



National Transportation Safety Board

Marine Accident Brief

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell

Accident type	Contact	No. DCA19FM031
Vessel name	<i>Dewey R</i> and <i>ATC 3404</i>	
Location	Chicago Sanitary and Ship Canal, CSX Railroad Bridge, mile 312.3, Summit, Illinois 41°46.98' N; 87°49.58' W	
Date	April 13, 2019	
Time	0123 central daylight time (coordinated universal time – 5 hours)	
Injuries	None	
Property damage	\$162,104 to barge <i>ATC 3404</i> , est. \$813,980 in damage to bridge protection cell	
Environmental damage	None	
Weather	Temperature 38°F, winds from the northwest about 25 mph, clear visibility	
Waterway information	The Chicago Sanitary and Ship Canal is a waterway linking the south branch of the Chicago River with the Des Planes River at Lockport, Illinois. The canal is 30 miles long and has a minimum width of 160 feet, a minimum depth of 9 feet, and 2 locks.	

About 0123 on April 13, 2019, the *Dewey R*, with a crew of eight, was pushing a tow at mile 312.3 on the Chicago Sanitary and Ship Canal in Summit, Illinois, when the lead barge, *ATC 3404*, struck a protection cell on the south side of the CSX Railroad Bridge. The protection cell was displaced about 4 feet and impacted the southern concrete pier of the bridge. There were no reports of injuries, pollution, or water ingress. The cost of repairs to the barge was \$162,104, and the estimated cost of repairs to the bridge protection cell and bridge pier was \$813,980.

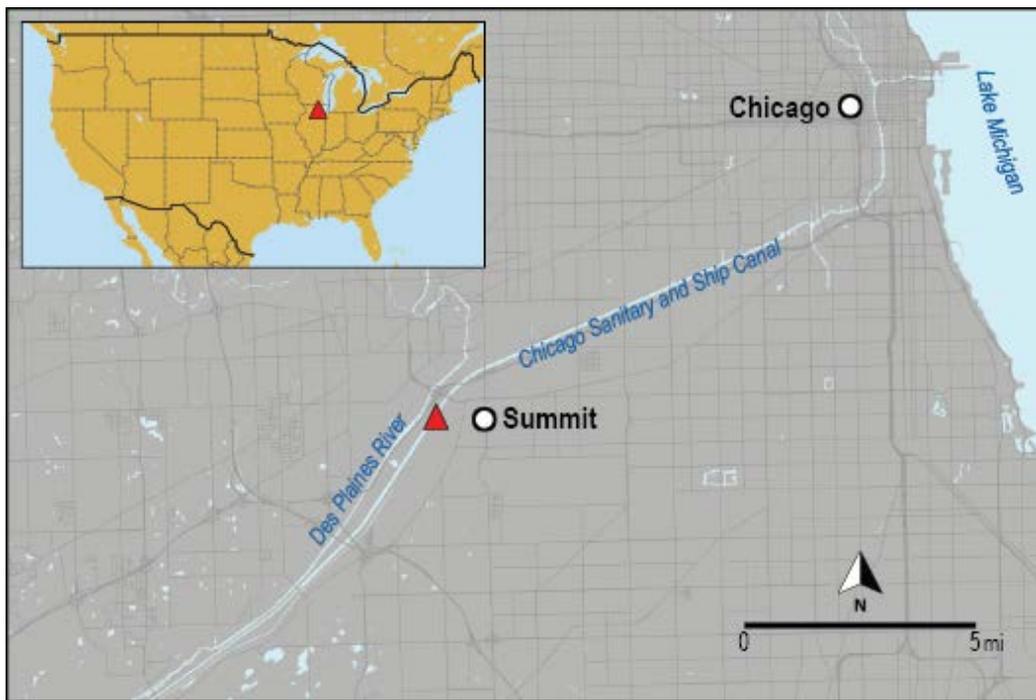


Towing vessel *Dewey R* docked after the accident, with the wheelhouse in the lowered position.

