



National Transportation Safety Board

Marine Accident Brief

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

Accident type	Contact	No. DCA19FM023
Vessel name	<i>Leviticus</i> , Kirby 27781, and Kirby 27754	
Location	Lower Mississippi River, mile 208.5; near Sunshine, Louisiana ¹ 30°17.63' N, 091°13.62' W	
Date	March 7, 2019	
Time	1020 central standard time (coordinated universal time – 6 hours)	
Injuries	10 minor	
Property damage	\$539,500 est.	
Environmental damage	None	
Weather	Visibility 10 miles, partly cloudy skies, winds easterly 10 knots; air temperature 52°F, water temperature 46°F	
Waterway information	The river at the accident site was at major flood stage, based on the gage at Baton Rouge, Louisiana (mile 228.4). The mean current velocity was estimated at 4.1 mph with a maximum of 8.7 mph.	

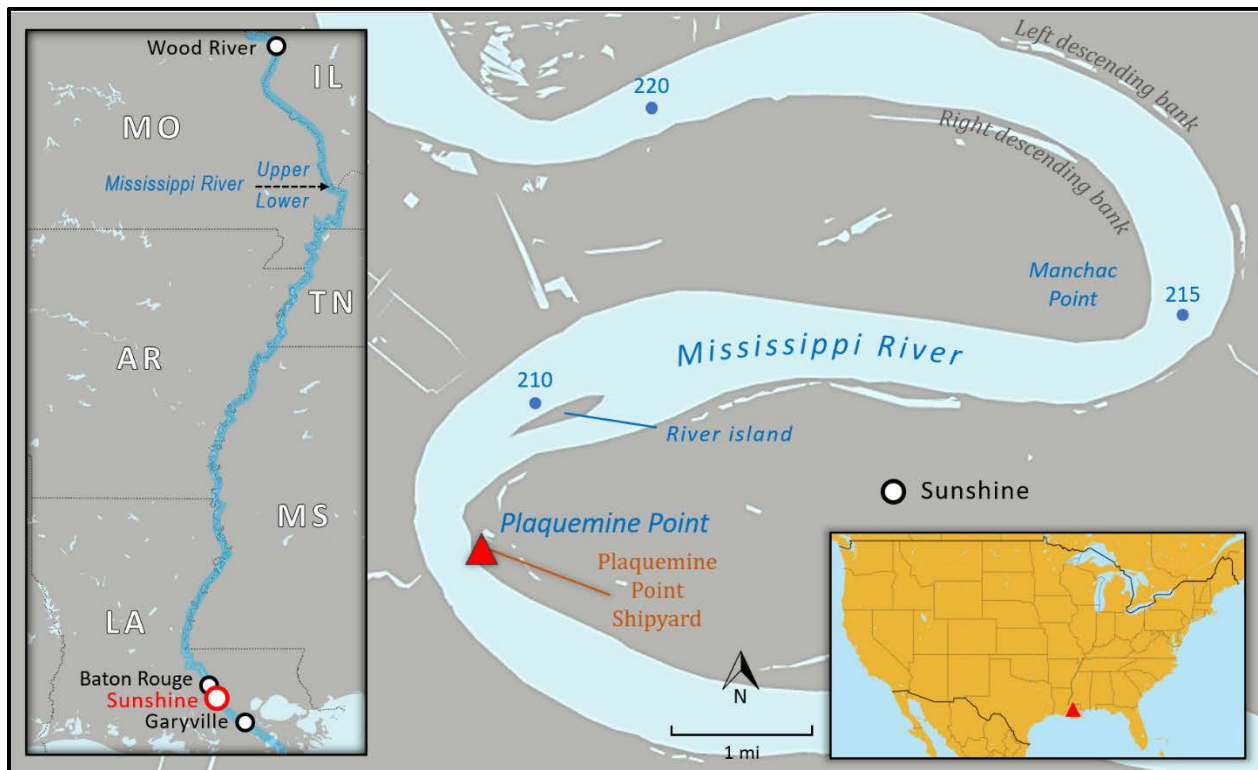
On March 7, 2019, at 1020 local time, the towing vessel *Leviticus* was pushing six barges downbound on the Lower Mississippi River at mile 208.5 near Sunshine, Louisiana, with a crew of eight on board. While transiting through a river bend, the lead barges of the tow contacted barges moored at the Plaquemine Point Shipyard, breaking free a total of 11 barges. The 27 shipyard workers on board the barges were able to evacuate before contact; 10 sustained minor injuries. All barges were later recovered, and no pollution was reported. Damage to the shipyard (\$520,000) and the tow (\$19,500) amounted to an estimated \$539,500.



