

Adopted February 16, 2022

Collision between Offshore Supply Vessel *Cheramie Bo-Truc No.* 33 and US Coast Guard Cutter *Harry Claiborne*

On October 11, 2020, at 1544 local time, the offshore supply vessel *Cheramie Bo-Truc No. 33* was traveling with a crew of five outbound for sea in Sabine Pass when it collided with the US Coast Guard cutter *Harry Claiborne*, which was servicing a buoy near Texas Point, Texas (see figures 1 and 2).¹ The *Cheramie Bo-Truc No. 33* subsequently ran aground. The crew attempted to refloat the vessel, and as it broke free, the current set the offshore supply vessel into the stationary cutter, resulting in a second collision. Three of the 24 crewmembers aboard the *Harry Claiborne* suffered minor injuries; none of the *Cheramie Bo-Truc No. 33* crewmembers were injured. No pollution was reported. The estimated damage to the *Cheramie Bo-Truc No. 33* (\$65,072) and the *Harry Claiborne* (\$440,879) totaled \$505,951.



Figure 1. *Cheramie Bo-Truc No. 33 (left)* and *Harry Claiborne (right)* under way before the collision. (Sources: Shipspotting.com, Facebook.com)

MIR-22/04

¹ (a) In this report, all times are central daylight time, and all miles are nautical miles (1.15 statute miles). (b) Visit <u>ntsb.gov</u> to find additional information in the <u>public docket</u> for this NTSB casualty investigation (case no. DCA21PM003). Use the <u>CAROL Query</u> to search safety recommendations and investigations.

Casualty type	Collision	
Location	Sabine Pass, Port Arthur, Texas 29°41.36′ N, 093°50.33′ W	
Date	October 11, 2020	
Time	1544 central daylight time (coordinated universal time -5 hours)	
Persons on board	5 (<i>Cheramie Bo-Truc No. 33</i>), 24 (<i>Harry Claiborne</i>)	
Injuries	3 minor	
Property damage	\$505,951 est.	
Environmental damage	None	
Weather	Visibility 10 nm, scattered clouds, winds south-southwest 9 kts, gusts 12 kts, sea calm, air temperature 80°F, water temperature 76°F	
Waterway information	Navigable channel, depth 40 ft, width 600 ft, current ebbing 1.2 kts	



Figure 2. Area where the *Cheramie Bo-Truc No. 33* and *Harry Claiborne* collided, as indicated by the red *X*. (Background source: Google Maps)

1. Factual Information

1.1 Background

1.1.1 Vessel Information

The *Cheramie Bo-Truc No. 33*, a 168.4-foot-long, steel-hulled vessel, was built in 1979 by Halter Marine, in Lockport, Louisiana. The offshore supply vessel was operated by L&M Botruc Rental LLC and chartered to Genesis Energy to service six Gulf of Mexico oil and gas platforms weekly. The vessel was outfitted with three propellers, a bow thruster, and an electronic chart system (ECS), which displayed automatic identification system (AIS) targets.

The *Harry Claiborne*, a 175-foot-long, steel-hulled vessel, was built in 2001 at Marinette Marine of Wisconsin and homeported in Galveston, Texas. The cutter serviced floating aids to navigation, primarily from Laguna Madre, Texas, to Grand Isle, Louisiana. The vessel's propulsion and steering were provided by two azimuth stern drive units, commonly referred to as Z-drives. Each Z-drive was shaft-driven by its respective main engine and able to rotate 360° via integral hydraulic motors. This rotation, used in conjunction with engine throttle control, allowed for variable thrust in any direction, eliminating the need for rudders. The *Harry Claiborne* was also outfitted with a bow thruster. When active, a dynamic positioning (DP) system automatically maintained the vessel's position and heading.

1.1.2 Waterway Information

Sabine Pass extended 6 miles south from Sabine Lake to the Gulf of Mexico, then 3.5 miles offshore between two jetties (see figure 2). From the Gulf of Mexico, it provided access to Port Arthur and Beaumont, Texas. The charted channel at the collision site had a projected depth of 40 feet and width of 600 feet, with 2,200 feet between the jetties.

