May 6, 2025 MIR-25-19

Grounding of Towing Vessel *City of Louisville*

On July 29, 2023, about 1449 local time, the towing vessel *City of Louisville* was upbound on the Upper Mississippi River pushing 11 barges when it grounded near mile 42.6, about 1.4 miles south of Thebes, Illinois (see figure 1 and figure 2).[1] The grounding damaged the hull, flooding the engine room and the machinery and aft accommodation spaces. An estimated 30 gallons of gear oil were released into the river. There were no injuries. Damage to the vessel was estimated at $2 million.[2]

Figure 1. *City of Louisville* on unknown date before the grounding. (Source: Reliant Marine Solutions)

[1] In this report, all times are central daylight time, and all miles are statute miles. Unless specified, speeds are in mph over the ground. Courses and headings are relative to true north.

[2] Visit ntsb.gov to find additional information in the public docket for this NTSB investigation (case no. DCA23FM050). Use the CAROL Query to search investigations.

Casualty Summary	
Casualty type	Grounding/Stranding
Location	Upper Mississippi River, mile 42.6, near Thebes, Illinois 37°12.04′ N, 089°27.80′ W
Date	July 29, 2023
Time	1449 central daylight time (coordinated universal time –5 hrs)
Persons on board	8
Injuries	None
Property damage	$2 million est.
Environmental damage	About 30 gal of gear oil released into river (50-ft-by-50-ft sheen)
Weather	Visibility 10 mi, clear skies, winds southwest 8 kts, air temperature 91°F, sunrise 0600
Waterway information	River; width 650–700 ft, depth 9 ft (at low water reference plane), current 1 mph, gage 7.4 ft (Thebes, Illinois)

