National Transportation Safety Board

Marine Accident Brief

Contact of Tanker *American Liberty* with Multiple Vessels

Accident type	Contact	**No.** DCA19FM034
Vessel name	*American Liberty, Don D, African Griffon, Ever Grace,* and multiple hopper barges	
Location	Lower Mississippi River, mile 139.5 near Reserve, Louisiana 30°03.19' N, 090°34.98' W	
Date	May 16, 2019	
Time	2042 central daylight time (coordinated universal time – 5 hours)	
Injuries	1 serious and 3 minor	
Property damage	$40.5 million	
Environmental damage	None	
Weather	Visibility 10 miles, clear skies, calm conditions; air temperature 75°F, water temperature 69°F, moonrise 1743 (96% of visible disk illuminated), sunset 1949	
Waterway information	The river was at major flood stage at Baton Rouge (mile 230); the channel was about 84 feet deep and 1,848 feet wide in the vicinity of the accident.	

On May 16, 2019, at 2042 local time, the fully laden product tanker *American Liberty* got underway with a pilot on the Lower Mississippi River, at mile 140.2 near Reserve, Louisiana, when the bridge team lost control of the vessel in the fast current, and made contact with moored vessels, barges, and wharfs along the left descending bank from miles 139.5 to 138.7 as it moved down river. [1] Four injuries and no pollution were reported. There was a reported $40.5 million in damages to the vessels, barges, and terminals.

The *American Liberty* before the accident. (Source: Jeff Thoreson)

[1] All miles in this report are statute miles.

NOTE: This report was re-issued on December 17, 2020, with corrections to the graphic on page 6.

Background

On May 16, the day of the accident, the Mississippi River was at major flood stage with the Baton Rouge gage reading 43.6 feet, 89 miles upriver from the accident site. Heavy rains in the Mississippi and Ohio River valleys prompted the US Army Corps of Engineers to reopen the Bonnet Carré Spillway (mile 128) on May 10 to reduce the river's volume through New Orleans, Louisiana (mile 95), and to alleviate the pressure on the downriver levees by diverting overflow river water into Lake Ponchartrain.

Accident Events

The *American Liberty* was a 601.3-foot-long US-flagged bulk liquid cargo vessel (product tanker) classed by the American Bureau of Shipping to carry oil and chemical products. The vessel was built in Philadelphia, Pennsylvania, and delivered in 2017. The vessel was double-hulled, meaning that its cargo tanks (the inner hull) were separated from its outer hull by ballast tanks, voids, or spaces. Double-hull construction is intended to minimize the chances of cargo loss to the environment by providing protection from side or bottom damage. The *American Liberty* was propelled by a 10,966 horsepower (hp) slow-speed diesel engine directly driving a single fixed-pitch right-hand-turning propeller and equipped with a voyage data recorder (VDR). The vessel was moored starboard-side-to the Marathon Petroleum Garyville, Louisiana Dock No. 2 (mile 140.2) on the left descending bank, with the bow pointed up river.[2] The vessel was on its normal route, loading petroleum cargo at Garyville, Louisiana, and sailing to Tampa Bay, Florida, to discharge. There were 23 crewmembers aboard.

On the evening of May 16, the *American Liberty* prepared to get underway after loading a cargo of low sulfur diesel fuel and gasoline. As a US-flagged vessel engaged in domestic trade, the *American Liberty* employed a US Coast Guard-credentialed mariner with federal pilotage endorsements for the Lower Mississippi River. The Associated Federal Pilots and Docking Masters of Louisiana provide pilotage services from Southwest Pass to Baton Rouge. The federal pilot was on the bridge at 1955, and the master/pilot exchange was logged as completed at 2014. Before getting under way, propulsion and steering gear tested satisfactory. The moon was nearly full, and visibility was good. The agreed-upon undocking plan was to turn the vessel down river counter-clockwise off the berth. Two assist tugs were in position – the *Josephine Anne* (twin 4,000 hp Z drive propellers) with one line on the port bow standing by to pull and the *Vera Bisso* (twin 4,200 hp conventional propellers) with no lines, standing by on the port quarter.

The pilot was issuing rudder and engine commands to the two assist tugs from both bridge wings. The master was relaying the pilot's helm and engine commands to the third mate. The third mate on watch was operating the engine order telegraph (EOT) with the main propulsion engine in bridge control mode and was monitoring rudder orders by watching the rudder angle indicator. The helmsman was an able seaman.

