National Transportation Safety Board

Marine Accident Brief

Breakaway of Bulk Carrier *Privocean* and Subsequent Collision with Tanker *Bravo* and Tugboat *Texas*

Accident no.	DCA15LM019
Vessel names	*Privocean*, *Bravo*, and *Texas*
Accident type	Breakaway and collision
Location	Mile* marker 161, Lower Mississippi River, Convent, Louisiana; 30°02.5' N, 90°50.4' W
Date	April 6, 2015
Time	1553 central daylight time (coordinated universal time – 5 hours)
Injuries	Four minor injuries
Damage	Estimated $11 million
Environmental damage	About 10 barrels of oil
Weather	Clear visibility; southeast winds at 6–7 knots; air temperature 73°F
Waterway information	Lower Mississippi River; high water conditions; current about 5 mph

About 1553 on April 6, 2015, bulk carrier *Privocean* broke free from its moorings at Convent Marine Terminal, located at mile marker 161 on the Lower Mississippi River during high water conditions. The ship drifted across the river and collided with tanker *Bravo*, moored at the Ergon-St. James Terminal. Tugboat *Texas*, which had been assisting the *Privocean*, was pinned between the ships as they collided. All three vessels, the dock at the terminal, and deck equipment on three other tugboats sustained damage totaling about $11 million. About 10 barrels of fuel oil spilled into the river, and four crewmembers aboard the *Texas* sustained minor injuries.

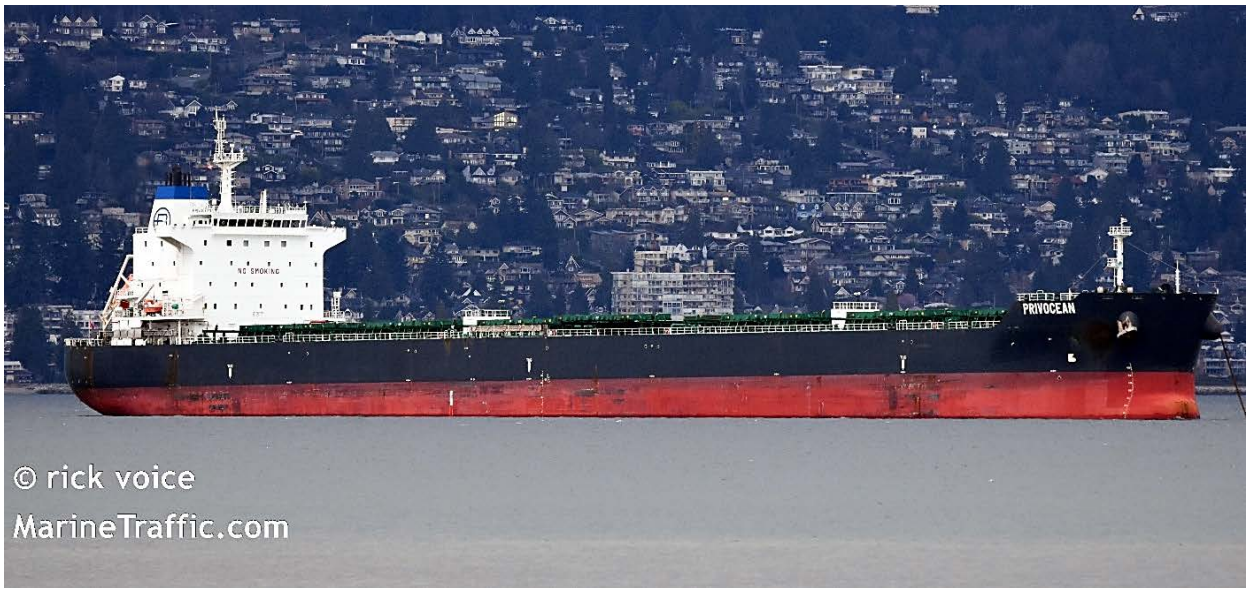


Photo of bulk carrier *Privocean* at anchor. (Photo courtesy of Rick Voice)

* Unless otherwise noted, all miles in this report are statute miles.