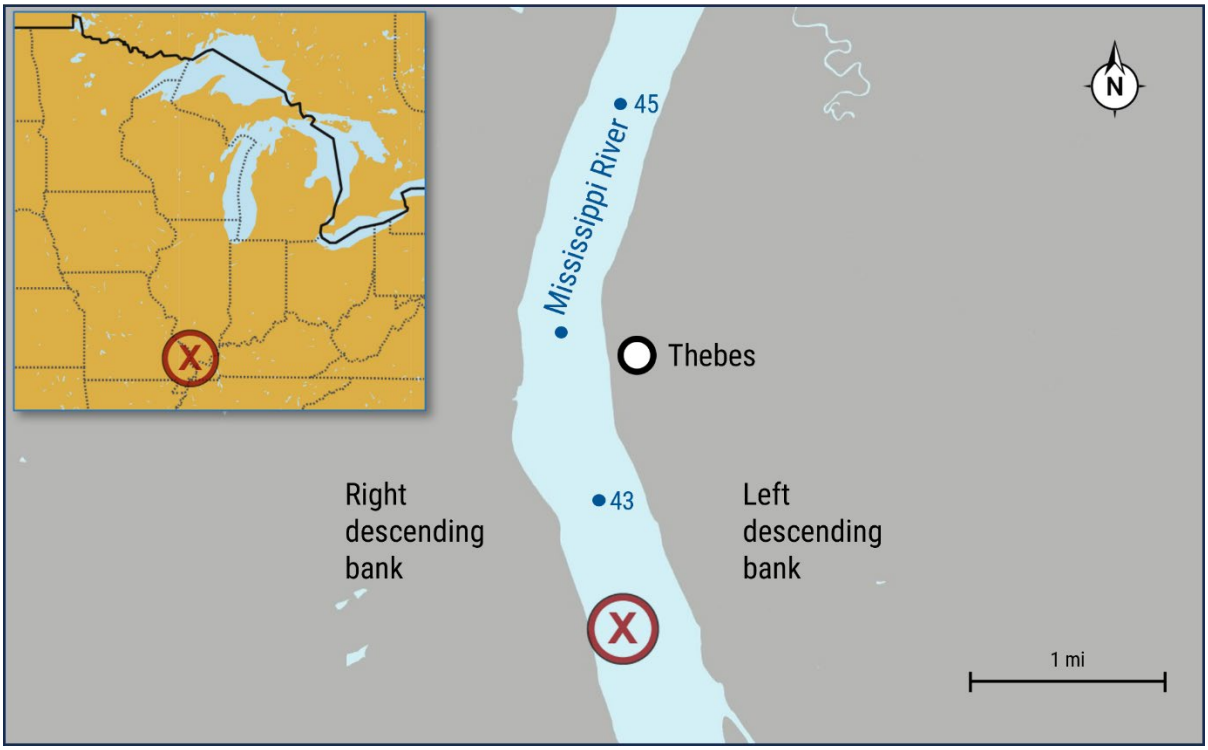

Figure 2. Area where the *City of Louisville* grounding occurred, as indicated by a circled *X*. (Background source: Google Maps)

1 Factual Information

1.1 Background

Owned by Ceres Tank Barge LLC and operated by Reliant Maritime Solutions LLC, the *City of Louisville* was a 138-foot-long, steel-hull towing vessel constructed in 1962. The vessel's main propulsion consisted of two 1,600-hp main engines, each connected to a reduction gear driving a propeller. The vessel was fitted with two steering rudders and four flanking rudders.

The *City of Louisville* had a crew of eight. In the wheelhouse, the relief captain stood watches from 0500–1100 and 1700–2300. The pilot stood the opposite watches from 1100–1700 and 2300–0500.[3]

1.2 Event Sequence

On July 27, 2023, about 1233, the *City of Louisville* got underway from the Nucor Steel Arkansas terminal on the Lower Mississippi River (near mile 823.7) with its tow of 11 empty hopper barges (each having about 18 to 22 inches of draft) destined for a fleet on the Upper Mississippi River at mile 126 near St. Genevieve, Missouri. The overall length of the tow was about 738 feet, and the overall width was about 140 feet (see figure 3).

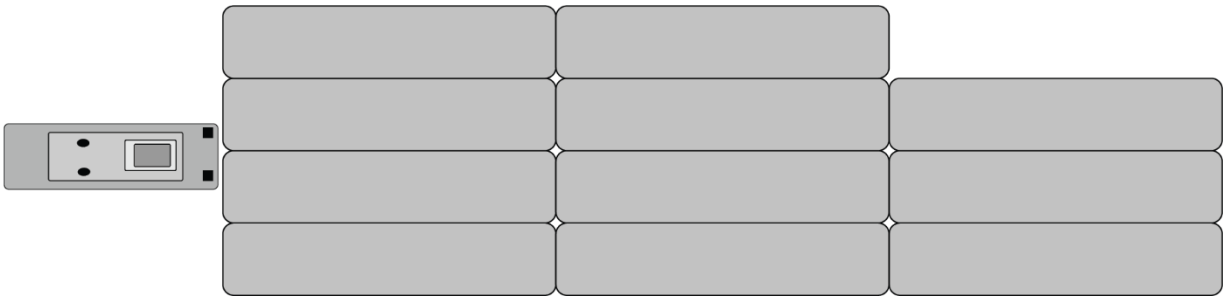

Figure 3. *City of Louisville* tow arrangement (scale approximate).

On July 29, about 1100, the pilot took over the navigational watch in the wheelhouse from the relief captain for their normally scheduled watch change. The *City of Louisville* proceeded upriver without event, with the pilot at the helm and making a speed of about 4 to 5 mph. According to the pilot, the tow was traveling at

[3] *Pilot* is a term used aboard towing vessels on inland waterways for a person, other than the captain, who navigates the vessel.

a reduced speed at the customer's request, since they were not in a rush to receive the barges.

The pilot told investigators that, about 1442, he left the helm. Before doing so, he looked out the wheelhouse front window and saw there was no swing of the tow (the *City of Louisville* was not fitted with an autopilot system). He also checked the swing meter, fathometer, and electronic chart system (ECS). At that time, the boat's ECS recorded the vessel on a heading of 349° at 4.8 mph and about 45 yards to the east of the sailing line, which had a course line of 347°.[4]

He told investigators that he then went to the port side of the wheelhouse and relieved himself into a bag while looking out of the portside window.

