



National Transportation Safety Board

Marine Accident Brief

Allision of Tanker *Nordbay* with Docks and Water Intakes

Accident no.	DCA16FM023
Vessel name	<i>Nordbay</i>
Accident type	Allision (two)
Location	Lower Mississippi River at mile markers 104 and 94; New Orleans, Louisiana
Date	February 2, 2016
Time	2213 central standard time (coordinated universal time – 6 hours)
Injuries	None
Property damage	\$6.4 million est.
Environmental damage	None
Weather	Overcast, visibility 8 miles, south winds at 17–24 knots, air temperature 73°F, water temperature 44°F
Waterway information	Lower Mississippi River near New Orleans. The river stage was 14.2 feet and falling, with a current of 4–5 knots. At New Orleans, the extreme difference between high and low stages is 17 feet, with the mean difference being about 8 feet. The project depth of the river is 45 feet and is maintained by the US Army Corps of Engineers.

On February 2, 2016, at 2213 local time, the tanker *Nordbay* was southbound on the Lower Mississippi River in New Orleans, Louisiana, with a pilot on board when it allided with a dock and water intakes on the left descending bank. Less than an hour later, as the vessel maneuvered through another bend in the river while heading toward an anchorage, it allided with a wharf on the left descending bank. No pollution or injuries were reported. The dock, water intakes, the wharf, and the *Nordbay* sustained an estimated \$6.4 million in total damage.



Nordbay under way in loaded condition. (Photo by Reederei Nord Group)

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The 817-foot-long Aframax tanker *Nordbay* was owned by MT Nordbay Ship Management B.V. and managed by Reederei Nord Group.¹ Delivered in 2007, it was classed by Det Norske Veritas-Germanischer Lloyd (DNV-GL) and was on a time charter with Valero Marketing and Ship Supply Company for carriage of crude oil from South America to the United States. The vessel had a single semi-spade rudder with maximum deflection of 35 degrees to port and starboard.² The single fixed-pitch right-hand-turning propeller was driven by a 19,000-hp slow-speed Sulzer engine.³ Bridge personnel could control the propeller rpm from a station on the bridge. The system had an acceleration-limiting program to help prevent damage to propulsion machinery from rapid changes in rpm. It could be overridden, however, by opening a button cover and activating the “program cancel” button.

From December 4, 2015, until June 17, 2016, the Carrollton Gage on the Lower Mississippi River remained above 9 feet, constituting a “high-water event.”⁴ A restriction that required implementing emergency procedures was in effect: southbound vessels from mile marker (mm) 233 above head of passes (AHP) to mm 90.5 AHP were restricted to daylight movement only.⁵ On January 29, at 0400, the restriction was removed for southbound traffic, but because of fog in the area few ships moved.

Accident Events

In the early evening of February 2, 2016, preparations were ongoing for the *Nordbay* to get under way from Valero dock no. 4 (at mm 125) in St. Charles, Louisiana, after the ship had discharged its oil cargo. Due to strong currents in the river, the vessel was being held at the dock by two tugboats in addition to its own moorings.

At 1912 on February 2, a pilot with the New Orleans–Baton Rouge Steamship Pilots Association (NOBRA) boarded the *Nordbay* in preparation for getting under way.⁶ He and the master met on the navigation bridge for a master/pilot information exchange. According to a checklist provided to investigators, the information exchange included minimum and maximum speeds for the passage (5 knots minimum and 10 knots maximum), under-keel clearances (estimated at 8.9 feet at 10 knots), expected traffic conditions, navigational equipment and machinery status (with no deficiencies reported), and tide/current/weather forecast. The checklist was completed at 1936 and was signed by the master but not the pilot. The pilot told investigators that the visibility was good and that there was a steady southeasterly wind of 15 knots at the time they got underway. According to the vessel information card given to him, the *Nordbay*’s departure drafts were 18.0 feet (5.5 meters) forward, 24.1 feet (7.4 meters) midship, and 30.2 feet

¹ *Aframax* is a medium-size tanker with a deadweight tonnage ranging between 80,000 and 120,000.

² The ship had two power units running at the time of the accident. Based on the bridge information poster, the rudder needed about 18 seconds to move between hard port and hard starboard.

