barges, successfully navigating the bridge this time; however, approximately 12 miles upriver, the port engine suffered an engine block failure.⁷ After another towing vessel relieved them of their barges, the *Rivers Wilson* then returned to Mobile on one engine. The vessel and barges suffered \$65,000 in damage.

⁷ The engines had previously been overhauled and the cylinder bores increased. The increased cylinder volume resulted in thinner engine blocks.

Additional Information

The vessel completed a drydock period 4 days before the accident, on March 6, 2019, with routine propeller and rudder bushing maintenance conducted. A vetting inspection by Parker Towing after the drydock period and before the charter commenced found deficiencies with the fire pump, smoke alarms, and a leaking stuffing box. Graestone was required by the Parker captain and a vetting officer to effect those repairs before the vessel could proceed. Although the vessel experienced engine issues prior to the accident, there was no evidence of propulsion problems at the time of the accident.

The *Rivers Wilson* had yet to be issued a Coast Guard Certificate of Inspection (COI) per the new 46 *Code of Federal Regulations (CFR)* Subchapter M, which was effective on July 20, 2018, for towing vessels. There was a phase-in period for vessels to obtain a COI per the new regulations. The first milestone of the phase-in period was on July 22, 2019 (after this accident), when operators were required to have a COI for 25% of their vessels. The *Rivers Wilson* was not required to have a COI at the time of the accident. Regardless of the vessel's COI status, according to 33 *CFR* Part 136, operators were required to comply with the remaining requirements in Subchapter M by July 20, 2018 for all their vessels.

The Coast Guard inspected the vessel after the casualty and detained the vessel due to watertight and structural integrity issues, among numerous other deficiencies that were not associated with the damage incurred from contact during the accident. Frames had separated from the hull, the head log and pusher knees were corroded, and maintenance records were unavailable. The vessel had yet to return to service as of the publication of this report.

The captain had worked for Parker Towing for 43 years. He stated that he had travelled this area of the river hundreds of times, at least once a week. The pilot had worked for the company for 11 years and had 28 years of experience in the industry. This was both the captain's and the pilot's first trip on the *Rivers Wilson*, joining it on March 6. The pilot and captain had worked together for 8 years and normally worked together on the *Gilbert Taylor*, a 3,800-horsepower, 134-foot-long Parker towboat.

The captain told investigators that his decision to take six barges instead of eight (which he would have taken normally) was based solely on the fact that this was his first time piloting the *Rivers Wilson*. He stated that he had seen much higher river levels, and on the day of the accident, the water level was falling. One deckhand stated that he was very familiar with the *Rivers Wilson* and that "...6 lds [sic] was a tow that the boat normally handles fine." The pilot stated that this was the highest he had ever seen the river while working for the company.



Rail displacement of the Norfolk Southern railway bridge, looking east, with the *Rivers Wilson* and two barges alongside. (Source: Coast Guard)

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The Coast Guard regulates bridges over navigable waterways and evaluates the impact of new bridges on navigation. This authority rested with the Corps of Engineers when the Norfolk Southern railroad bridge was built in 1949, at which point the bend in the river was not as significant.⁸ Corps of Engineers officials stated that the right descending bank has been eroding, and the river had shifted south and west. The installation of the four training dikes, which was required due to issues with dredge material disposal, thalweg realignment, and the impact of dredging on traffic, had forced the flow toward the left descending bank, and towboats have had to adjust to the shifting current (the dikes are underwater when the river gage is above 30 feet).⁹ The captain stated that there were no longer eddies or slack water above the bridge, as there were before, and the current was now cutting into the left descending bank, which "...speeded things up tremendously." The bridge tender stated that other vessel masters had complained about the jetties. According to the pilot, the dikes had forced the current across the river into a sandbar that previously had to be dredged annually. The current then deflected back into the channel at the bridge. The current had always set vessels towards the right descending bank, but the dikes made the situation worse.

A 2015 study by the Corps of Engineers regarding options for the waterway noted that "navigation for this section is hazardous due to the location of the bridge relative to the bend and the accreting sand bar upstream." They also noted that "the Norfolk Southern railroad bridge presents a navigation hazard" and "bridges should not be located in bends."¹⁰ Additionally, the study reported that "the bridge piers are poorly aligned with the upstream current by 53° and downstream current by 20°," and that maneuvering through the area was "difficult," and with "high flow conditions, the difficulty increases substantially."