Leviticus under way before the accident. (Source: Jeff L. Yates)

¹ All miles in this report are statute miles.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard



Location where the *Leviticus* tow contacted the Plaquemine Point Shipyard barges near Sunshine, Louisiana, as indicated by the red triangle. The inset map (left) identifies the route the vessel followed from Wood River, Illinois, bound for Garyville, Louisiana. (Background source: Google Maps)

Background

The *Leviticus* was a 147-foot-long, twin-propeller towing vessel powered by twin General Motors diesel engines, each capable of producing 2,300 horsepower. The vessel, fitted with twin standard and flanking rudders, was built in 1976 by Superior Boat Works for Dow Chemical and has been owned and operated by Kirby Inland Marine since 1998.

On March 2, 2019, the *Leviticus* departed Wood River, Illinois, on the Upper Mississippi River at mile 197.5 with two barges and headed to a fleeting area about a mile downriver to pick up four additional barges. Once completed, the vessel began an approximately thousand-mile transit downriver to unload the barges in Garyville, Louisiana, on the Lower Mississippi River at mile 140.5. This voyage had been the vessel's normal route for the last 15 months.

The tow consisted of two strings of three tank barges, each 300 feet long. The barges, also known in the inland towing industry as “red-flag” barges because of their hazardous cargo, were fully loaded with approximately 125,000 barrels of crude oil to a draft of 8.5 feet. Combined, the towboat and tow were 1,047 feet long and 108 feet wide, with the deepest draft at 9 feet for the *Leviticus*. Aboard the vessel was a captain, a pilot, an apprentice mate/steersman (steersman), four tankermen, and an engineer.²

² *Pilot* is a term used aboard towing vessels on inland waterways for a person, other than the captain, who navigates the vessel.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard



Configuration of the *Leviticus* tow.

The Lower Mississippi River is 954 miles long and has a navigable channel of at least 40 feet deep below Baton Rouge, Louisiana. The river was at major flood stage (caused by rainfall and increased runoff from snowmelt) with the nearest gage at Baton Rouge (mile 228.4) measuring 43.4 feet. Having determined a flow rate of 1.33 million cubic feet/second (cfs), the US Geological Survey estimated the river’s mean current velocity was 4.1 mph with a maximum current of 8.7 mph. According to a survey conducted by the US Army Corps of Engineers on March 26, the river near the accident site was 1,600 feet wide with a depth of 40–76 feet.

Accident Events

On the morning of March 7, the day of the accident, the towing vessel *Leviticus* was pushing six barges downbound on the Lower Mississippi River near Plaquemine Point at mile 209 near Sunshine with a speed over ground (SOG) at 12.7 mph. The normal wheelhouse watch on the *Leviticus* consisted of one person, either the captain or the pilot, alternating 6 hours on and 6 hours off. The captain and the apprentice mate/steersman were on the front watch (0500–1100 and 1700–2300), and the pilot worked the back watch (1100–1700 and 2300–0500).

About 1000, the *Leviticus* was under the direct supervision of the captain as the steersman, who was in training, was independently operating the vessel’s steering and propulsion systems. The pilot, who was due to take over the watch from the captain in about an hour, was also in the wheelhouse.