Two days before the collision, on October 9, 2020, Hurricane Delta came ashore with winds of 85 knots near Creole, Louisiana, 39 miles east of the collision site.² As a result, radar and internet connections used by Coast Guard Vessel Traffic Service (VTS) Port Arthur were out of service. According to the commanding officer on board the *Harry Claiborne*, 28 to 30 buoys were off station (not at their assigned locations). The Coast

² National Hurricane Center, *Tropical Cyclone Report, Hurricane Delta*, April 2021. Retrieved June 23, 2021, from <u>https://www.nhc.noaa.gov/data/tcr/AL262020_Delta.pdf</u>.

Guard closed Sabine Pass due to the hurricane and reopened it at 1200 on the day of the collision.

1.2 Casualty Events

On the morning of October 11, at 0848, the *Harry Claiborne* left Galveston to service buoys in Sabine Pass and Calcasieu Pass (50 miles east) that were potentially impacted (either shifted or were missing) by Hurricane Delta. The bridge team consisted of a conning officer, an officer of the deck, the commanding officer, and a roving quartermaster of the watch. According to the officer of the deck, the crew used an electronic chart display and information system (ECDIS), automatic radar plotting aid (ARPA), and AIS for navigation and collision avoidance. All equipment was functioning properly.

At 1350, the *Harry Claiborne* passed the jetty entrance with an even keel draft of 8.5 feet. On deck were two buoys and a 12,000-pound concrete buoy sinker (anchor). At 1420, the cutter was alongside red buoy no. 30 on the east side of the channel. After making arrangements by VHF radio, several inbound deep-draft vessels passed the cutter on the cutter's port side, including the 600-foot-long tanker *Lara* and the 944-foot-long tanker *Neo Energy*, at 1423 and 1433, respectively.³ At 1448, the *Harry Claiborne* crossed the channel to the west side, turned around, and came alongside green buoy no. 29 to verify its position since it had been previously reported missing.

About 1510, the *Harry Claiborne* proceeded 0.6 miles south to green buoy no. 27, which the local pilot station had requested to be checked. Radar indicated that the navigation aid appeared off station, according to the commanding officer. Having just serviced buoy no. 29 from the vessel's starboard side, the crew intended to work on buoy no. 27 from the same side, with the cutter's stern into the estimated 1.2-knot ebb current.

Meanwhile, the *Cheramie Bo-Truc No. 33* was moored at the Genesis Energy dock on the west side of Sabine Pass. On board the vessel were a captain, a mate, a chief engineer, an able seaman, and an ordinary seaman.⁴ According to the captain, all electronics and machinery were operable.

At 1526, the *Cheramie Bo-Truc No. 33* checked in with VTS for departure from the Genesis Energy dock with an 11-foot draft. VTS replied, "Roger, outbound 11-foot draft shows *Genesis* inbound [at] Texas Point. You got the tug *Rachel*, barge on the hawser,

³ *Deep-draft vessels* must transit in the main ship channels, unlike smaller vessels (such as towing and fishing vessels), which can operate in shallower water outside the main ship channels.

⁴ An *able seaman* is a more experienced deckhand than an *ordinary seaman*, which is an entry-level position.

coming in the jetties. And be advised you got the Coast Guard cutter down there working buoys, minimum wake."⁵ The buoy on which the cutter crew was working was positioned on a bend of Sabine Pass marking charted shallow water. At 1538, the *Cheramie Bo-Truc No. 33* met and passed the crew boat *Genesis,* port to port, in the channel just south of red buoy no. 32.

Around this time, the *Harry Claiborne* crew had secured on deck the 8-by-26-foot buoy no. 27, which had been tending south in the ebb current, and disconnected it from the mooring chain. The crew was heaving in the chain while using the DP system to make 3-yard incremental moves aft to position-check the 12,000-pound sinker. The conning officer was maintaining the vessel's position using the DP console, while the officer of the deck was watching the chain from the bridge wing.

The *Cheramie Bo-Truc No. 33* captain told investigators that he believed the offshore supply vessel's approach to the cutter was an overtaking situation. At 1540, just before passing green buoy no. 29, the captain called the *Harry Claiborne* via VHF radio to request a "one-whistle" passing arrangement (see table 1), indicating the offshore supply vessel would overtake the cutter on the cutter's own starboard side. The *Harry Claiborne*, displaying dayshapes for a "vessel restricted in her ability to maneuver," was working near the edge of the navigable channel in 30-40 feet of water, the conning officer estimated, and the buoy had 135 feet of chain.⁶

Time	Originator	Message
1540:26	Cheramie Bo-Truc No. 33	"Botruc 33 to buoy tender [cutter at] Texas Point."
1540:31	Harry Claiborne	"Go ahead, sir."
1540:34	Cheramie Bo-Truc No. 33	"Botruc 33 back, one whistle, Capt?"
1540:39	Harry Claiborne	"Roger sir, come on, on one [indiscernible]."
1540:44	Cheramie Bo-Truc No. 33	"33."