Accident Events

On April 4, 2015, 2 days before the accident, the *Privocean* departed Belmont Anchorage at mile marker 153.5 where its cargo holds had been cleaned in preparation for loading coal at the Convent Marine Terminal. About 2 hours after departing anchorage, the *Privocean* docked at the terminal, starboard-side-to, using two tugboats: The *Texas* was at the port bow and the *Ned Ferry* was at the port stern.

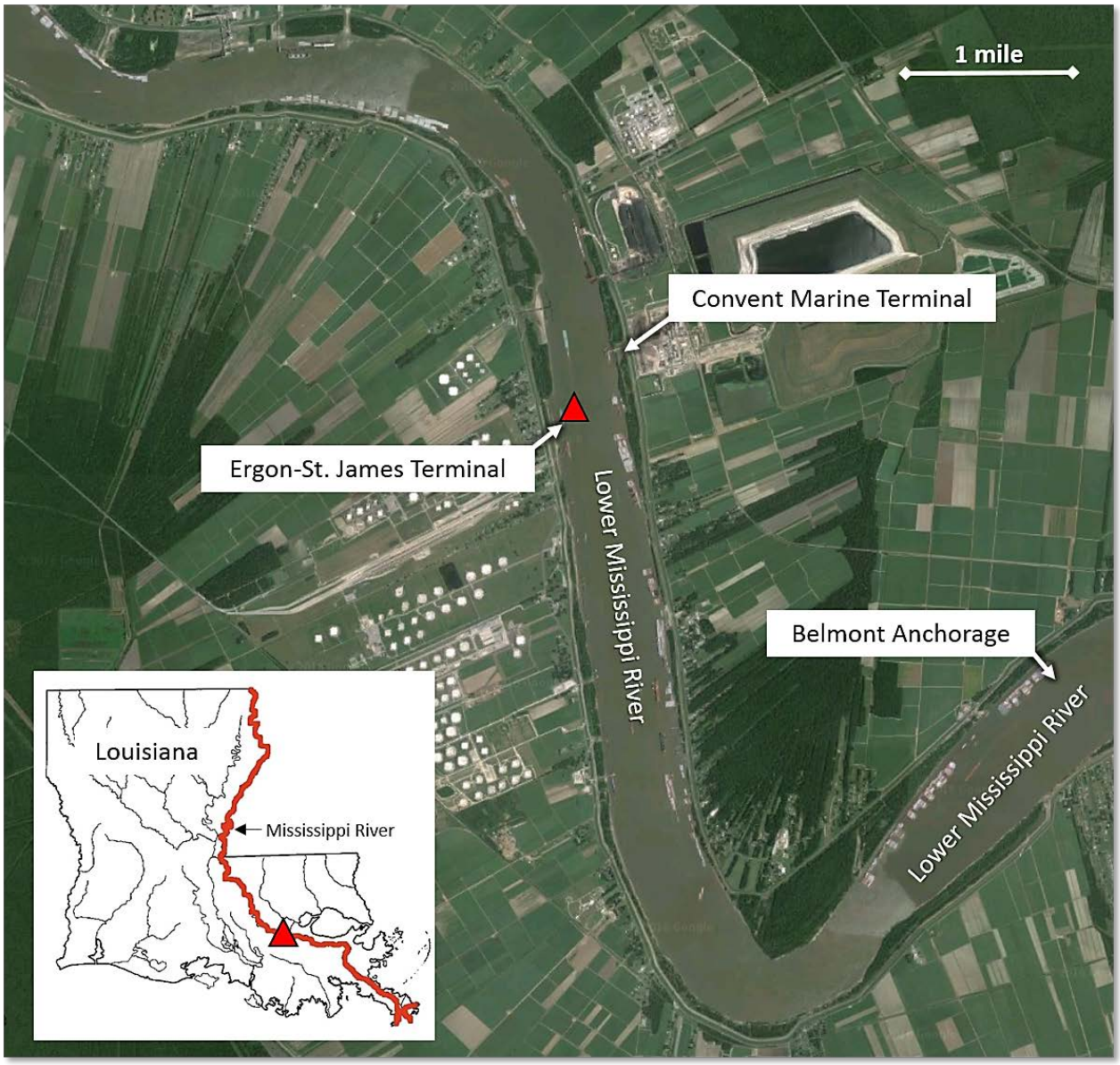


Image of the Mississippi River near Convent, Louisiana. The accident site is marked by a red triangle. (Background by Google Maps)

The master of the *Privocean* held a credential as master and had been sailing in this capacity for over 20 years. He had been aboard the *Privocean* for about 1 year. The master had been coming to the Mississippi River for more than 20 years but told investigators that he was unsure if he had docked at the Convent Marine Terminal during his career.