³ According to the ship’s particulars, the draft at which the propeller would have been immersed was 24.3 feet (7.4 meters).

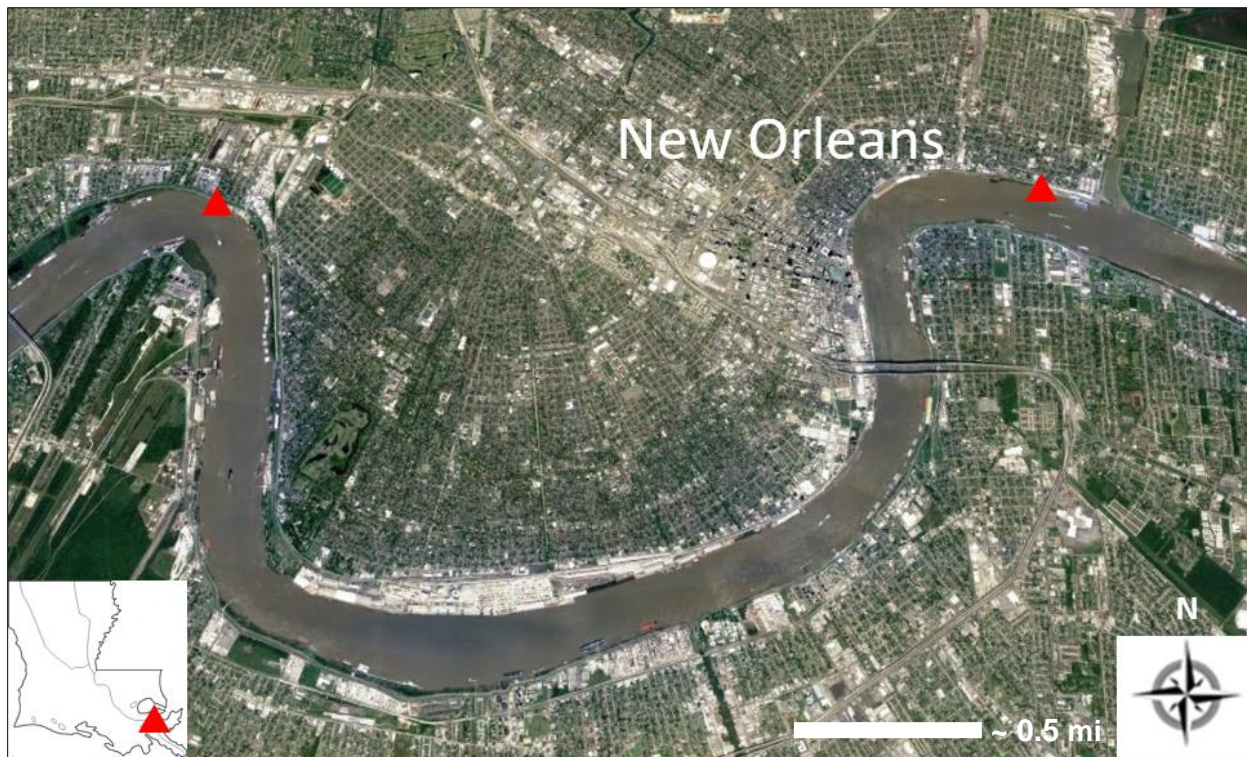
⁴ A *high-water event* would be 8 feet or above on a rising stage or 9 feet or above on a falling stage. (For more detail, see Title 33 *Code of Federal Regulations*, Section 161.65.) The Carrollton Gage is maintained by the US Army Corps of Engineers and provides current and historical water level information.

⁵ *Above head of passes (AHP)* is a datum for which mileages on the Lower Mississippi River are measured. Head of passes is where three of the river’s main passes come together: South Pass, Southwest Pass, and Pass a Loutre. This point of confluence is located at Head of Passes Junction Light (29°08’53” N, 089°15’06” W). Source: *United States Coast Pilot 5: Gulf of Mexico, Puerto Rico and Virgin Islands*, 44th ed. (Washington, DC: US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, 2016)

⁶ NOBRA’s area of coverage is the Lower Mississippi River between mm 88 and 234.