At 2028, after all stern lines were clear, the pilot began to work the vessel off the wharf and into the river with rudder hard right, engine dead slow ahead, and the *Josephine Anne* pulling

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

on the port bow. At 2030, the pilot ordered the *Vera Bisso* to push on the port quarter to begin to turn the vessel.

PROPULSION PARTICULARS

Type of Engine: MAN B&W Direct Drive Slow Speed Diesel – 9,789 BHP
Type of Propeller: Fixed Pitch Four Blade Right Hand Propeller

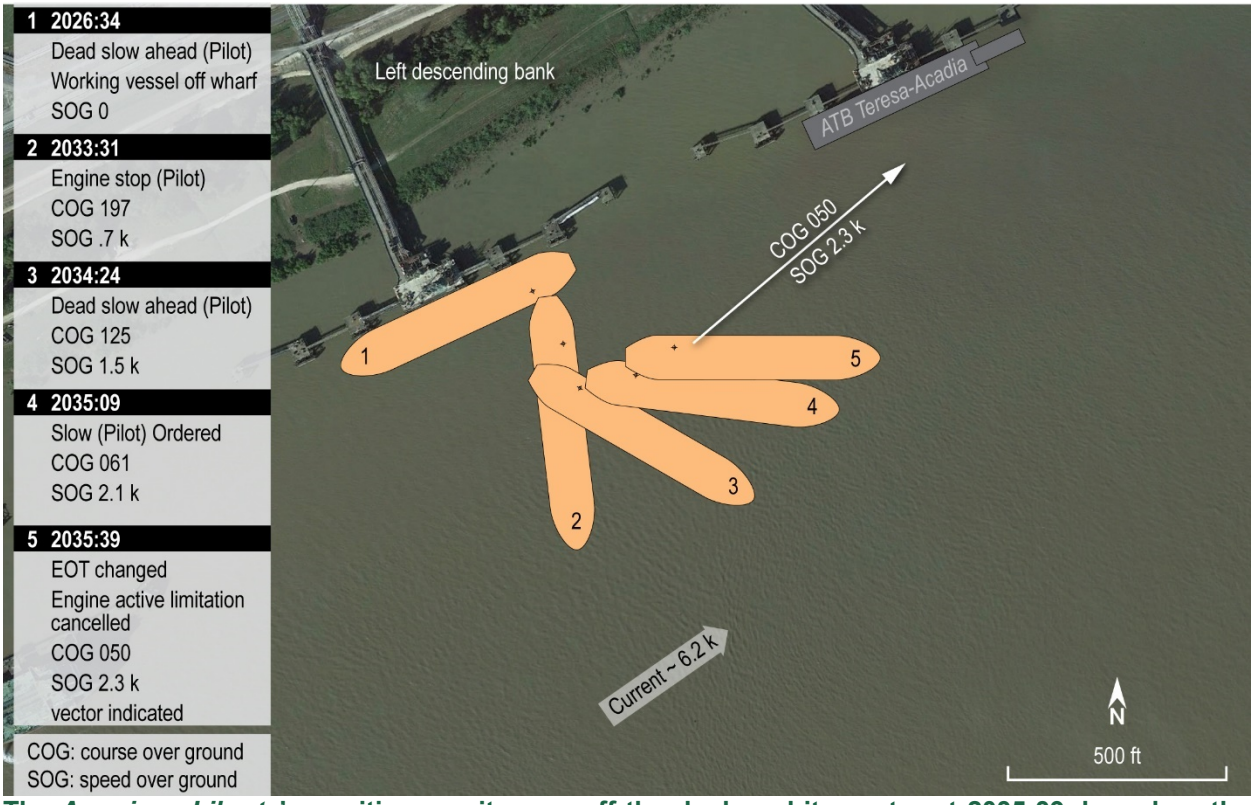
Engine Order	RPM	Loaded Speed	Ballast Speed
Full Sea Speed	90.1	14.5	15.2
Full Ahead	80	13.0	13.8
Half Ahead	65	10.3	11.3
Slow Ahead	57	8.0	9.2
Dead Slow Ahead	40	4.0	5.2
Minimum Ahead	30	3.0	4.2
Dead Slow Astern	40	Critical Revolutions	45-55
		Minimm RPM	24
Slow Astern	57	Time Limit Astern	NA
		Time Limits @ Min. Revs.	NA
Half Astern	65	Emergency Full Ahead to Full Astern	5 Min 42 Seconds
Full Astern	69.3	Stop to Full Astern	4 Min 2 Seconds
		Astern Power	70% of Ahead Power
		No. Of Consecutive Starts	15