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell

Background

The 136-foot long *Dewey R*, a twin-propeller towboat, was built in 1974 by Greenville Shipbuilding Company in Mississippi. Originally named the *Richard E. Girouard*, the vessel was renamed twice and owned by three different companies before being purchased by Apex Towing Company in 1992. The wheelhouse on the vessel could be hydraulically raised to maintain forward visibility over barges in a tow and lowered to allow the vessel to transit through low bridges. In the months before the accident, the vessel was moving barges in the Chicago area.



Location of the *Dewey R* when the tow struck the CSX Railroad Bridge protection cell. (Background source: Google Maps)

Accident Events

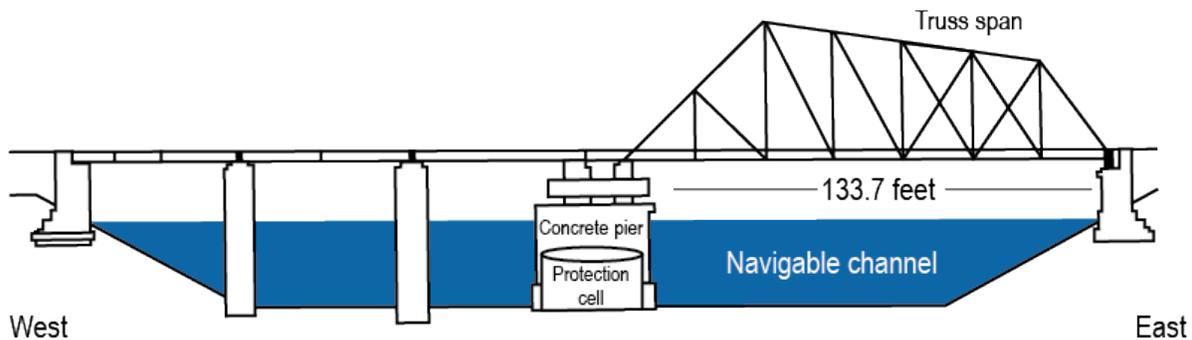
At 1340 on April 12, 2019, the *Dewey R* departed a fueling facility in Joliet, Illinois, with a crew of eight, including a captain, pilot, two wheelmen, two deckhands, and two engineers (the crew was operating on a 6-hours-on/6-hours-off watch schedule). The vessel was pushing the loaded tank barges *ATC 3404* and *ATC 3421* northbound on the Chicago Sanitary and Ship Canal to a fuel terminal in Chicago. The two barges were strung out with the *ATC 3404* as the lead barge, and the *ATC 3421* directly behind it, made up to the *Dewey R*. Both barges were loaded with vacuum gas oil (VGO).¹ The total length of towing vessel with the two barges was 730 feet, and the width of the barges was 35 feet.

The pilot stated that he took over the watch at midnight on April 13 and expected to arrive at the fuel terminal at 0230. The vessel's speed was approximately 5.75 miles per hour (mph) against the estimated 1 mph current as the *Dewey R* and tow approached the CSX Railroad Bridge

¹ Vacuum Gas Oil (VGO) is a more viscous form of oil gas, produced by a vacuum distillation unit in a refinery plant. It is black and semi-solid, with a smell like asphalt. VGO is typically treated and converted to produce a wide range of diesel and gasoline products.

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell

at mile 312.3. Located in Summit, Illinois, the CSX Railroad Bridge was a four-span bridge that consisted of three steel-deck girder spans and one steel-truss span over the navigable channel (on the east end). The horizontal opening of the truss span was 133.7 feet and its vertical clearance was 19.5 feet.² The west end of the truss span was supported by a concrete pier that was protected by two protection cells (one on the south side, and one on the north side) and a composite fendering system. The protection cell on the south side of the bridge was an 18-foot diameter ring constructed of steel sheet piles and filled with concrete and granular fill. The fendering system consisted of vertical fenders attached to the protection cells and horizontal rub rails on the channel side of the piers. In order to pass under the truss span, the pilot activated the hydraulics to lower the wheelhouse. With the *Dewey R*'s wheelhouse in the raised position, its air draft was 40 feet.³ When the wheelhouse was lowered, the air draft was 18.5 feet, and the radars were turned off and lowered to decrease the vessel's height.