At 1444, on a heading of 344° at 4.7 mph, the *City of Louisville* tow passed a point where the sailing line changed course from 347° to 356°. About a minute later, the tow crossed over the sailing line on a heading of 346° at 4.8 mph (see figure 4).

The pilot told investigators that he threw the bag overboard, out the port

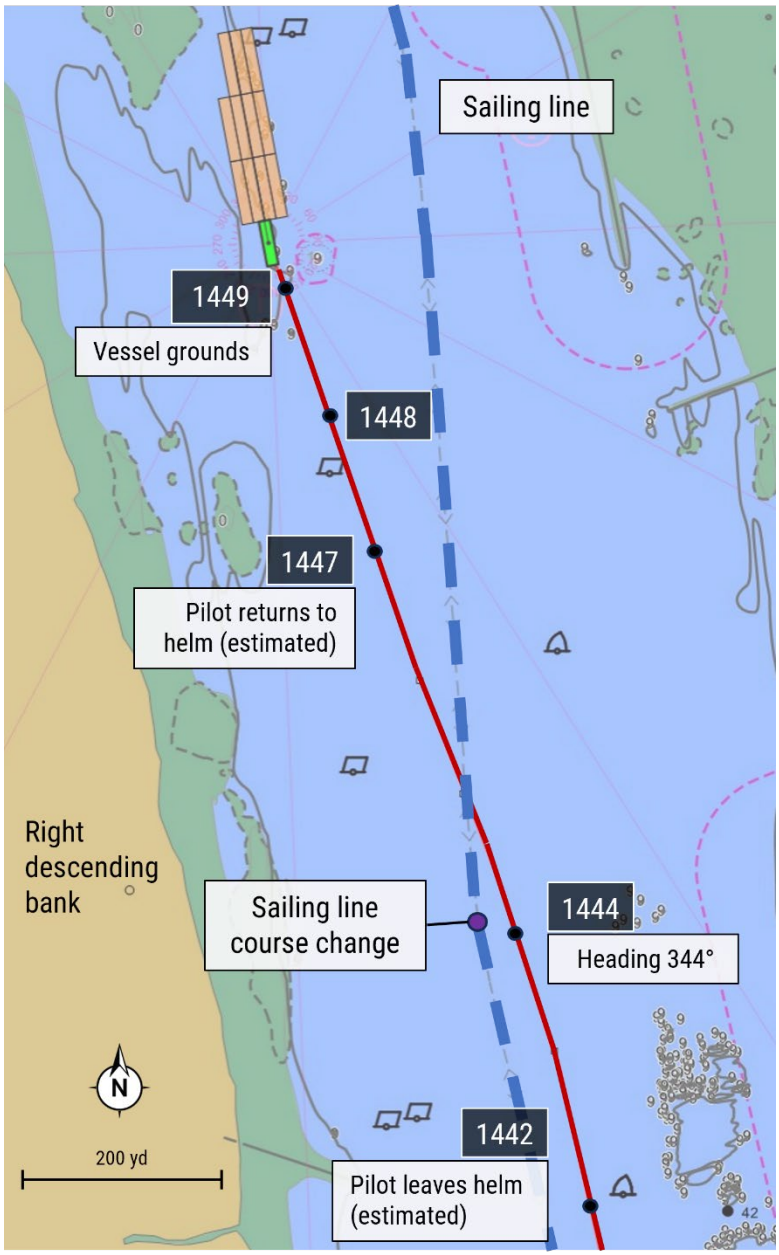

Figure 4. ECS showing the positions of the *City of Louisville* for 7 minutes before the time of grounding. (Background source: US Army Corps of Engineers chart U37UM000 as viewed on Rosepoint)

[4] The *sailing line* on inland navigational charts is a nonregulated recommended track within the reaches of a navigable channel.

door of the wheelhouse; he estimated that he returned to the helm at 1447. At that time, the boat was about 95 yards west of the sailing line on a heading of 346° at 4.8 mph. He noticed the tow was making a "sharp" turn to port, which he attempted to correct by putting the steering rudders to 30° to starboard (no change was made to the propulsion control levers). The head of the tow began to swing to starboard. The stern swung to port in the direction of the right descending bank, and, at 1449, the vessel grounded in a rocky area about 150 yards west of the sailing line (see figure 5).[5] The vessel was reported to have about 8 feet of draft at the time of the casualty; river conditions at that time were low with the river gage nearest to the casualty site at 7.4 feet (Upper Mississippi River mile 43.7).