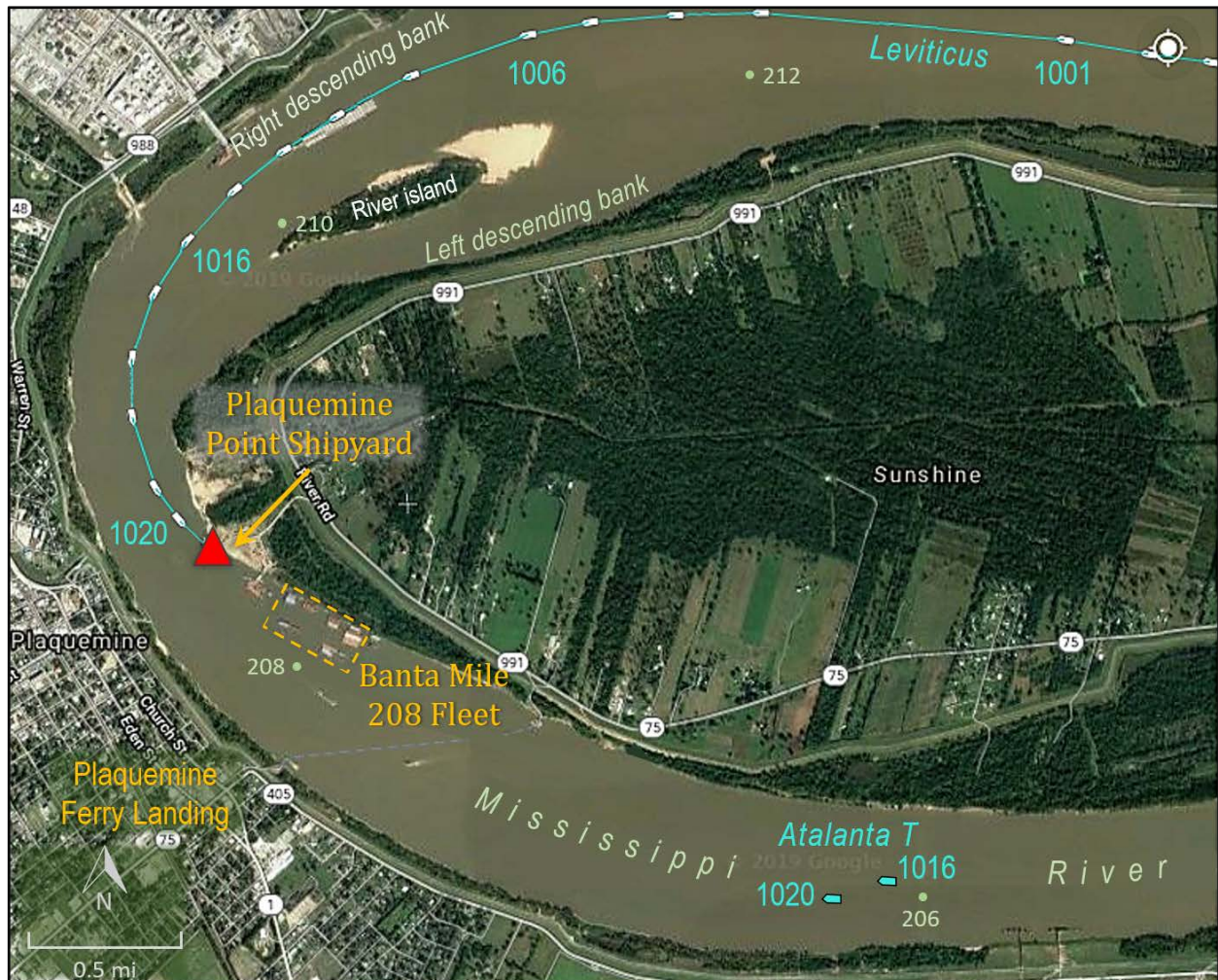
As the steersman was beginning to round the bend at Plaquemine Point, a New Orleans–Baton Rouge Steamship Pilots Association (NOBRA) pilot aboard an upbound tankship traveling around mile 207, the 591-foot-long *Atalanta T*, was making passing arrangements with downbound vessels above Plaquemine Point, including the *Leviticus*. At 1007, the captain of the *Leviticus* had the steersman call the pilot on the *Atalanta T* to propose and agree on a “two-whistle” (starboard-to-starboard) passing arrangement. The plan was to meet just below the Plaquemine Ferry Landing, which was on the right descending bank at mile 207.9.³