Graphic of CSX Railroad Bridge, as seen from the south, showing the navigable channel on the right side. (Background source: US Army Corps of Engineers)

The *Dewey R* was equipped with an electronic charting system, which the pilot was using at the time of the accident. In a postaccident interview, the pilot stated that as the vessel neared the CSX Railroad Bridge, he was focusing on a barge that was moored ahead on his starboard side, approximately 1,000 feet north of the bridge at a nearby cement terminal. This moored barge had its mooring lights illuminated. The pilot began moving the tow to port as he approached the bridge, in order to pass farther away from the moored barge after clearing the bridge.

According to the pilot, around this time, he was using the spotlights on the *Dewey R*, which were reflecting off of the light gray paint on the decks of the *ATC 3404* and *ATC 3421*, causing a glare that was adversely affecting his visibility from the wheelhouse. The spotlights on the *Dewey R* were typically used to assist with locating objects and hazards in the dark. The pilot stated that he was aware of a protection cell on the south side of the bridge but was unable to see it due to the glare reflecting off the barge decks. Additionally, he stated that the red light located on top of the protection cell, intended to be an aid to navigation, was not working. As the *Dewey R* neared the bridge, a freight train carrying vehicles passed over the CSX Railroad Bridge, and the pilot stated that the shiny surfaces on the sides of the train cars and vehicles reflected the light from his spotlights and created a visual distraction. At 0123, the bow of the lead barge *ATC 3404* struck the

² *Vertical clearance* is the distance from the water to the lowest point of the bridge or obstruction.

³ *Air draft* describes the vertical distance from the top of a vessel's highest point down to the waterline.

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell

protection cell on the south side of the bridge at a speed of 5.75 mph. At the time of the accident, there was no look-out posted at the head of the tow (the bow of the *ATC 3404*).



Location of the Chicago Sanitary and Ship Canal where the *Dewey R* and tow attempted to pass through the CSX Railroad Bridge, and location of a barge moored at the cement facility, similar to the barge that was moored at the time of the accident. The protection cell that was struck is circled in red. (Background source: Google Maps)

As a result of the collision, a 1.5-foot by 12-foot wide section of the port side of the *ATC 3404*'s bow void tank was inset, and several components of the barge's internal structure in the bow void tank were damaged. The southern protection cell was displaced over 4 feet in the direction of the pier. An engineering firm determined the protection cell to be extensively damaged with a fractured sheet pile that split opened and exposed the concrete within the cell. Also, several pieces of its fendering system had been dislodged and were no longer in place. The south corner of the bridge's concrete pier was also damaged, with an approximate 12-square-foot shallow concrete spall adjacent to the displaced protection cell, buckled vertical posts, and damaged fenders.

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell



Postaccident images of the *ATC 3404* (left) and the south side of the CSX Railroad Bridge (right).

Additional Information

According to CSX, a postaccident inspection of the red light on the affected protection cell revealed that the conduit in the area the barge struck was severed, but the electrical wiring within it was still intact. Upon repair of the severed conduit, the light functioned normally without having to replace the bulb.

The operating company's Towing Safety Management System (TSMS) Manual contained navigation procedures requiring that the wheelman on watch "appoint and instruct an additional person to perform look-out duties in any situation deemed appropriate by the operator." In the bridge transit procedure, the wheelman on watch (in this case, the pilot) was required to assess the prevailing circumstances and determine whether additional crew and/or assist boat would be required to safely transit a bridge.

The pilot was a credentialed mariner who had approximately 45 years of experience in several capacities on the Western Rivers and Great Lakes. He estimated that he had transited the accident area approximately 20 times. The pilot had worked for the *Dewey R*'s operating company for about six weeks before the accident. He stated that he had completed company online training classes and took part in drills aboard the vessel. He said that he used checklists that were part of the TSMS and understood that the company's bridge transit procedure required him to use his discretion regarding the use of look-outs. He said he would typically have a look-out on the barge when the barges were empty and the wheelhouse was lowered, since the height of the empty barges, in relation to the lowered wheelhouse, resulted in a reduction of his forward visibility from the wheelhouse.