Excerpt from the *American Liberty*'s pilot card showing engine orders with corresponding RPM and loaded condition speed highlighted. (Source: Crowley Marine)

At 2033:31, the stern was reported clear of all obstructions by about 125 feet, so the pilot stopped the engine, ordered rudder midship, came in from the bridge wing, and started conning from inside the wheelhouse. At 2034, the vessel was halfway through the turn and perpendicular to the bank. The pilot ordered the *Vera Bisso* to stop pushing and released the tug.

At 2035:09, the pilot said to the master, "bring her up to slow (ahead)…whenever you can," to which the master responded, "yeah we're probably going to need a little while especially [with the current]." The mate told investigators that he heard what the pilot said but "did not acknowledge that statement as a command" and did not change the EOT. Thirty-two seconds after the pilot's initial command, at 2035:41, the master walked to the EOT and changed the speed to slow ahead. He also canceled the engine active limitation to increase engine power.[3] Meanwhile, the pilot ordered the *Josephine Anne* on the port bow to stop and payout the line in preparation to release the tug.

[3] The main engine fuel index limiters prevent the engine from being overloaded by being over-fueled with respect to combustion. Canceling limits (accomplished by canceling engine active limitation) increases the starting, torque and scavenge air limiters by about 10 percent. An increased fuel index therefore increased available engine power. See MAN Superintendent Engineer email of May 18, 2020, in docket.



The *American Liberty*'s positions as it came off the dock and its vector at 2035:39, based on the vessel's ECDIS data and AIS data.

At 2036, the *American Liberty* was moving parallel to the bank at an angle, bow first with the stern closer to the bank. At 2036:09, instead of releasing the *Josephine Anne* as he had previously intended, the pilot ordered the tug to push on the port bow. At 2036:38, as the vessel's stern approached the articulated tug barge (ATB) *Teresa-Acadia*, the pilot asked, "give me whatever you can give me cap[tain]… and get a little speed here." The master increased the EOT to half ahead without telling the pilot, and then replied to the pilot, "we should be good."

At 2037, the pilot called the *Vera Bisso* back to push full on the *American Liberty*'s port midship. At 2037:23, the master stated, "we're at full"; when the pilot responded, "full?" the master increased the EOT to full ahead. The pilot ordered the *Josephine Anne* to stop pushing on the port bow, but the master told the pilot they should continue to push.

Time	Verbal Order	Response Statement	Action
2033:25	Pilot: "stop engines."	Master: "stop the engine." Mate: "stop engine."	EOT: stop.
2034:24	Pilot: "dead slow ahead."	Mate: "dead slow ahead."	EOT: dead slow ahead.
2035:09	Pilot: "bring her up to slow when you – whenever you can."	Master: "yeah we're probably going to need a little while especially ** [with the current].	
2035:41			EOT: slow ahead. Active limitation cancelled.

2036:38	Pilot: "give me whatever you can give me cap… and get a little speed here."	Master: "yeah we should be good."	EOT: half ahead.
2037:23		Master: "we're at full." Pilot: "full?"	EOT: full ahead.
2037:48	Pilot: "stop engines."	Mate: "stop engine." Mate: "stop engine captain."	EOT: stop.
2038:10		Master: "we need the engine. We need to go."	
2038:11	Pilot: "yeah give me slow ahead."		EOT: full ahead.