Around 1009, the captain and the pilot on the *Leviticus* conversed while intermittently providing guidance to the steersman. (Kirby Inland Marine voluntarily fitted its towing vessels with a navigational recorder system capable of recording wheelhouse video and audio, as well as automatic identification system [AIS] and radar images.) At 1011, the pilot advised the steersman, “Hold that point [toward the left descending bank]....See that current coming out of the chute? It’s gonna set you down,” regarding the strong current flowing between the river island and the left descending bank. Then at 1012, the captain cautioned the steersman, “But you got to hold that point,” before resuming his conversation with the pilot. About 3 minutes later, the pilot cautioned the steersman concerning the head of the tow, “See, see the water over there? See how that water does? If

³ The shorelines of the Western Rivers are referred to as the left and right banks when traveling downriver, because the river meanders and can flow in any direction—south, east, west, and even north. The left bank is called the *left descending bank*, and the right bank is called the *right descending bank*.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

you stick your head in that, you got to make sure that you're steering down. If you stick your head in that, your [stern] is going to go around."

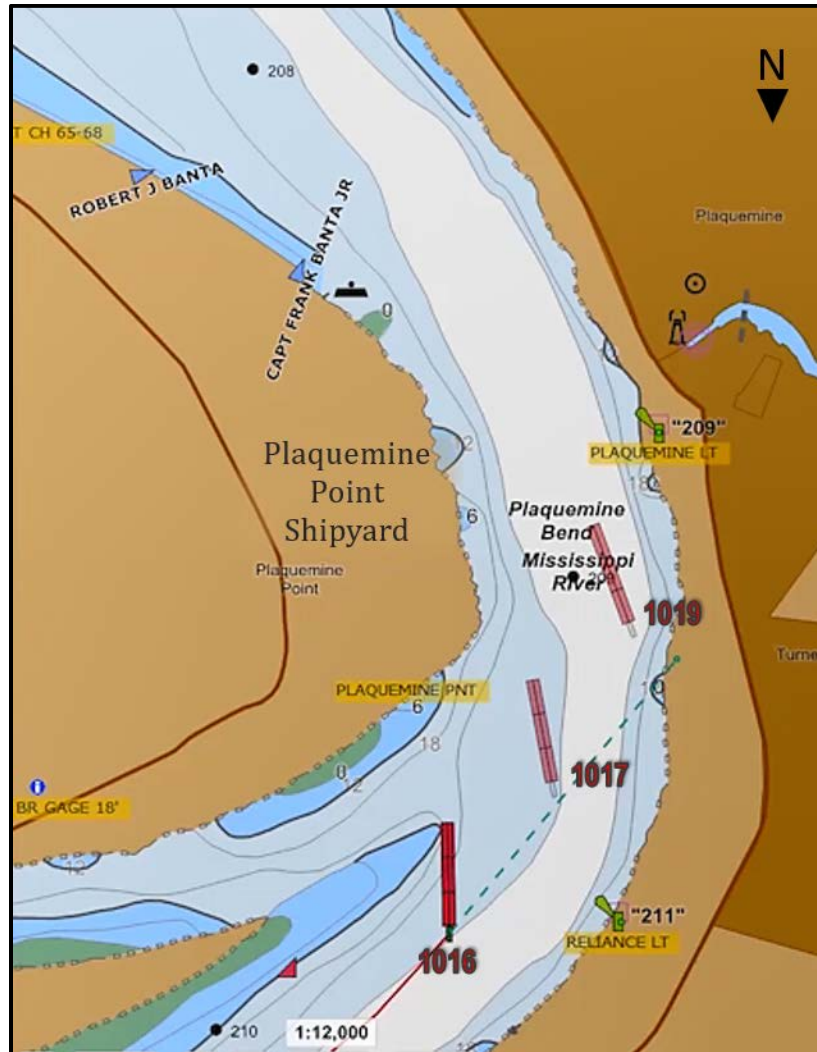


Trackline of the *Leviticus* tow during the last 20 minutes leading up to the contact with the barges moored at the Plaquemine Point Shipyard, based on the vessel's AIS data. According to the passing arrangement, Plaquemine Ferry Landing is where the tow would have met the *Atalanta T*. (Source: Marine Traffic; Google Earth)