	Table	1. Radio	conversation.
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⁵ (a) *Barge on the hawser* is a vernacular phrase indicating the tug was towing the barge astern, as opposed to pushing the barge or towing it alongside. (b) *Minimum wake* refers to an area where vessels are expected to travel at slow (idle) speeds to minimize the wake (waves) created while under way.

⁶ Dayshapes are signals in the form of a ball, cone, cylinder, and/or diamond that a vessel is required to display during the day (as opposed to lights at night) to indicate its operational status. See <u>Rule 27 of the</u> <u>Inland Navigation Rules</u> (Title 33 *Code of Federal Regulations* [*CFR*] section 83.27).

At 1542, after passing green buoy no. 29, the *Cheramie Bo-Truc No. 33* made a slight course change to starboard (see figure 3). Up to that point, the offshore supply vessel had been traveling about 13.1 knots. The captain reported that as the vessel approached the *Harry Claiborne*, the reading on the *Cheramie Bo-Truc No. 33*'s depth sounder quickly dropped, prompting the captain to abort his attempt to pass starboard of the cutter to avoid running aground. Realizing the imminent danger of collision, the captain then reversed the vessel's engines and used the bow thruster and rudder to turn to port to try to avoid hitting the cutter.



Figure 3. Sabine Pass chart showing the path of the *Cheramie Bo-Truc No. 33* (in red) from the Genesis Energy dock to the collision site. (Source: National Oceanic and Atmospheric Administration [NOAA] chart 11342, annotated by NTSB)

A safety officer on the deck of the *Harry Claiborne* radioed the bridge about the impending collision. The conning officer stated that while looking aft, she saw the offshore supply vessel's starboard bow. The officer of the deck stated he could see someone in the wheelhouse of the *Cheramie Bo-Truc No. 33* turning the wheel to port. The commanding officer made a shipwide announcement to prepare the crew for collision while the conning officer sounded five short blasts on the ship's whistle.⁷

⁷ <u>Rule 34 of the Inland Rules</u> (33 *CFR* 83.34) requires a vessel to sound "at least five short and rapid blasts" when in doubt of another vessel's intentions or actions, or in doubt "whether sufficient action is being taken by the other to avoid collision." This warning signal has also been referred to as the "danger signal."

At 1543, the VTS watchstander, who was monitoring the waterway using AIS and the traffic service's camera, was looking for the tug *Rachel*, which at the time was traveling inbound in the Sabine Pass jetty channel. Noticing the close-quarters situation developing between the cutter and the offshore supply vessel, he zoomed in on the video to investigate (see figure 4). The camera captured the offshore supply vessel's swing to port and the subsequent collision.



Figure 4. Screen capture from VTS camera footage at 1543, a minute before the collision. (Source: Coast Guard)

At 1544, while traveling at 6 knots, the *Cheramie Bo-Truc No. 33* collided with the *Harry Claiborne*, its bow striking the cutter's transom on the port side (see figure 5). The impact slightly displaced the cutter, which was within 10 yards of buoy no. 27's assigned position on the edge of the dredged channel. Two crewmembers aboard the *Harry Claiborne* sustained minor injuries. To avoid being swept out into the channel if they lost propulsion, the cutter crew secured the buoy chain with a hook and dropped the ship's anchor. With the cutter's DP system active, the thrusters moved the vessel back to its programmed position and heading.

VTS attempted to contact the *Cheramie Bo-Truc No. 33* immediately after the collision. The *Rachel* was allowed to proceed inbound, given that the tug was towing astern and could not easily stop between the jetties. VTS then closed the waterway, not knowing the damage to either vessel.