In the days leading up to the accident, the river was at a high water stage with very strong currents. Because of the river's condition, the pilot (from the New Orleans Baton Rouge Steamship Pilots Association) who was assigned to shift (move) the ship advised the *Privocean* master to put out extra lines and suggested that two "hold-in tugs" be used.[1] As a result, the master used 14 lines instead of the 10 lines he would have used in normal river conditions. He put out four bow lines, two forward spring lines, two aft spring lines, two aft breast lines, and four stern lines.[2] The bollards were rated for 90 tons each and were located 80 feet apart, center-to-center, with the distance from the north end of the dock to the first bollard being 24 feet. According to the dock manager, all bollards were available. However, the master told investigators that there were "no good mooring points for the forward and aft breast lines," and forward breast lines were not used. The bollards for the aft breast lines were located directly beneath the aft breast line chocks of the *Privocean* where the ship was positioned alongside the dock. The placement of lines at the particular bollards was determined initially by the linesmen; the master reviewed and approved the placement.

Before the accident, the master expressed concern to the vessel charterer and agent about the location of the bollards on the pier and the force of the river current. In a statement after the accident, the master also noted that the size of the securing wings of the bollards was insufficient; the upper aft breast line was barely staying over the bollard with a nearly vertical lead.

Left photo, taken by the *Privocean* master, of the aft breast lines at the Convent Marine Terminal before the accident. Right photo shows a bollard with mooring line attached after the accident.

[1] A pilot is retained by a ship to provide local knowledge of the waterway and an understanding of local procedures.

[2] When moored to a pier, breast lines provide holding power and prevent movement perpendicular to the pier, while spring lines prevent movement forward or aft along the pier. Bow and stern lines extend from the bow and stern respectively, and may serve the dual functions of providing holding power and preventing movement.

The captain and the mate aboard tugboat *Texas* told investigators that they understood that hold-in tugs would be used whenever the river reached about 12 feet in height on the river gage, and the river was at 14.2 feet on the day of the accident. Based on the pilot's suggestion, the *Privocean* master requested two tugboats from the vessel charterer's local agent, but the vessel charterer directed the master to use only one. Not confident that a single tugboat would be sufficient, the master decided to validate the need for two tugs. After all lines were made fast, he requested that the tugboats slack off to see how the ship would settle with mooring lines alone. As soon as the tugboats eased off, the *Privocean*'s bow began swinging to port away from the pier. The master emailed the charterer's agent with these results, and they agreed to provide two tugboats for the loading operation. The *Texas* and the *Ned Ferry* remained as the hold-in tugs, on the bow and stern respectively, throughout cargo operations.

The *Privocean* shifted positions at the dock twice over the next 2 days to facilitate loading of cargo, both times without problem. As the vessel loaded cargo, its draft increased from 31 feet to just over 45 feet, subjecting more of the vessel's hull to the strong currents. The master told investigators that the strain on the ship's lines was high during the course of the loading process, even with the two tugboats pushing in. The crane operator on shore who was loading the *Privocean* said that the bulk carrier was moving in and out from the pier about 7–10 feet throughout the day of the accident.

About 1500 on the day of the accident, the cargo representative on board the *Privocean* called the *Texas* on VHF radio and asked for more power due to the motion of the vessel. The wheelman on watch aboard the *Texas*, who had been pushing at ¾ power, increased power to full ahead. However, as the *Privocean* became fully loaded, the power of the two hold-in tugs was insufficient. The cargo representative and the tugboat operators discussed calling for a third tug, but the request had to be made by the master to the charterer's agent. The master stated that he called the agent about 1548 to request a third hold-in tug.