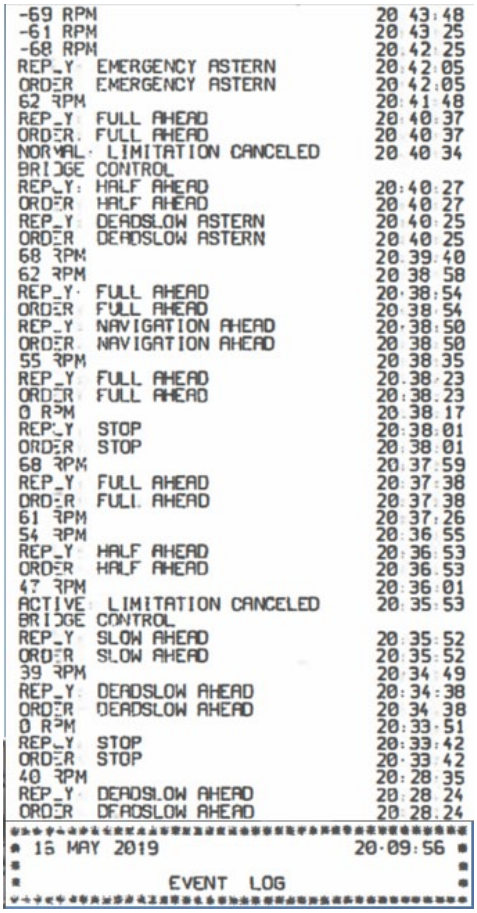
Excerpt from a table of the pilot and master's engine orders, and the engine changes. Verbal orders and engine response indicator alarms are captured from the VDR; engine order/reply speeds are captured from the engine event log.

Around 2038, the pilot ordered engine stop, called the *Vera Bisso* to push on the port bow, and called for the *Josephine Anne* to reposition from the port bow to the starboard quarter—but the master countered with, "we need the engine, we need to go." The pilot ordered engine slow ahead, but neither the mate nor the master responded to the command. At 2038:12, the EOT was increased to full ahead without communication of the action to the pilot.

The pilot stated, "I can't keep the speed up," and hailed the *Vera Bisso* to get a line on the starboard side. He then ordered engine stop, again with no response from the mate or the master. Instead, at 2038:38, the EOT was increased to navigation ahead. About 4 seconds later, the EOT was slowed to full ahead without communication of the action to the pilot.

The master told the pilot to speed up to break out of the current, but the pilot responded that he didn't believe he could get enough speed and instead intended to go astern. The pilot then ordered rudder midship; when the helmsman replied that the wheel was midship, the pilot ordered rudder hard right. At 2039, the pilot ordered engine full ahead and mate replied that they were already at full ahead.

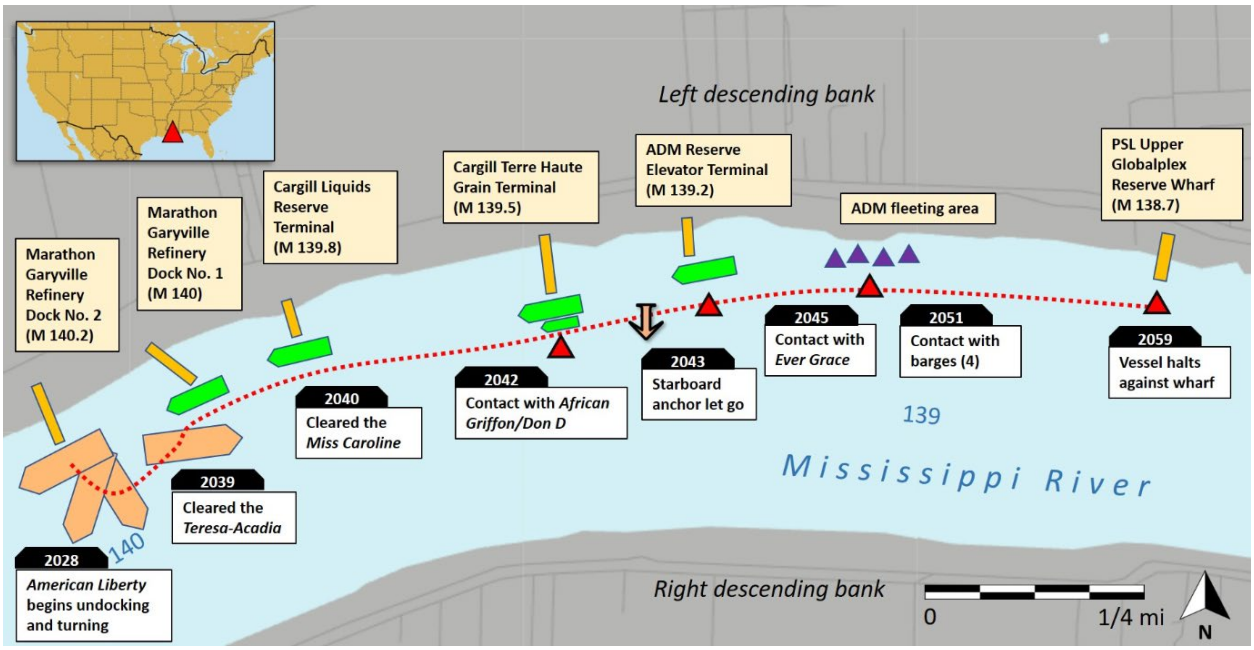
At 2039:08, the master ordered rudder hard left. The pilot counter-ordered rudder hard right. As the port quarter of the *American Liberty* cleared the ATB *Teresa-Acadia*, the pilot ordered rudder midship, which the helmsman and the mate confirmed.