Figure 5. Screen capture from VTS camera footage at 1544, the time of the collision. (Source: Coast Guard)

After the offshore supply vessel struck the cutter's stern, momentum rotated the *Cheramie Bo-Truc No. 33* to port about 135° and carried it down the *Harry Claiborne*'s starboard side into the mud, until the offshore supply vessel came to rest on a northeast heading. VTS captured radio conversations between the cutter and offshore supply vessel as they exchanged injury and damage reports. AIS data showed the offshore supply vessel was aground about 130 feet west-southwest of buoy no. 27. Figure 6 provides a diagram illustrating the sequence of these events—the grounding and second collision—following the initial collision.

The *Harry Claiborne* crew then overheard the *Cheramie Bo-Truc No. 33* crew inform VTS of their plans to refloat the vessel and get under way, although no plan was shared with the cutter. After 45 minutes of the crew de-ballasting and maneuvering to get the vessel out of the mud, the *Cheramie Bo-Truc No. 33* floated free about 1730. The captain then decided to return to port rather than continue out to sea. However, as they attempted to maneuver around the *Harry Claiborne*'s stern, the ebb current set the offshore supply vessel into the cutter. Recognizing that a second collision was imminent, the cutter's commanding officer made another shipwide announcement warning the crew to brace for impact. The *Cheramie Bo-Truc No. 33* starboard bow struck the *Harry Claiborne*'s starboard quarter. A third Coast Guard crewmember was injured when the fender he placed between the vessels was ripped from his hands as the vessels collided.

At 1800, the *Cheramie Bo-Truc No. 33* returned to the Genesis Energy dock. The *Harry Claiborne* departed the collision site at 1742. Upon getting under way, the cutter crew reported noise coming from the port Z-drive thruster and, thus, proceeded to Galveston using one engine, arriving about 0900 on October 12.

1.3 Additional Information

1.3.1 Damage

The *Cheramie Bo-Truc No. 33* sustained a fractured bulwark on the starboard bow. The *Harry Claiborne* sustained damage on the port side to its shell plating, vertical framing, fantail, and Z-drive (see figure 7). From the second collision, the cutter sustained additional damage on its starboard quarter above the waterline.

1.3.2 Operations

The *Harry Claiborne* bridge team was accustomed to working in restricted waters. The officer of the deck told investigators he found the passing arrangement "kind of odd," considering the channel was completely open on the port side of the cutter with no



Figure 6. Illustration of the positions of the offshore supply vessel (yellow) and the cutter (blue) with estimated headings relative to buoy no. 27 during the first collision, grounding, and second collision. (Background source: NOAA Electronic Navigational Charts, annotated by NTSB)

inbound traffic of concern. Furthermore, he was "thinking at the time...wonder why they want to overtake us on the starboard side, mainly because we were servicing an aid on



that side and...we're so close to charted shoal water." However, the cutter crew did not question the offshore supply vessel captain's intention, assuming he was familiar with the area. "They navigate these channels way more than we do," said the conning officer.

The captain of the *Cheramie Bo-Truc No. 33* had 29 years of experience as a licensed deck officer, including time with Genesis Energy and L&M Botruc Rental since 2001. The captain told investigators he would have expected the *Harry Claiborne* crew to tell him if there was not enough water for him to pass outboard of the cutter: "I just assumed he [the cutter's commanding officer] knew what the depth of the water was, and that's where I was good to pass there." The captain stated that he "didn't realize that the buoy was on location" because of the shifting of the buoys following the hurricane and that he "would have never tried to pass on the outside of the buoy." He chose to pass the *Harry Claiborne* on the cutter's own starboard side "because [he thought] the buoys had been moved."

Figure 7. Damage to the *Harry Claiborne's* port transom.

VTS watchstanders use Ports and Waterways Safety System (PAWSS) software to help them collect, evaluate, and disseminate navigation safety information to vessels. The PAWSS integrates radar (which was inoperable on the day of the casualty), AIS data, and other sensor data into a single display that shows the tracklines of vessels in near real-time to assist watchstanders with various management tasks. Shoreline, piers, and other associated infrastructure such as navigation aids are visible. The PAWSS used by VTS



Figure 8. Screen capture from VTS PAWSS at 1540, after the *Cheramie Bo-Truc No. 33* (blue line, *left*) passed buoy no. 29. The vessel's 12-minute true motion vector is shown in red. The blue line at the right represents the path of an inbound vessel. (Source: Coast Guard)

Port Arthur did not warn the VTS watchstander of vessels leaving the channel, nor did anyone report to VTS there was post-hurricane shoaling in the area. Figure 8 provides a screen capture from the traffic service's PAWSS software when the *Cheramie Bo-Truc No. 33*, just after passing buoy no. 29, was heading toward shallow water, based on its 12-minute true motion vector.