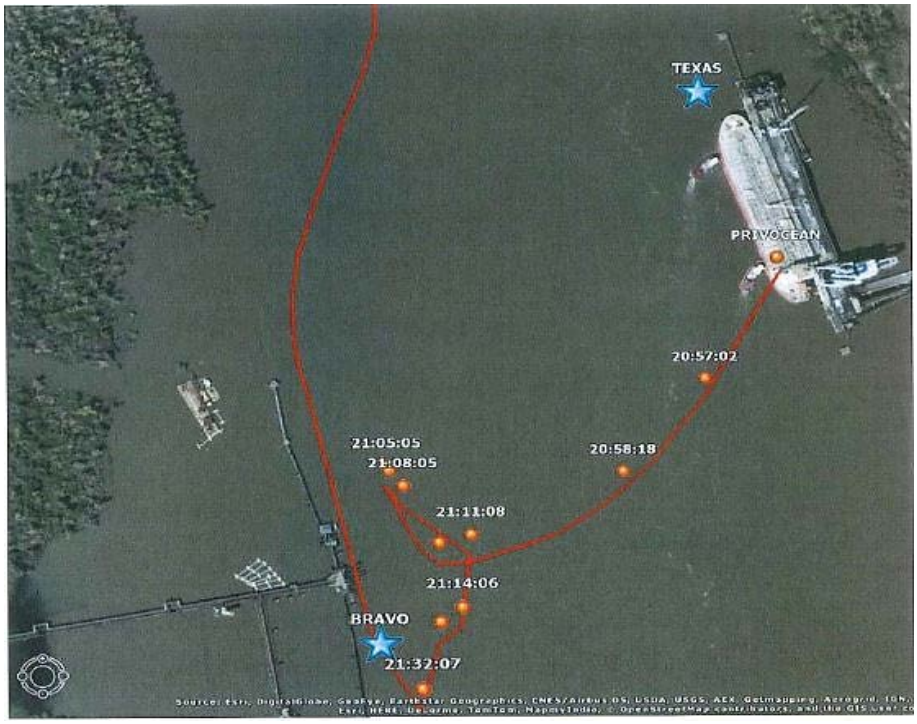
Despite the efforts of the two tugs, the bow of the *Privocean* continued to move in and out from the pier, and the first forward mooring hawser parted about 1551. The master said that the remaining lines parted or paid out under "tremendous strain" during the next 3 minutes, and the *Privocean* began to drift in the current and started crossing the river. The chief mate told investigators that the master ordered him to drop the starboard anchor, which he did, but it dragged at two shots. The anchor was heaved back in.

Photo taken by a crane operator at the Convent Marine Terminal, showing the *Privocean* drifting across the river. A spring line is visible and still connected to the starboard bow of the vessel. In the background, tanker *Bravo* can be seen moored at the Ergon-St. James Terminal.

The *Privocean* drifted across the river and struck the starboard side of the *Bravo*, which was offloading crude oil while docked portside-to at the Ergon-St. James Terminal (at mile marker 160.7). The *Bravo* had been moored using 17 lines and two hold-in tugs, the *G. Shelby Friedrichs* and the *Admiral Jackson*. The *Bravo* was first struck in the vicinity of the no. 1 ballast tank. When the *Bravo* master felt the vessel shift as the *Privocean* approached his ship, he initiated the emergency stop for the discharge operations; the manifold valve was closed, and the terminal was notified.

Photo of tanker *Bravo*. (Photo courtesy of Arjan Elmendorp)

After the initial contact, the *Privocean* bounced off and made contact with the *Bravo* a second time. As a result of the impacts, each of the *Bravo*'s 17 mooring lines parted, and the tanker began drifting downriver. Both port and starboard anchors of the *Bravo* were let go, and the vessel was brought to a stop about 500 feet downriver from the Ergon-St. James Terminal.