Engine event log excerpts recording time of order, reply, rpm, and control status. Engine event log times are 10 seconds faster than the VDR transcripts. (Source: Crowley Marine)

The master and the pilot both ordered the rudder hard left as the *American Liberty* approached the second wharf downriver, where the tug *Miss Caroline* was moored. At 2040, the

pilot ordered engine stop then engine full astern, which was not acknowledged by the master or the mate, but at 2040:14 the EOT was slowed to dead slow astern and 2 seconds later increased to half ahead without communication of the action to the pilot. The pilot repeated the order for engine full astern, again with no response, and at 2040:16, the master ordered, "hard left, full ahead, don't listen to the pilot."



From where the *American Liberty* was moored, there were five wharfs on the left descending bank downriver. All vessels were moored starboard-side-to, bow pointed upriver. Shown is the vessel's AIS track (red dots) getting underway, turning counterclockwise, moving bow first downriver, and contacting vessels and wharfs along the left descending bank, as indicated by the red triangles. Not to scale. (Background Source: Google Maps)

At 2041, the *American Liberty* approached the third wharf downriver, where the *African Griffon* was moored, with the *Don D* and a hopper barge nested outboard. The pilot ordered engine full ahead, although the EOT had been changed to full ahead without his knowledge. Both the master and the pilot continued to give conflicting rudder orders. At 2041:53, the master ordered the engine full astern, and the EOT was changed to emergency astern.[4] At 2042:39, the *American Liberty*'s port quarter contacted the crane barge *Don D*. The master ordered the emergency signal sounded on both the whistle and interior alarm.

[4] To reverse direction with a slow speed direct drive diesel, the engine must first stop, and then physically re-start the engine in reverse – astern in the opposite direction to the appropriate astern command rpm.

The *American Liberty* (name on the stern is circled), as it drifted down the port side of the *Ever Grace* at ADM Reserve Elevator Terminal. (Source: ADM)

The impact parted the *African Griffon*'s lines to the barges, and both barges drifted downriver, with the *Don D* between the *American Liberty* and the *African Griffon*. At 2043, after the engine had been at emergency astern for about a minute, the vessel was drifting downriver at 5 knots speed over ground (SOG). The master ordered the starboard anchor let go and the engine room evacuated, then the pilot announced over the radio that he was dropping the anchor at Reserve.

At 2044:59, as the *American Liberty* continued downriver, approaching the fourth wharf, where the *Ever Grace* was moored, Vessel Traffic Service (VTS) Lower Mississippi River closed the river from mile 138 to mile 140. The *American Liberty* contacted the terminal's mooring equipment, and then its port quarter struck the *Ever Grace*'s port bow at 2045:38. At 2049, the pilot ordered engine stop and asked if the engine was in the astern direction. The mate replied that the engine was stopped. The pilot stated, "let's back on it," and the mate changed the EOT to slow astern, but responded, "slow ahead?" The pilot corrected the mate, "no, slow astern" then ordered engine full astern**.**

At 2051, the *American Liberty* contacted three strings of moored hopper barges, which broke loose. The master and pilot agreed to attempt to secure the vessel on the PSL Upper Globalplex Reserve Wharf. At 2059, the pilot ordered engine full astern, but the mate asked the master to confirm the pilot's command. After the vessel contacted the wharf's mooring dolphins and catwalk, the master replied affirmative and the mate adjusted the EOT to full astern.

The vessel and eight hopper barges were held against the bank and wharf with the assistance of three tugs. The barges were removed by fleeting tugs, and the pilot and master worked the starboard anchor, four assist tugs, and mooring lines to come along portside-to the wharf, with first line secured at 2200. At 2316, another federal pilot was onboard to relieve the accident pilot. At 2345, all tanks had been sounded with no evidence of flooding. On May 17 at 0142, the *American Liberty* was securely moored portside-to the wharf; at 0226, VTS reopened the river to vessel traffic.