At 1016, noticing that the *Atalanta T*'s position shifted toward the center of the river, the captain on the *Leviticus* commented, "Told that ship to hold." The pilot on the *Leviticus* replied, "But he [the *Atalanta T*] can't go no slower than that probably...[inaudible]...on the two whistles...better be on the point then." The pilot then told the steersman, "Tell him to get in the bend [closer to the right descending bank]."

The steersman then radioed the NOBRA pilot on the *Atalanta T* regarding the tanker's positioning in the river. Seeing that the *Leviticus* tow was sliding (moving sideways) toward the outside of the bend (right descending bank), the pilot on the *Atalanta T* replied, "If you're gonna slide that far, let me know, and I'll meet you on the one [port-to-port] instead." The captain on the *Leviticus* had the steersman to radio back to state that "the two [starboard-to-starboard] will work." The captain then told the steersman, "Be ready to jack it down," meaning to give full ahead propulsion and hard starboard rudder to stop the slide and straighten the tow.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard



Screen capture from playback of *Leviticus*' navigation system at 1016 shows tow length and predicted positions as the vessel rounds the bend. Position times have been superimposed. (Source: Kirby Inland Marine)

Several seconds later, the pilot on the *Leviticus* brought to the captain's attention that the tow was sliding into the bend toward the right descending bank. At 1018, the steersman pointed forward toward the water and asked, "Is that slack right there?" The captain ordered the steersman to put the rudder to starboard (he was not using the flanking rudders). At 1019, the captain ordered "hard starboard"; the steersman stated that the rudder was already hard to starboard. Next, as the tow was making 11.5 mph SOG, an order was given to the steersman to slow down. In response, the steersman pulled back on the throttles to about three-quarters ahead. From the *Atalanta T*, the NOBRA pilot radioed, "Hey *Leviticus*, let me know when you got your slide in check and I'll come ahead." The steersman, still manning the steering and propulsion controls, asked the captain, "What do you want me to do?" The captain replied, "I don't know," and then took the controls from the steersman.

The steersman later stated to investigators that he was steering to hold the point, as instructed, to minimize the tow's slide to the outside of the bend, where the upbound *Atalanta T* was heading.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

Although he thought that the head of the tow was caught in an eddy—water flowing counter to the main current that typically forms under a point of land at the foot of a bend—he told investigators that he did not alert the captain.

Located directly below Plaquemine Point on the left descending bank was the Chem Carriers Plaquemine Point Shipyard's cleaning plant at mile 208.5 and repair yard at mile 208.3. Each facility had a permanently moored access barge that was connected to the shore using an anchoring system. Permanently moored to each access barge were various undocumented deck barges that served as work platforms. The cleaning plant consisted of three work barges and three empty red-flag barges connected to the "upper" access barge. About 230 yards downriver, the repair yard comprised a drydock, three work barges, and two empty red-flag barges connected to the "lower" access barge. Adjacent to the shipyard at mile 208 was a fleeting area, the Chem Carriers Banta Mile 208 Fleet.

As the *Leviticus* and its tow approached the shipyard's cleaning plant, the captain moved the throttles to full ahead. Next, he moved the starboard engine throttle to full astern and adjusted the flanking rudders. Lastly, the captain moved the port engine throttle to full astern.

At 1020, the port lead barge of the *Leviticus* tow, *Kirby 27781*, with a SOG of 9.4 mph, struck a barge at the cleaning plant. Less than a minute later, the tow's starboard lead barge, *Kirby 27754*, struck an empty red-flag barge. As a result, all six of the cleaning plant barges were knocked free from their moorings, and the tow continued to push them downriver in the direction of the repair yard.