The *Privocean*'s trackline after breaking away from the pier at the Convent Marine Terminal. (Image by the US Coast Guard, based on automatic identification system data)

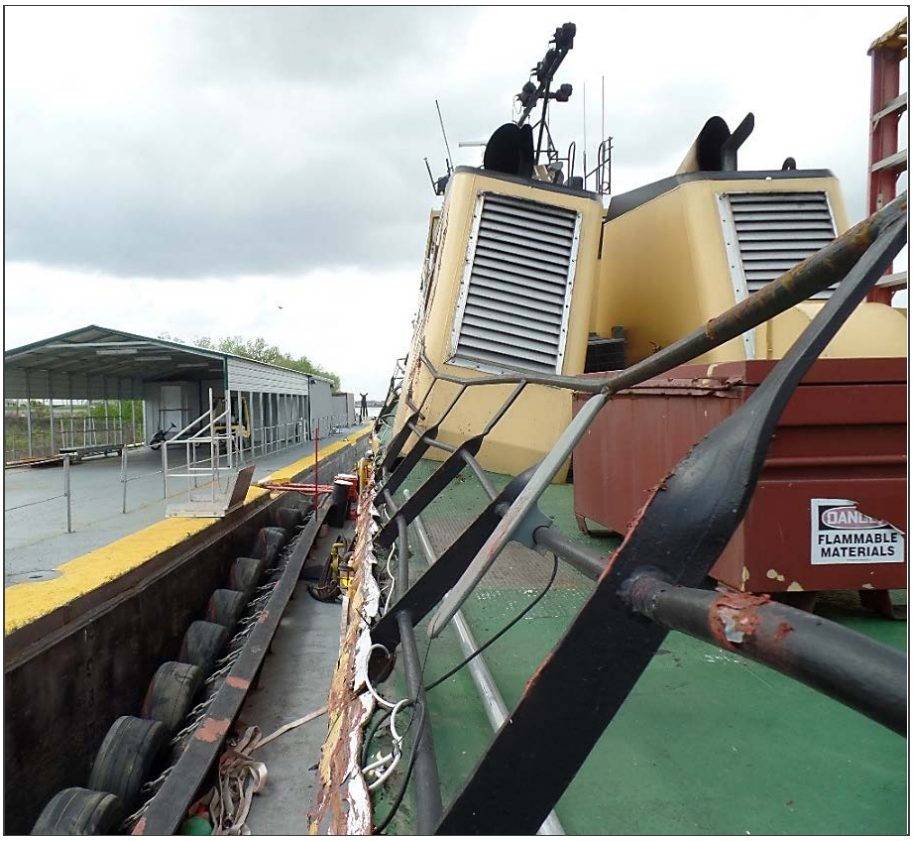
Hold-in tugs *Texas* and *Ned Ferry* tried to get away from the *Privocean* as the bulk carrier broke free from its mooring. The *Ned Ferry* crew let go of one line attached to the *Privocean*, and the line fell into the water. The current pushed the line into the starboard propeller of the *Ned Ferry*, where it became entangled. The *Privocean* crew released *Ned Ferry*'s second line, and the tugboat was able to back away using the port propeller. The *Texas* was unable to release its lines, however, and was pinned between the *Privocean* and the *Bravo* when they collided. The stern of the *Texas* was submerged on impact and swamped with water, flooding the engine room with about 5 feet (5,000 gallons) of sea water.

The *Admiral Jackson* was able to release itself from the *Bravo* and came to assist the damaged *Texas*. The *G. Shelby Friedrichs* escaped after the crew used an axe and a steak knife to cut the tow line when its winch malfunctioned.

Damage and Injuries

Damage to the *Privocean* was estimated at $250,000 and included inset and scuffed shell plating, internal structural distortions, a fractured and distorted accommodation ladder, and 14 parted mooring lines. Damage to the *Bravo* was estimated at $1.5 million and included fractured shell plating on three ballast tanks with internal structural damage; inset and buckled shell plating on four other ballast tanks; distorted and broken railings; and damaged cargo, fuel, and drain lines. Additionally, three of the 17 parted stern lines fouled the propeller and had to be

cleared by a diver, and the gangway ladder broke and fell into the river. No cargo tanks were damaged in the accident.



Port side of the *Texas*, showing bent handrails and damaged stack. (Photo by the Coast Guard)

The *Texas* sustained significant damage to the hull, weatherdecks, and superstructure. Both propellers were bent, internal areas were extensively water-damaged, and a 6.5-inch high-strength tow line parted. Damage was estimated at $1.5 million. All four crewmembers reported injuries. The captain sustained cuts and bruises to his knees, hands, and arms; the wheelman twisted his leg; the deckhand injured his arm; and the engineer injured his leg.