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(9.2 meters) aft, with a calculated freeboard of 44.3 feet (13.5 meters). Both the master and the pilot told investigators that they had discussed the high-water event and were aware there were no restrictions on the vessel getting under way at night. The master told investigators that the *Nordbay* was the first large tanker to get under way southbound after the high-water restrictions were lifted.



Satellite image of the Lower Mississippi River that runs through New Orleans. The sites of the two allisions are marked by red triangles. (Background by Google Earth)

The *Nordbay* left the dock at 2030 with assistance from the tugboats, which the pilot then dismissed. On the bridge with the pilot was the master, the officer of the watch (third mate), and a helmsman. The ship's bosun, acting as an anchor watch, was posted forward on the bow. One of the third mate's assigned responsibilities was to comply with the pilot's propulsion orders. In accordance with the ship's procedures, on receiving an order the third mate first informed the engine control room by telephone and then adjusted the propulsion lever, which was located on a console on the port side of the bridge.

The transit was uneventful until the *Nordbay* approached the Huey P. Long Bridge (at mm 106). At 2203, as the *Nordbay* approached the bridge, the pilot received a cell phone call that lasted less than a minute and pertained to the possibility of fog farther down the river. He briefly discussed the details of the call with the master.

At 2205, the ship passed under the bridge on a heading of 037 degrees at full-ahead speed (71 rpm) with a speed over ground of 14.8 knots and a speed through the water of 12 knots. According to the primary radar image captured by the VDR, the *Nordbay* was about 600 feet from the right descending bank. Ahead of the vessel lay Nine-Mile Point, a bend in the river that would require a large starboard course change of about 135 degrees. The pilot told investigators that when passing under the bridge he began to aim high in the bend so that he could use the current to make the turn at Nine-Mile Point. The south winds, at 15–25 knots, were on the starboard quarter of the

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vessel. Although the visibility was reported to be good, the master stated that there was fog on the water. Despite the fog, the lights of the shoreline were visible all around them.⁷

The pilot issued a series of increasing starboard rudder orders of 10 and 20 degrees and hard over. The ship's rate of turn to starboard increased, as did the heading, but its course over ground was slower to change. About 2208, the pilot asked the master, "Do we have any more rpm? Can we go to a ten-minute notice?"⁸ In response, the master ordered an rpm increase to 82.⁹ The third mate complied by calling the engine control room and then moving the propulsion lever. About a minute later, the ship was on a heading of 110 degrees true (073 degrees over ground) with a rate of turn to starboard of about 23 degrees per minute and less than 600 feet from the left descending bank. As the ship continued to set into the bend, the pilot again requested more rpm, to which the third mate replied that the ship was increasing in rpm. On hearing this, the master ordered an increase to 89 rpm; the third mate complied. However, at 2210, the pilot informed the master, "We're going to be down here in this bend shortly," and requested to have the danger signal sounded on the ship's whistle.¹⁰

Concerned that he did not hear the ship's whistle sound, the pilot looked for the whistle control panel with his flashlight and then, along with the third mate, inquired about the location of the panel. He again requested that the danger signal be sounded. About the same time, the VDR recorded a rapid decrease in rate of turn to starboard, a drop of speed over ground to about 9 knots, and at a speed through the water of about 6 knots. At 2211, the pilot announced via VHF radio on the vessel traffic service (VTS) frequency that the *Nordbay* was going into the bend at Nine-Mile Point (mm 104). Moments later, at 2212, the VDR recorded the rpm dropped from 76 to between 50 and 60, followed by a vibration noise. At that time, the ship was on a heading of about 143 degrees with a course over ground of 119 degrees. The *Nordbay* was still near the left descending bank, with the pilot trying to maneuver the ship out of the bend by "feathering the rudder," as he called it. This strategy entailed issuing a series of rudder orders from starboard 20 to midship in about a 15-second span. The pilot described feathering the rudder as an effective means for increasing the ship's rate of turn in trying to keep the vessel off the bank. About 2213, the VDR recorded an additional vibration followed by alarms sounding on the bridge. The vessel had struck a dock owned by River Transport Services; it also struck water intakes owned by the Sewerage and Water Board of New Orleans.