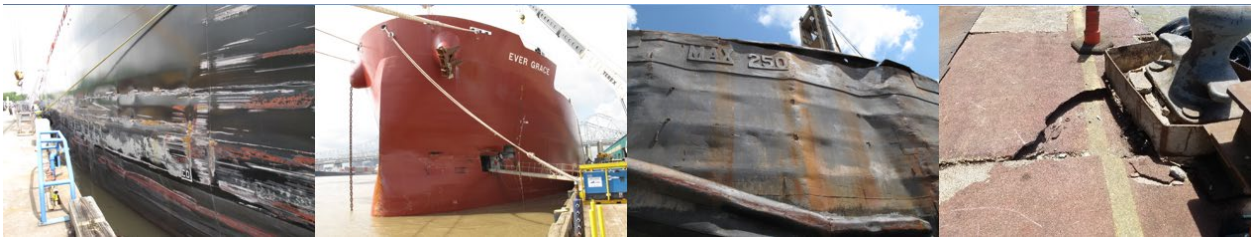
Samples for postaccident drug and alcohol tests were taken from crewmembers in operational control of the *American Liberty*, *Josephine Anne, Vera Bisso*, and the pilot – all results were negative. The stevedores on the *African Griffon* and the *Don D* reported one serious and three minor injuries. The stevedore production manager on the *African Griffon*, who was recording the accident on his cell phone when nearby wires parted, received two skull fractures near his left temple.

The *American Liberty* shifted to a maintenance wharf 46 miles downriver on the evening of May 18. Upon completion of temporary repairs, the vessel got underway for sea the morning of May 24. On the evening of May 25, the vessel arrived at Port Manatee, Florida, to discharge cargo and shifted the next day to Marathon Tampa to complete its discharge. On May 27, the vessel shifted to

anchorage for shipyard preparations, and the vessel was drydocked at Tampa Ship from May 31 to July 3 for permanent repairs. The vessel departed the shipyard on July 3 and was back on hire.

Additional Information

Damage. The *American Liberty* suffered $1,704,934 in damages to the hull plating down the port side, from cargo tank #2 to the steering gear room; the hull was holed in three places, but the cargo tanks in the double hull were not penetrated. The *African Griffon* had $5,000 in damages including an inset 15 feet long by 5 feet wide and a fractured frame to the port side of the hull adjacent to cargo hold #1. The *Don D* suffered $504,519 in damages, which included multiple holes in the hull at the starboard stern and the port bow. The *Ever Grace* suffered $97,188 in damages, which included two hull punctures and up to 2-foot-deep plate indents over an area 32 feet long and 12 feet wide on the port bow. Initial damage to the ADM Elevator Reserve Terminal was to two mooring platforms and catwalks, 100 feet of the concrete wharf, fenders, and a security camera/tower. Damages were revised to $32,150,000 to demolish and rebuild the facility including the wharf, moorings systems, loading tower and foundation, ship loader, conveyor system, crane tower, and vacuum tower. Eleven ADM hopper barges suffered estimated damages of $221,000. The PSL Upper Globalplex Reserve Wharf suffered $5,881,210 in damages including a destroyed mooring dolphin and catwalk, damaged bridge, pipeline, conduit, wharf structure, and a navigation light. Combined accident damages to the ships, barges, and wharfs were $40,563,851.



Postaccident damage from left: *American Liberty*, *Ever Grace*, *Don D*, and ADM Reserve Elevator Terminal. (Source: AECOM)

Bridge Resource Management (BRM) and Effective Communication. One of the staples of good BRM is the master/pilot exchange, which is required at the start of pilot transits and includes discussion of the vessel's navigational equipment, any limitations of maneuverability, available engine speeds, intended course and speed through the waterway, anticipated hazards along the route, weather conditions, and so on. On the evening of the accident, the VDR captured the master/pilot exchange, which both pilot and master told investigators was satisfactory but not comprehensive by any means. Both told investigators that they shared an understanding of how the undocking maneuver was to be executed, but the exchange did not address how far the vessel was to be off the dock when the ship was to start turning, when the tugs were to be let go, or any other precautions that might be necessary in the faster-than-normal river current.