Screen capture from the *Leviticus*' video recorder at 1020 looking forward shows initial impact with the moored barges at the shipyard's cleaning plant. (Source: Kirby Inland Marine)

At 1021, the cleaning plant barges, which were being pushed downriver by the *Leviticus* tow, hit the repair yard.⁴ The anchor wires to the repair yard's barges parted. Five of the repair

⁴ The collision was captured on video and posted to YouTube as [Kirby Inland Marine M/V Leviticus demolished Plaquemine Point Shipyard](#) by Derrin Eckelmann on March 7, 2019.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

yard's barges broke away, one of which began drifting. The next minute the captain of the *Leviticus* stated, "We shouldn't have both been up here." The captain then informed the pilot on the *Atalanta T* and a fleeting tugboat at the Banta Mile 208 Fleet downriver of the accident.

About 5 minutes after the initial contact, two of the barges knocked loose from the cleaning plant struck the no. 1 barge anchor buoy at the Banta Mile 208 Fleet. The Banta fleet's two assist tugs got under way and began to chase down the drifting barges.

About 1115, the assist tugs completed the emergency roundup of the drifting barges; at 1500, all of the 11 barges that broke loose from the various contacts were secure in the fleeting area. After the vessel's crew ensured there was no serious damage, the *Leviticus* proceeded a short distance downriver where samples of the crewmembers were taken for postaccident toxicological tests, and minor repairs to the barges were completed before continuing its voyage.

There were 27 employees working at the Plaquemine Point Shipyard: eight at the cleaning plant and 19 at the repair yard. No alarm was sounded by the *Leviticus*; shipyard employees observed the tow approaching and warned the others. All workers evacuated directly to shore before contact was made with each facility. Ten workers later reported injuries, none of which required medical treatment beyond first aid.

Damage to the Plaquemine Point Shipyard barges ranged from a 20-foot-by-12-foot hole to dents and deformations on the barges' hulls. In addition, anchors were lost. The shipyard was closed and reopened in August 2019, five months following the accident, after high-river conditions subsided.

The lead barges of the *Leviticus* tow sustained damages, mostly to the *Kirby 27754* (starboard lead barge), consisting of a small hull penetration, hull scrapes, and damage to a winch. The double-hulled barges' cargo tanks were not penetrated, and no pollution occurred.



Plaquemine Point Shipyard in January 2019 (left) and immediately after the accident during major flood stage (right). (Source: Google Earth Pro [left]; Coast Guard [right])

Additional Information

River Conditions. Prior to the accident, the Coast Guard issued four high-water safety advisories in a *Marine Safety Information Bulletin* (MSIB) between January 25 and March 6 warning of dangerous eddies in river bends throughout the Lower Mississippi River. Plaquemine Point was one of the three bends named. Mariners were advised "to proceed with caution" and "to

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

be continuously on the lookout for irregular currents which may pose a threat to navigation.” The last two MSIBs were added as enclosures to a *Local Notice to Mariners* issued on February 27 and March 6. The captain of the *Leviticus* told investigators that he had been receiving these notifications weekly and therefore was aware of the dangerous eddies at Plaquemine Point.

Crew Training/Experience. The pilot aboard the *Leviticus* had 40 years of experience in the maritime industry, working more than half of them (25 years) for the vessel company. He held a Coast Guard credential as master of towing vessels on inland and Western Rivers.

The captain of the *Leviticus* had 25 years of maritime experience, entirely with the company, and had been assigned to the *Leviticus* for 2 years. He earned his master of towing vessels license in 2000. He said he was very familiar with the area and had made numerous transits during all river stages. The captain had trained about 10 steersmen over the last 7 years for the company. The day of the accident was the captain’s fourth in a 28-day work rotation actively training the steersman. Both the captain and steersman stated they were comfortable working with each other.

The apprentice mate/steersman (steersman) had 2 years of maritime experience, all with the vessel’s company. A 2017 graduate of a maritime academy, the steersman held a Coast Guard-issued unlimited tonnage third mate’s license and was in training for his mate (pilot) of towing vessels on Western Rivers national endorsement. According to his training log, he had 668 hours of steering towing vessels on 186 trips. Of these trips, 83 (45%) were on Western Rivers; 71 (38%) were upbound Western Rivers transits, including one through Plaquemine Point; and 12 (6%) were downbound on Western Rivers, none of which transited Plaquemine Point.