The hull of the *City of Louisville* was breached, and water flooded into the engine room, causing the vessel to settle to the bottom. There were eventually about 4 feet of water in the lower engine room. The tow remained intact, facing upriver after the grounding. The pilot said they were unable to move the vessel off the rocks.

About 3 hours after the grounding, at 1753, thunderstorms passed through the area, which required the crew and responding personnel to evacuate the *City of Louisville*. Winds from the storm moved the tow to starboard, causing it to pivot on the rocks; the tow was then oriented toward the left descending bank. As the river stage later rose, the water level inside the engine room increased, and the main deck rudder room and aft galley/mess area also flooded.

Figure 5. The *City of Louisville* aground. (Source: Coast Guard)

1.3 Additional Information

There were no reported defects or deficiencies with the *City of Louisville*'s navigational, steering, communication, and propulsion systems.

[5] The inland towing industry refers to the shorelines of Western Rivers as the left and right banks when traveling (facing) downriver. The left bank is called the *left descending bank*, and the right bank is called the *right descending bank*.

1.3.1 Damage

The *City of Louisville* was refloated and towed to a repair yard in Paducah, Kentucky, where it was dry docked on August 10. The cost of repairs was estimated at over $2 million. There were no reports of damage to any of the 11 barges.

A marine survey documented hull fracture damage to the bottom plating of the main engine room space about 4 feet forward of the aft watertight bulkhead to the propeller shaft alley (see figure 6). Damages to the shell plating varied, with the most prominent being to port of the vessel's keel. Hull plating was set up into the engine room to about 14 inches in areas. Numerous fractures, distortions, and insets were found along the bottom plating extending in three primary surface areas of about 9 feet long by 14 feet wide, 29 feet long by 4 feet wide, and 6 feet long by 8 feet wide.

Figure 6. The aft port side (looking forward) bottom shell plating damage of the *City of Louisville* while in dry dock. (Source: Coast Guard)

After the casualty, the *City of Louisville* was sold to another company and was later scrapped.

1.3.2 Crew

The pilot of the *City of Louisville* held a valid US Coast Guard-issued credential as master of towing vessels upon Western Rivers. He said he had 24 years' experience in the towing industry. He had been employed with Reliant Maritime since July 24, 2023, working on the *City of Louisville*.

After the casualty, the pilot was tested for alcohol and other drugs, and the results were negative. The pilot's cell phone records showed that he did not make any voice calls during his time on watch up to the time of the grounding.

All off-watch crew were reported to be asleep, and on-watch crew were engaged in duties not related to the navigation of the vessel. As such, except for the pilot, there were no other witnesses to the events immediately leading up to and including the grounding.

Reliant Maritime Solutions issued a report concluding that:

> Loss of situational awareness – pilot stated he stepped away from the pilothouse console to urinate in a plastic bag. When he returned to the pilothouse console, he realized the tow was out of the channel. He turned the steering rudders hard to starboard in an effort to steer back into the channel, but the boat ran aground very soon after resulting in the hull becoming holed and the engine room taking on water.

1.3.3 Pilothouse Alerter System

Title 46 *Code of Federal Regulations* Subchapter M (Towing Vessels) required the vessel to be fitted with a pilothouse alerter system to detect when an operator became incapacitated while underway. The system on the *City of Louisville,* called a rudder monitor system, would, while underway, alarm in the wheelhouse if an operator had not moved the rudder levers (referred to as "sticks" in the inland towing industry) within a specified interval of time. The operator could then reset the system by moving the sticks, or by pushing a remote acknowledge control key device.

Per regulations, the time interval for the alerter system to activate could not exceed 10 minutes. (The rudder monitor system on the *City of Louisville* left the factory with a default time interval of 90 seconds.) If the operator did not reset the rudder monitor system after it first sounded in the wheelhouse, after 30 seconds (2 minutes total elapsed time), a second alarm would sound in the captain's and pilot's staterooms and crew lounge to alert other crew of an operator not responding to the alarm.