1.3.3 Water Depth

The charted depth in the channel was 9 to 13 feet on the *Harry Claiborne*'s starboard side. After the casualty, a survey was conducted that determined the depth was actually 25 feet. The captain of the *Cheramie* Bo-Truc No. 33 told investigators that he had passed "that buoy many times real close, and it's always had...to my knowledge, 20, 30 foot of water right there, right close to the buoy. And if my passing [at the time of the collision] was just outside of the buoy right there, evidently the buoy was moved over, because there should have been plenty water right there." According to the VTS watchstander, it was "not abnormal" for fishing vessels and offshore supply vessels to pass outside the buoy.



Figure 9. Image from Army Corps of Engineers postcasualty bathymetry survey showing water depths around sites of the collision site near buoy no. 27 and the grounding site about 130 feet (40 meters) west of the buoy (annotated by NTSB).

A postcasualty bathymetry survey by the US Army Corps of Engineers showed depths greater than 20 feet within 70 feet of the buoy and depths of 10 feet within 130 feet west of the buoy's assigned position, where the *Cheramie Bo-Truc No. 33* grounded (see figure 9).

2. Analysis

About 5 minutes before the collision, the *Harry Claiborne* was servicing a navigation aid on the edge of the 600-foot-wide channel in good visibility, while displaying the proper dayshapes for a "vessel restricted in her ability to maneuver." Several vessels had just passed the cutter on its port side without any issue. As the *Cheramie Bo-Truc No. 33* approached, the captain made passing arrangements with the

Harry Claiborne. Neither vessel had any known navigation or machinery equipment deficiencies.

While beginning his attempt to pass the cutter to starboard, which would take his vessel outside the channel, the *Cheramie Bo-Truc No. 33* captain realized from the depth sounder reading on board that the vessel would run aground. Rather than risk an imminent grounding, he decided to steer back toward the cutter to pass to port. Realizing that this effort was too late to maneuver clear to port and that a collision was imminent, the captain reversed the vessel's engines and used the bow thruster. However, he was unable to completely stop the offshore supply vessel before it struck the stern of the cutter.

2.1 Situational Awareness

Mariners can confirm the location of their vessels or floating aids by superimposing radar or AIS data atop electronic charts. The *Cheramie Bo-Truc No. 33* was outfitted with an ECS that displayed AIS targets. As an AIS target on the display, the *Harry Claiborne*, while servicing buoy no. 27 at the edge of the channel, would have been visible very close to or atop the buoy symbology on the chart. The offshore supply vessel captain, however, "didn't realize that the buoy was on location" and thereby assumed the cutter was servicing a buoy that had moved into the channel. Had he been monitoring the *Harry Claiborne* and his own vessel's position on the ECS, the captain would have seen that the cutter was on the edge of the channel at the buoy's assigned position and that the channel was clear of any other vessels.

2.2 Passing Arrangement

When the *Cheramie Bo-Truc No. 33* captain checked in with VTS before departure, he was informed that the cutter was working on a buoy. As he was approaching the *Harry Claiborne*, he assumed there was safe water on either side of the cutter; the captain did not ask personnel on the *Harry Claiborne* on which side to overtake the cutter before making the passing arrangement. He proposed passing on the cutter's starboard side, to which the cutter replied, "Roger sir, come on, on one [indiscernible]." As a result, the proposed passing arrangement that was agreed upon led the offshore supply vessel on the working side of the cutter and outside of the navigation channel. This course was taken despite sufficient room in the channel to port, no inbound vessels of concern, the cutter servicing a buoy on the vessel's starboard side, and the shallower water west of the buoy. Although individuals on the cutter's bridge team reported that they mentally questioned the passing arrangement, they instead deferred to the offshore supply vessel captain's judgment, assuming he was more experienced in local waters. Had the crew (or bridge team) on the *Harry Claiborne* questioned the *Cheramie Bo-Truc No. 33* captain's proposed passing arrangement, the captain may have recognized the risk of his intended course.