The captain described the steersman ability’s as “a natural,” adding, “he detects slides, doesn’t have to be constantly observed. Every once in a while, he’d get hung up, but he was doing a great job and has a good future with the company.” The captain said that during the voyage from Wood River, Illinois, the steersman was making “his own decisions” while maneuvering the vessel. However, during the transit of Manchac Point, the previous river bend at mile 215, the steersman was “holding the point” while the head of the tow was caught in the eddy. The captain waited for the steersman to take corrective action; however, before allowing too much of the tow’s head to be caught in the eddy, he had to instruct the steersman through freeing the tow by using reverse rudder.

The captain said he allowed the steersman to make the transit through the next bend at Plaquemine Point—the first of the three dangerous bends on the Lower Mississippi River that the *Leviticus* would encounter—“because I didn’t want to mess his confidence up.” In retrospect, though, the captain thought he should have made the transit himself through the bend. He said if the *Leviticus* moved too far into the river, the strong downbound current would set the tow into the bend. He estimated the speed of the current was between 3 mph at the point and 6 mph deeper in the bend. He intended the steersman “to skirt” the edge of the eddy he anticipated just upriver from Plaquemine Point on the left descending bank with about half of a barge width in the eddy. When the captain relieved the steersman at the helm station, however, he realized the head of the tow was not coming out of the eddy. He described the eddy as being lower, farther out from the bank, and stronger than he expected.

Drug/Alcohol Testing. Per company policy, samples for postaccident toxicological testing were taken from all crewmembers aboard the *Leviticus* about 1300 on the day of the accident: all

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

results were negative for alcohol. Drug test results were also negative for the crewmembers, except the captain. The captain tested positive for marijuana metabolites (THCA), a reading of 27 nanograms per milliliter (ng/mL); negative test results may detect up to 15 ng/mL.⁵ He was immediately dismissed by the company, and his merchant mariners credential was revoked by the Coast Guard.

Analysis

The captain's THCA sample of 27 ng/mL was almost twice the allowed level. Given that THCA is an inactive metabolite and that urine concentration does not necessarily reflect recent use, it cannot be determined if the captain was under the influence of marijuana.

On the day of the accident, the river was at major flood stage. The previous day, the Coast Guard had issued a high-water safety advisory (the fourth of four in an MSIB since January 25) calling on mariners to be on a continuous lookout for irregular currents throughout the Lower Mississippi River, specifically naming Plaquemine Point among three river bends with dangerous eddies. Based on their experience transiting the bend in the past, including in high water, the captain and the pilot of the *Leviticus* were aware of the increased risk in rounding Plaquemine Point with a downbound tow. The bend was known by both mariners to contain eddies that required them to be vigilant while skirting the edge of the eddy, which was more dangerous during a major flood stage. However, as the steersman operated the vessel through the bend with the captain and pilot providing guidance, the head of the tow got caught in such an eddy, which prompted the captain to take control just before the contact with the Plaquemine Point Shipyard. The captain anticipated the eddy, based on his experience, but he described the eddy encountered as extending lower from the point, farther out from the bank, and stronger than expected.

While transiting downriver around Plaquemine Point, the *Leviticus* made a two-whistle passing arrangement with the upbound *Atalanta T*, which the captain on the *Leviticus* instructed the steersman to propose. The arrangement required the tow to stay near the left descending bank when rounding the point, where the river current was slower than in the main channel. The area was hazardous with unpredictable eddies: too close to the point, the tow could get stuck in the eddy; too far, the tow could be carried by the main channel current and slide toward the bend in the path of the *Atalanta T*. The meeting arrangement also required the *Atalanta T* to slow its speed and move near the right descending bank to allow the *Leviticus* to make a safe starboard-to-starboard pass. However, the captain on the *Leviticus* noticed the *Atalanta T* in the middle of the river and therefore had the steersman to request the *Atalanta T* move closer to the right descending bank. Yet, when the NOBRA pilot noticed the *Leviticus* starting to slide, he proposed changing to a one-whistle pass, which the captain instructed the steersman to decline and remain with the planned pass. If the *Leviticus* did not have an upbound vessel to pass, the captain and the steersman could have maintained a safer distance from the eddy on the left descending bank. Monitoring and meeting the upbound *Atalanta T* near the point added extra pressure on the captain