The rudder monitoring system on the *City of Louisville* did not have any memory module. The NTSB was notified of the casualty 7 weeks after the grounding occurred and, as such, investigators were unable to verify what the system's settings were at the time of the casualty. When investigators opened the rudder monitoring system wheelhouse control cabinet, the power supply adaptor was missing.

The last recorded check of the pilothouse alerter system took place during an annual survey in January 2023. The surveyor documented no deficiencies and found objective evidence that the system was being tested weekly. The pilot told Coast Guard investigators that he did not know the system was on board the vessel and, during his time on board, he had never heard any alarms from it. There was no policy within the company safety management system for what initial interval the alerter system should be set to.

2 Analysis

While the *City of Louisville* was upbound on the Upper Mississippi River pushing 11 empty barges, the towing vessel ran aground near mile 42.6 in a charted shallow and rocky area. The grounding caused fractures to the vessel's bottom plating underneath the engine room, leading to water flooding into the engine room, machinery, and aft accommodation spaces.

The pilot of the *City of Louisville* was alone on watch in the wheelhouse when the grounding occurred. The pilot told investigators that, before the grounding, he had left the helm and was on the port side of the wheelhouse. He estimated he was away from the helm about 5 minutes. Leaving the helm unattended is contrary to prudent navigation practices when operating on rivers. The Mississippi River, in particular, has frequent turns, and the potential for strong currents and heavy traffic. Due to these factors, inattention to a vessel's path, even for a brief time, can result in encountering other vessels and hazards such as shallow areas or structures on the banks nearby.

During the time the pilot said he was away from the helm, he missed a 9° course change to starboard on the sailing line (the recommended route). The pilot said that, before he left the helm, he checked the ECS. However, the ECS would have displayed the upcoming change in course. Further, the pilot did not identify that the tow had begun to progress closer to the right descending bank while he was away from the helm, which should have been apparent from his reported position on the port side of the wheelhouse.

The *City of Louisville* was fitted with a pilothouse alerter system, which was designed to sound first in the wheelhouse and then in other vessel spaces to alert other crewmembers that the operator was not responding. Investigators found, several weeks after the grounding, that the power supply was missing, but they could not determine when it had been disconnected. Investigators were also not able to determine the interval that the alarm was set for (how long the operator could not move the rudder levers before the first alarm would sound in the wheelhouse). The secondary alarm did not sound in the relief captain's stateroom or the crew lounge before the grounding. Therefore, given the pilot's estimate that he was away from the helm for 5 minutes, the system either had a time interval to alarm set to greater than 5 minutes or was disabled or nonoperational.

3 Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the grounding of the *City of Louisville* was the pilot leaving the helm unattended while operating his tow on the Mississippi River.

3.2 Lessons Learned

Using Pilothouse Alerter Systems

A pilothouse alerter, when used as intended, is an effective tool that can help ensure a towing vessel operator remains awake and vigilant while on duty (and notify another crewmember if the pilothouse alarm is not acknowledged). Established procedures for the operation and use of the system should be outlined in the company safety management system and should include the time interval for reset of the alerter system, which should be set based on the vessel's navigational risk and proximity to navigational hazards (including traffic), as well as measures to ensure the system cannot be unintentionally reset.

Vessel Particulars

Vessel	*City of Louisville*
Type	Towing/Barge (Towing vessel)
Owner/Operator	Ceres Tank Barge, LLC (Commercial) / Reliant Maritime Solutions, LLC (Commercial)
Flag	United States
Port of registry	St. Louis, Missouri
Year built	1962
Official number	287746 (US)
IMO number	N/A
Classification society	N/A
Length (overall)	138.2 ft (42.1 m)
Breadth (max.)	34.6 ft (10.6 m)
Draft (casualty)	9.5 ft (2.9 m)
Tonnage	783 GRT
Engine power; manufacturer	2 x 1,600 hp (1,193 kW); GM 16-645-E diesel engines

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