As a result of this accident and other similar incidents, the Coast Guard, in coordination with industry and the Corps of Engineers, intends to publish a Waterways Action Plan for the Tombigbee River with guidelines for high- and low-water events. A Waterways Action Plan typically defines three action phases (watch, action, and recovery) for each section of the waterway and lists high-water impacts on levees, damage to homes, and unsafe navigation conditions.

Analysis

The *Rivers Wilson* had not been issued a COI, nor was it required to have one at the time of the accident. Regardless of the vessel's COI status, the Coast Guard required operators to comply with the remaining requirements in Subchapter M by July 20, 2018, several months before the accident. Compliance included maintaining the watertight and structural integrity of the vessel. The numerous watertight and structural integrity deficiencies in the Coast Guard's postaccident inspection of the *Rivers Wilson* indicated that the towboat was not adequately maintained. Had the *Rivers Wilson* been inspected by the Coast Guard, these deficiencies would have prevented the vessel from obtaining a COI and being placed in service.

The pilot's statements regarding the dikes and the currents show that he was aware of the high-water conditions and the difficulties presented by the river while transiting the bridge. The pilot stated that if he had been concerned about the current [with his 6 barges], he would have tied

⁸ The current bridge replaced the original one built in 1888 on the same site.

⁹ A *thalweg* is a geographical term used to describe the line of lowest elevation in a waterway or valley. It is often used to define the boundary between states.

¹⁰ The Corps of Engineers cited the American Society of Civil Engineers from 1998.

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up below the bridge. The pilot had the option to leave barges below in the Jackson fleeting area and make several passes through the bridge while pushing fewer barges, but he believed that the *Rivers Wilson* had adequate speed over ground at his planned abort point to successfully maneuver the vessel through the bridge. He was not able to accurately anticipate the effect of the high water conditions and the difficulties presented by the relatively new submerged dikes on the direction/strength of the current. His incomplete understanding of the current, in combination with the misalignment of the bridge with the thalweg and the *Rivers Wilson*'s lower horsepower in comparison to the vessel on which he usually worked, resulted in his belief that the tow had enough speed to overcome the effect of the current.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the contact between the *Rivers Wilson* tow and the Norfolk Southern railway bridge was the pilot's decision to navigate through a bridge that was poorly aligned with the channel with an unfamiliar towing vessel in high water and strong current.

High-current Navigation

Seasonal, high current poses unique hazards for vessels working on and/or transiting inland rivers. Water flowing over normally exposed terrain and obstacles or man-made structures can change the expected current. Mariners should thoroughly assess the impact of high current on local hazards, such as jetties and bridges, and their effect on navigation.

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Vessel Particulars

Vessel	<i>Rivers Wilson</i>	<i>TOUAX 956 B</i>	<i>PTC 851</i>
Owner/operator	Rock Ridge Investments, LLC/ Graestone Logistics, LLC	TOUAX Leasing Corp.	Parker Towing Company Inc.
Port of registry	Mobile, Alabama	St. Louis, Missouri	Tuscaloosa, Alabama
Flag	United States	United States	United States
Type	Towboat	Freight barge	Freight Barge
Year built	1958	2011	2017
Official number (US)	275810	1235976	1276310
IMO number	N/A	N/A	N/A
Classification society	None	None	None
Construction	Welded steel	Welded steel	Welded steel
Length	125 ft (38.1 m)	200 ft (10.7 m)	200 ft (10.7m)
Draft	10 ft (3.0 m)	9 ft (2.7 m)	9 ft (2.7 m)
Beam/width	31 ft (9.5 m)	35 ft (10.7 m)	35 ft (10.7 m)
Tonnage	494 GRT	823 GRT	705 GRT
Engine power; manufacturer	2 x 1,400 hp EMD 12-567-C	N/A	N/A
Persons on board	8	0	0

NTSB investigators worked closely with our counterparts from Coast Guard Sector Mobile, Alabama, throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA19FM025.

Issued: February 26, 2020

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*, Section 1131(b)(1). 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*, 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. Title 49 *United States Code*, Section 1154(b).