As the pilot got the ship back into the channel on a southerly course, the master ordered the general alarm to be sounded at 2215 and instructed all crewmembers to assemble at their muster stations. About the same time, the pilot's cell phone rang; he answered and informed the caller that he was unable to talk. He then issued a port-20 rudder order, followed by a half-ahead speed order. The pilot later told investigators that the call he received at that time was a personal call.

⁷ There were no entries in the ship's logbook about the weather conditions or visibility on February 2, 2016, from 1200 onward.

⁸ There is no listing of the phrase "ten-minute notice" in the *IMO Standard Marine Communication Phrases* [IMO resolution A.918(22)]. A pilot may use the phrase to alert engineering watch personnel of upcoming changes in rpm that can be expected in the next 10 minutes, for which they will need to plan accordingly.

⁹ According to the *Nordbay*'s maneuvering characteristics (in ballast condition), full-ahead sea speed at 99 rpm equates to 16.4 knots through the water, and full-ahead speed of 71 rpm equates to 12.1 knots through the water.

¹⁰ The *danger signal*, as the term is commonly called, entails sounding at least five short, rapid blasts on the ship's whistle. According to the convention on the international regulations for preventing collisions at sea, this warning is to be sounded when in doubt of another vessel's intentions, actions, and/or when in doubt of whether sufficient action is being taken in conditions where vessels are in sight of one another. (Source: COLREG 1972 Rule 34[d].)

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Satellite image overlaid with automatic identification system (AIS) trackline of the *Nordbay* at Nine-Mile Point. Background traffic positions may not be accurate. (Source www.mrtis.com; Background by Google Earth)

At 2218, the pilot contacted New Orleans VTS and requested tugboat assistance; he and VTS determined that the *Nordbay* would proceed to the general anchorage (which was the safest and closest anchorage) below Algiers Point. The pilot told VTS that he felt he had control of the vessel and that there was no oil cargo on board. New Orleans VTS informed the pilot that it would try to keep other vessels clear of the *Nordbay*. The master, who had ordered the chief mate to inspect the ship for damage, was told that there was damage to portside ballast water tank no. 6. The damage was reported to be above the water line with ballast water spraying into the river.

The *Nordbay* passed the Carrollton Gage at 2220. About that time, the pilot notified the NOBRA office via cell phone about the accident and arranged for another pilot to board the vessel near the anchorage. The master also used the ship's cell phone to inform the shipping company of the damage to the ballast tank. The *Nordbay* continued southbound and passed through Greenville Bend at Six-Mile Point, which required a port turn that the pilot stated was completed successfully (he noted that the ship handled well in port turns). At 2237, two escort tugboats—the *Greg Turecamo* and the *Captain Jimmy T Moran*—met the *Nordbay* and offered to attach lines to the ship, which the pilot declined. He told investigators that he considered adding the lines but that maneuvering around Algiers Point required good speed to manage the rudder; therefore, moving at such speed with attached tugboats, he thought, would risk dragging them under. Algiers Point, between mm 95 and 94, requires a large course change (in the case of the *Nordbay* about 120 degrees to starboard, while transitioning from a northerly to east-southeast course).

After the *Nordbay* passed underneath the Crescent City connection bridges at 2258 about 600 feet off the right descending bank, the pilot ordered full-ahead speed in preparation for rounding Algiers Point. Three minutes later, the pilot ordered the rudder to starboard 20 and then hard to starboard to start the turn. The ship was at 71 rpm with a speed of 11.2 knots over ground and 7.4 knots through the water on a heading of 354 degrees true. The master was still on the phone with the shipping company when the pilot initiated the turn. The *Nordbay* continued rounding the

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bend; as the vessel changed heading, the winds at 15–25 knots from the south-southeast were on the starboard quarter and then starboard beam.

At 2303, the pilot, recognizing that the *Nordbay* was again approaching the left descending bank, called the *Greg Turecamo* on his port bow and told the operator to stay clear of that area. He again began feathering the rudder to increase the rate of turn. At 2304, on a heading of 067 with about a 15-degree rate of turn to starboard and a course over ground of 033 degrees, the pilot asked the master, “Can we get more rpm?” The master ended the phone call with the shipping company and asked the pilot how many rpm he wanted, to which the pilot replied, “Emergency . . . As much as you can give me!” The master called the engine control room stating he needed emergency rpm, and moved the propulsion levers to full-ahead sea speed, announcing “ninety-eight” rpm. He then asked the pilot what was happening, to which the pilot replied that they were being pushed down into the bend. The master also asked about the tugboats, to which the pilot responded by radioing the operators to stand by on the starboard bow.