2.3 Vessel Traffic Service

The role of Coast Guard VTS watchstanders in collision avoidance is to monitor, inform, recommend, and direct vessels. The PAWSS software they use as a vessel traffic information management system allows them to adjust safety contours displayed, but the system does not indicate if a vessel of a given draft is in danger of grounding, as a vessel's ECDIS or other software can do. More informatively, radar provides real-time data to VTS, including imagery that represents a ship's approximate size rather than merely an icon not drawn to scale, as PAWSS shows. However, due to the unavailability of radar following the hurricane, PAWSS and video were the only systems by which the watchstander could monitor the channel. Although the PAWSS software showed the offshore supply vessel's 12-minute motion vector heading into shoal water (see figure 8), this vector also correlated with the VTS watchstander's understanding of the agreed-upon passing arrangement, which had the *Cheramie Bo-Truc No. 33* passing inshore of the *Harry Claiborne* on the cutter's own starboard side.

When the *Cheramie Bo-Truc No. 33* radioed VTS, the watchstander had warned the captain of the *Harry Claiborne*'s operations in the channel. In addition, it was daylight, visibility was clear, the *Cheramie Bo-Truc No. 33* was a local vessel and therefore the crew was familiar with the area, and the watchstander heard the passing arrangements between the two vessels. As such, the VTS watchstander, not having a reason to be concerned about the situation, continued scanning the channel for other traffic. It was not until a minute before the collision, when it became apparent there was a close-quarters situation, that the VTS watchstander became concerned and zoomed the video camera in on the vessels. Had the situation raised a concern earlier, the VTS watchstander might have alerted the captain of the shoal water ahead.

2.4 Second Collision

After the initial collision with the cutter, momentum carried the *Cheramie Bo-Truc No. 33* past the *Harry Claiborne* into the mud, where it grounded. The captain of the *Cheramie Bo-Truc No. 33* began communicating with VTS regarding his plans to refloat the vessel but did not include the *Harry Claiborne* crew in the plans. For about 45 minutes, the *Cheramie Bo-Truc No. 33* crew worked to refloat the vessel. The *Harry Claiborne* was holding position using the vessel's DP system when the offshore supply vessel broke free from the mud. Once the *Cheramie Bo-Truc No. 33* broke free, the captain began maneuvering back to port, and the current set the vessel back onto the cutter's stern. The cutter was attached to the 12,000-pound sinker on the bottom and therefore unable to maneuver and evade the offshore supply vessel. If the crews had communicated with each other, they might have agreed to wait until the cutter could move on, especially considering the proximity of the grounded *Cheramie Bo-Truc No. 33* and the ebb current.

3. Probable Cause

The National Transportation Safety Board determines that the probable cause of the initial collision between the offshore supply vessel *Cheramie Bo-Truc No. 33* and the US Coast Guard cutter *Harry Claiborne* was the offshore supply vessel captain's assumption of the stationary cutter's position, which led to his decision to pass the vessel outside the channel, resulting in a late maneuver toward the *Harry Claiborne* to avoid running aground. Contributing to the collision was the cutter crew not questioning the passing arrangement proposed by the offshore supply vessel captain. Causing a second collision was the lack of coordination and communication between the two vessel operators when the *Cheramie Bo-Truc No. 33* crew refloated their vessel.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

JENNIFER HOMENDY Chair

MICHAEL GRAHAM Member

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THOMAS CHAPMAN Member

Report Date: February 16, 2022

Vessels	Cheramie Bo-Truc No. 33	Harry Claiborne
Туре	Offshore supply vessel	Public vessel
Flag	United States	United States
Port of registry	New Orleans, Louisiana	United States
Year built	1979	2001
Official number (US)	604783	N/A
IMO number	7829352	9177296
Classification society	None (loadline issued by American Bureau of Shipping)	None
Length (overall)	168.4 ft (51.4 m)	175.0 ft (53.3 m)
Beam	38.0 ft (10.0 m)	36.0 ft (11.0 m)
Draft (casualty)	11.0 ft (3.4 m)	8.5 ft (2.6 m)
Tonnage	275 GRT	903 GT ITC
Engine power; manufacturer	3 x 1,000 hp (746 kW); GM 149 diesel engines	2 x 999 bhp (745 kW); Caterpillar 3508 DITA V8 diesel engines

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

The National Transportation Safety Board (NTSB) is an independent federal agency dedicated to promoting aviation, railroad, highway, marine, and pipeline safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974, to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID DCA21PM003. Recent publications are available in their entirety on the NTSB website. Other information about available publications also may be obtained from the website or by contacting–

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