Analysis

After lowering the vessel's wheelhouse as the tow approached the CSX Railroad Bridge, the pilot's visibility forward and over the tank barges was reduced. In conjunction with the wheelhouse lowering, the pilot also shut off and lowered the radars, which eliminated his ability to obtain bearing and distance for collision avoidance, as well as to detect other vessels and

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell

obstacles. Additionally, his attention was fixated on a barge moored approximately 1,000 feet north of the bridge on the starboard side, which prompted him to maneuver the tow to port, out from the center of the channel before passing beneath the bridge in an effort to pass further away from the moored barge after clearing the bridge. This heading change brought the head of the tow closer to the bridge's south-side protection cell. Although the pilot stated that the red light atop the protection was unlit, the same bulb was found postaccident to illuminate, and damage to the conduit for the electrical wiring for the light was likely caused by the barge striking the cell.

As he had done in the past, the pilot attempted to use the vessel's spotlights that were mounted on the retractable wheelhouse to locate the protection cell of the CSX Railroad Bridge and use it as a visual aid to navigate through the span. The use of the spotlights with the lowered wheelhouse reduced his visibility, rather than improving it, due to the glare reflecting off the light gray decks of the barges strung out ahead. Additionally, at the time, there were several shiny surfaces reflecting light off the side of a train passing over the CSX Railroad Bridge, which adversely affected the pilot's visibility from the wheelhouse and further distracted him.

The company's TSMS manual included bridge transit procedures, but those procedures did not require look-outs to be posted at the head of the tow during bridge transits. Instead, it was at the discretion of the operator to post look-outs in "any situation deemed appropriate." The pilot's approach to the bridge became more difficult due to: 1) the decreased visibility from the lowering of the wheelhouse, which was necessary to pass beneath the low bridge span; 2) the reduced visibility caused by the reflected glare from the spotlight on which the pilot was relying to see ahead; 3) the passing train crossing the bridge with several reflections; and 4) the pilot's concern with his next maneuver (to pass a barge moored on the far side of the bridge), resulting in him moving his tow off the channel center.

The pilot had the option to post a crewmember (look-out) at the head of the tow to monitor the passage. A crewmember was available, but the pilot chose not to utilize him as a look-out. A crewmember posted at the head of the lead barge could have spotted the protection cell and communicated its location relative to the tow while the pilot focused on safely navigating through the bridge.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the contact of the *Dewey R*'s lead barge with the south-side protection cell for the CSX Railroad Bridge was the pilot's departure from the centerline of the channel as the tow approached the bridge without a forward look-out to monitor the transit.

Safe Transits Through Bridges

Operators should exercise extreme caution when maneuvering through bridges and should consider assigning additional personnel to perform look-out duties and monitor the transit.

Contact of *Dewey R* Tow with CSX Railroad Bridge Protection Cell

Vessel Particulars

Vessel	<i>Dewey R</i>	<i>ATC 3404</i>
Owner/operator	Apex Holding Co. / Inland Marine Service	Apex Barge 3402 & 04 LLC / Savage Inland Marine
Port of registry	St. Louis, Missouri	St. Albans, Missouri
Flag	United States	United States
Type	Towing vessel	Tank barge
Year built	1974	2015
Official number (US)	554261	1262259
IMO number	N/A	N/A
Construction	Steel	Steel
Length	136 ft (41.5 m)	297 ft (90.5 m)
Draft	10 ft (3 m)	9 ft (2.7 m)
Beam/width	40 ft (12.2 m)	35 ft (10.7 m)
Tonnage	587 GRT	1,619 GRT
Engine power; manufacturer	2 x 3,800 hp (2,834 kW); GM 16-645E2 diesel engines	N/A
Persons on board	8	0

NTSB investigators worked closely with our counterparts from Coast Guard Sector Chicago throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA19FM031.

Issued: May 12, 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).