The pilot continued to make rudder orders of starboard through midship throughout the bend, to which the helmsman responded appropriately. The *Nordbay*’s rate of turn to starboard began to decrease from its maximum of about 20 degrees per minute as the heading passed 081 degrees true with a course over ground of 050 degrees at 2305. The rpm was 78 and the speed through the water was 4.4 knots, but with the strong following current, the actual speed over ground was 9.1 knots. About a minute later, the VDR recorded noise and vibrations, followed seconds later by alarms on the bridge. The pilot requested the danger signal be sounded; the VDR recorded two short blasts followed by one long blast repeated several times. At 2306, the *Nordbay* struck the Mandeville Street Wharf, which was an unused wooden pier near mm 94 on the left descending bank.



Satellite image with overlaid AIS trackline of the *Nordbay* (in red) at Algiers Point. Background traffic positions may not be accurate. (Source www.mrtis.com; Background by Google Earth)

After the *Nordbay* struck the wharf and was still along the left descending bank, the pilot continued giving rudder orders between starboard 20, midship, and hard to starboard in quick succession to get the ship back into the channel. One of the tugboats was able to get a line on the

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starboard bow at 2314. Four minutes later, a replacement pilot from the Crescent River Port Pilots Association, who had already been assigned to the *Nordbay* prior to the accident, arrived on the bridge. Additional tugboats were called in to help as the *Nordbay* approached the anchorage; with their assistance, the ship was turned to head into the current and maneuvered to the anchorage. The pilot was relieved by the Crescent River pilot at 2338. The starboard anchor was let go at 0015 just below mm 91.

Personnel

The pilot was up to date on all federal, state, and association licensing and training requirements. He had been sailing as a fully licensed NOBRA pilot with no tonnage limitations for about 4 years at the time of the accident and stated that he averaged about 150 piloting assignments a year in that section of the river. He stated that he had experience handling tankers of that size in ballast in the river. The pilot was tested for alcohol and other drugs postaccident; the results were negative. He reported that he was well-rested, in part because during the past night there were no piloting callouts due to fog conditions on the river.

The master and bridge crew were credentialed with appropriate endorsements for their duties on board. They were also tested for alcohol and other drugs, with all results negative. The master stated he had about 34 years of seagoing experience and, since 2007, had worked as master of the *Nordbay* and another company tanker. He estimated that he had sailed the Mississippi River about 20 times (five times on the Upper Mississippi River and 15 on the lower).

Damage

The allisions together resulted in an estimated \$6.4 million in damage, as follows:

- A DNV-GL survey of the *Nordbay* found damage to the vessel's five propeller blades (indentations, sharp edges, and notches) and contact-damage to the aft portside shell plating above the waterline. Further, inset hull plating and buckling of longitudinal webs was found in ballast tank no. 6, the ballast double bottom, and the pump room. Damage to the *Nordbay* was estimated at \$400,000.
- The intakes for the Sewerage and Water Board of New Orleans (Jefferson Parish, between about mm 104.1 and 103.8) were damaged but continued to function without interruption. A full and detailed damage report was not made available to investigators; however, estimated damage to the intakes was \$2 million.
- The River Transport Services (RTS) barge dock and mooring dolphin structures were destroyed and determined not to be serviceable. Cost of replacement was estimated between \$1.5 and \$4 million.
- A full damage assessment for the Mandeville Street Wharf was not available at the time of release of this report.

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At left, *Nordbay*'s damaged propeller (photo by DNV-GL). At right, the destroyed River Transport Services dock (photo by Infinity Engineering Consultants).