The Ergon-St. James Terminal sustained about $9 million in damage to mooring/breasting dolphins, walkways, and piping and electrical systems. Additionally, the terminal's loading arm sheared off from the manifold connection; as a result, about 10 barrels of residual oil in the loading arm spilled into the river. Another three barrels of oil spilled onto the deck of the *Bravo* but was contained by the ship crew.

Accident Analysis

The *Privocean* master stated that all deck machinery, main engine, steering gear, and navigation electronics were working properly before the accident. He had contacted his agent/charterers several times stating his concern with the river level, the location of the terminal with regard to a bend in the river, and the increased force of the current flow. In addition, he requested two hold-in tugs after mooring the bulk carrier and a third just before the accident. He had also expressed concern with the position of bollards available to secure the forward breast lines.

Because of the size of the ship, draft, and the location on the dock, forward breast lines were not put over to the line handlers. Line handlers confirmed that, because of the angle of the lines coming through, the only chock available on the ship, and the size of the horns on the bollard, forward breast lines would only have slipped off repeatedly. Although aft breast lines were used, they were secured only to one point and initially at a steep angle, allowing them to slip off the bollard. After the aft breast lines were run through a different chock, the situation was rectified.

Fourteen polypropylene mooring lines aboard the *Privocean* were 8-strand, 64-millimeter-diameter hawsers rated at 69.3 tons. The manufacturer, Shenli Rope-Making Co., had tested the mooring lines to 70.5 tons in December 2012; the test was witnessed by the vessel's classification society, Det Norske Veritas. Two other mooring lines, rated at 75.5 tons, were tested to 76 tons in April 2013 by the manufacturer in Korea. Destructive testing of several mooring lines was completed after the accident on the lines that were subjected to substantial forces.

Postaccident drug and alcohol testing was conducted on the watchstanders who were on duty at the time of the accident aboard the *Privocean*, the *Texas*, and the *Ned Ferry*. All results were negative.

About 3 weeks after the accident, the Convent Marine Terminal issued a mooring plan/guidance document for vessels moored at the facility when the river was above 12 feet. At a minimum, these directives require the following:

- Two anchors out of their pockets, ready for deployment, with the forecastle manned.
- Bow lines connected to the 90-ton and 225-ton upriver mooring dolphins.
- Breast lines on both bow and stern.
- Doubling up breast lines on the bow.
- Loading plans for vessels over 740 feet to ensure that shifting is in the downriver direction only. Vessels under 740 feet will be loaded without shifting.
- Pilot required during shifting.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between bulk carrier *Privocean*, tanker *Bravo*, and tugboat *Texas* was the inadequate mooring arrangement for the *Privocean* and the insufficient number of hold-in tugs provided by the vessel operator given the prevailing conditions.

Vessel Particulars

Vessels	*Privocean*	*Bravo*	*Texas*
Owner/operator	Privocean Shipping, Ltd	Bravo Shipping, Ltd	Crescent Towing
Port of registry	Valletta	Valletta	New Orleans, Louisiana
Flag	Malta	Malta	United States
Type	Bulk carrier	Tanker	Towing vessel
Year built	2013	2011	1996
IMO number	9628087	9472622	276425
Construction	Steel	Steel	Steel
Length	751 ft 4 in (229 m)	816 ft 11 in (249 m)	106 ft (35.3 m)
Draft	47 ft 7 in (14.5 m)	49 ft 2 in (15 m)	13 ft (4.3 m)
Beam/width	105 ft 8 in (32.2 m)	143 ft 8 in (43.8 m)	25 ft (8.3 m)
Gross and/or ITC tonnage	44,619 GRT	61,339 GRT	252 GRT
Engine power; manufacturer	14,013 hp (10,449 kW); MAN B&W 6S60MC-C	18,420 hp (13,736 kW); Hyundai B&W 6S60MC-C	2 X 2,150 hp (1,603 kW) GE 228 EFI
Persons on board	21	23	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.ntsb.gov and search for NTSB accident ID DCA15LM019.

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