⁵ Tetrahydrocannabinol (THC), the primary psychoactive substance in the marijuana plant *cannabis sativa*, can affect cognitive and motor performance deficits for at least 1 to 2 hours (and have been reported up to 24 hours). The inactive metabolite, THCA, can be found in urine days to weeks after the last use of the drug. Metabolism and elimination depend on the means of ingestion, potency of the product, frequency of use, and user characteristics (including percent body fat).

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

and the steersman as well as decreased the margin of error while the *Leviticus* and its tow transited the bend.

The downbound transit of Plaquemine Point was the steersman's first. When the head of the tow was caught in an eddy while transiting the previous river bend at Manchac Point, the captain, who was the only other person in the wheelhouse at the time, had to guide the steersman through the bend, using corrective reverse rudder to free the tow. Moreover, Manchac Point was not considered to be a bend as challenging to navigate as Plaquemine Point. The transit of the previous bend should have heightened the captain's attention in anticipation of the next and more dangerous bend or led him to more closely monitor the steersman. Thus, the captain could have steered the bend himself while having the steersman closely observe the maneuvers. However, in consideration of developing the steersman's skills, the captain felt that he "didn't want to mess his confidence up" by not allowing him to continue steering the tow through Plaquemine Point.

The captain and the pilot coached the steersman as he independently operated the tow's steering and propulsion to "hold the point." The captain did not realize the tow was caught in an eddy and headed toward Plaquemine Point Shipyard until less than a minute before the accident, when the captain first gave the steersman a "hard starboard" helm order and then took over the steering and propulsion of the tow to attempt to avoid striking the shipyard barges. The captain did not recognize the steersman was in trouble in sufficient time to take steps to prevent the accident.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the contact of the *Leviticus* tow with the Plaquemine Point Shipyard was the captain's decision to continue the training of an apprentice mate/steersman while navigating a challenging river bend downbound and meeting upbound traffic in high-water conditions.

Transiting Hazardous Areas When Trainees Operate Towing Vessels

Trainers should have heightened attention when trainees are operating a vessel, especially during strong current conditions, navigating dangerous bends, transiting high-traffic areas, and other areas of known risk. When allowing trainees to operate under these circumstances, their experiences and skill levels should be considered. Captains should also encourage trainees to speak up at the earliest time of concern or any time when in doubt. Non-pertinent conversation and other distractions should be avoided.

Contact of *Leviticus* Tow with Plaquemine Point Shipyard

Vessel Particulars

Vessel	<i>Leviticus</i>	<i>Kirby 27781</i>	<i>Kirby 27754</i>
Owner/operator	Kirby Inland Marine LP	Kirby Inland Marine LP	Kirby Inland Marine LP
Port of registry	Wilmington, Delaware	Wilmington, Delaware	Wilmington, Delaware
Flag	US	US	US
Type	Towing Vessel	Barge	Barge
Year built	1976	2013	2008
Official number (US)	577329	1243766	1208455
IMO number	N/A	N/A	N/A
Classification society	N/A	N/A	N/A
Construction	Steel	Steel	Steel
Length	147 ft (44.8 m)	300 ft (91.4 m)	300 ft (91.4 m)
Draft	9 ft (2.7 m)	8.5 ft (2.6 m)	8.5 ft (2.6 m)
Beam/width	37.9 ft (11.6 m)	54 ft (16.5 m)	54 ft (16.5 m)
Tonnage	499 GRT	1,632 GRT	1,632 GRT
Engine power; manufacturer	2 x 2,300 hp (1,715 kW); General Motors 12- 645E57C diesel engines	N/A	N/A
Persons on board	8	0	0

NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Unit Baton Rouge, Louisiana, throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA19FM023.

Issued: June 16, 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).