Analysis

The ship allided with structures on the shoreline while the pilot was navigating two large bends in the river, both which required large course changes to starboard. In addition to the high-river condition and strong following current, the wind also had an effect on the *Nordbay*. The ship was in ballast with a freeboard greater than the draft and a 12-foot trim by the stern. In a lighter draft condition, the hull has less “grip” on the water. The master told investigators that Aframax ships like the *Nordbay* have a large surface area of the hull exposed to wind pressure. The master noted that the wind at both starboard turns was on the starboard side and remembered the relative wind on the first turn being on the starboard beam at 20–23 knots. He recalled that the conditions were similar on the second turn but not as strong. While in the two large bends, the *Nordbay* was turning into the wind with a heading and direction that put the wind on the starboard side of the ship, thus setting the vessel deeper into the left descending bank and reducing the rate of turn. By the pilot’s account, the stern was “falling into the bend and the bow was not climbing out.” Both the master and the pilot stated they were aware of the wind and high-water conditions for the downbound transit but they did not discuss the effect of these conditions on the ship. By the account of the master and the pilot, both considered the risk of getting under way in those conditions acceptable and determined no additional measures were needed to mitigate the risk.

The master/pilot exchange checklist indicated that the minimum/maximum speed for the passage was discussed. Even though the speed in both bends was more than what was covered in this exchange, the pilot told investigators that more rpm was necessary to manage the rudder with the following current. The current around each of the bends did not flow through the middle of the river and as such, at each turn the pilot had to bring the ship into the current and follow the current through while managing water flow over the rudder and the ship’s rate of turn. The master told investigators there were no problems or differences with the steering and handling of the ship in either port or starboard turns, and the pilot mentioned that the ship handled well in course changes to port.

After the first allision, both the master and the pilot became occupied with communications and notifications about the accident. While approaching the turn at Algiers Point, the master was on the phone with his company representative and responding to requests for information. It was

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only when the pilot notified the master that he needed more engine rpm that the master ended the phone call to attend to the pilot's urgent request. The master, occupied with this call, had no awareness of the rapidly developing situation until the pilot alerted him to it. Additionally, the pilot used his cell phone to make and receive phone calls. He received a work-related call moments before the first course change around Nine-Mile Point and a personal call at a critical moment when trying to get the ship out of the bend. After the allision, the pilot used his cell phone to notify NOBRA personnel of the accident and arrange for a relief pilot further downriver, but he was not on a call during the turn and the second allision at Algiers Point. Although it is important to provide timely notification of an accident, doing so should never interfere with the safe navigation and control of the ship.

There is no evidence that the master and the pilot discussed the particulars of the propulsion system, including that the ship had an acceleration-limiting program on the engine and how the program could be overridden, if necessary. The pilot told investigators the rpm was not increasing quick enough. The master told investigators that the program could be overridden at any time by pushing a button on a panel next to the propulsion lever, and that he, in fact, did so when the pilot asked for more rpm leading up to the first allision. The master also noted that before the initial grounding and allision the pilot requested "a ten-minute notice," which led him to believe that the handling of the ship was "under control," because no significant rpm changes would be needed for the next 10 minutes. Regardless, there was not sufficient evidence to establish whether more rpm would have made a difference at that stage in the accident sequence. Furthermore, regulations on the river require that the engines be ready for immediate use.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the *Nordbay*'s allisions with water intakes and docks was the pilot and the master not adequately assessing the risks of handling the ballasted vessel during high-river conditions with strong following currents while turning into the wind. Contributing was the bridge team's poor situational awareness of the vessel's position in the waterway. Contributing to the second allision was the master's distraction from his duties while making a phone call.

Distracted Operations

Postaccident communications and notifications should never interfere with the safe operation of a vessel that is still under way. Control of the vessel and attention to the safe handling of the ship must be maintained at all times until the ship is safely anchored or moored. The presence of a pilot does not exempt the master and bridge team from their duty to safely navigate the ship.

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Vessel Particulars

Vessel	<i>Nordbay</i>
Owner/operator	MT Nordbay Ship Management B.V.
Port of registry	Limassol
Flag	Cyprus
Type	Tanker
Year built	2007
IMO number	9319870
Classification society	Det Norske Veritas-Germanischer Lloyd
Construction	Welded steel
Length	817 ft (249 m)
Draft	18 ft (5.5 m) forward, 30.2 ft (9.2 m) aft
Beam/width	144 ft (44 m)
Gross tonnage	62,241 gross tons
Engine power; manufacturer	19,000 hp (14,168 kW); Sulzer 7RTA58T
Persons on board	24

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 DCA16FM023.

Issued: August 25, 2017

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. 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).