BRM also states that only one officer can have the conn at a time, so the helmsman and EOT operator need to know who has the authority to give wheel and engine commands. In addition, most operations aboard vessels, such as rudder and engine standard commands, require the use of "industrial communications." Messages must be brief, five words or less.[5] The helmsman or EOT operator is required to repeat the command by the conning officer word-for-word, complete the

[5] Maritime Institute of Technology and Graduate Studies, *Bridge Team Pilot Interaction*, email of October 5, 2020.

task, report when the ordered action is complete, and wait for the conning officer's acknowledgement. If the helmsman or EOT operator does not understand a wheel or engine order, they must communicate this to the conning officer, and then wait for the conning officer to make the command understood or cancel it. During the accident, both the master and pilot gave commands. The helmsman told investigators that there was a lot of "commotion and confusion" on the bridge, and that he wasn't sure if the pilot or the master had the conn because they were telling him "conflicting things." The mate told investigators that the master had "filtered" the commands given by the pilot.

The master said everything was normal as they were coming off the wharf, but the current caught the vessel as they tried to go ahead and they could not gain enough headway in the river and slow the rate of the turn. The pilot said that he did not get the turns for slow ahead and the current set the vessel toward the wharfs, but he had not looked at the rpm and rudder angle indicators to verify if his commands were carried out. The pilot told investigators that he deviated from the standard language for engine commands because it was more polite to ask for speed changes and that's the way he was trained. He noted that he had never had any problems before with his engine commands being followed.

Engine Performance. Both the pilot and the master stated in interviews that they did not get rpm quickly enough for slow ahead at 2035:09 to prevent the accident and mentioned the engine's critical revolutions (45 to 55 rpm) may have had something to do with the delay.[6] The National Transportation Safety Board (NTSB) examined and graphed the vessel's engine parametric data to examine the responsiveness of the engine (see appendix). The study determined that: "(1) the ship was responsive to engine orders; (2) the rapid rudder movements from 2035 to 2045 were too quick for the ship to respond;" (3) around 2036, the ship's angle would have allowed it to steer away from the shore if it had been moving ahead faster than the river current; and (4) at 2042, when emergency astern was rung up, the ship's speed was no longer faster than the river current, and it was unable maneuver away to prevent the accident. The *American Liberty*'s chief engineer told investigators that there were no issues or concerns mechanically or operationally with the main propulsion engine at the time of the accident. He did not know why the pilot and master indicated a concern about not receiving the rpm when they needed them, but noted that "factors such as current and maneuvering a loaded vessel will affect the rate at which desired rpm are reached. "

The master told investigators that, in response to the pilot's 2035:09 order of slow ahead, he told the pilot it would take "a little while" to come up from dead slow ahead (40 rpm) to slow ahead (57 rpm) because of the current, which he estimated had been around 4 to 5 knots. He also canceled the engine active limitation to increase engine power. In his interview, the master explained the current was working in the opposite direction of the propeller wash, which would increase the load on the engine, and therefore take longer for the engine to reach the ordered rpm. The pilot told investigators the opposite, that the rpm should come up quicker in a following current, which he estimated at 5 to 6 knots.

[6] The *critical rpm* or *barred speed range* of an engine is the range of rpm at which the rotating equipment has significantly higher vibration, which increases stress on components and can lead to engine or propeller shaft damage. Operation within the barred range is to be avoided.

The engine manufacturer reviewed a graph of the engine parametric data, which included rpm data from the VDR. They concluded that the engine responded as expected, and that the engine appeared to have hit its torque limit beginning with the speed increase from dead slow ahead to slow, and then to half and full ahead. When the engine reached its torque (load) limit, the rate of acceleration was lowered. The manufacturer noted that operation with large rudder angles restricts the flow of water from the propeller, so more torque will be required to turn the propeller. In addition, as the vessel moved into the following current, it had a negative speed through the water, and the water flowing past the propeller from astern increased the torque required to turn the propeller. They commented that these effects of engine acceleration with limitations are well known for propellers directly coupled to two-stroke engines and that "actual power delivered is solely determined by the torque required by the propeller for a specific rpm in a given operational condition."

Personnel. The master was on the tenth day of his 75-day work schedule. He had worked for the company for 9 of his 13 years in the maritime industry and had been master of the *American Liberty* for 1.5 years. He estimated that he had docked/undocked at Marathon Garyville Dock No. 2 and No. 1 between 12 to 20 times. The federal pilot was on the first of his 7 days on duty. He had worked in the maritime industry for 18 years, pushing large tows up and down the rivers. He was on his tenth month working on his own as a probationary pilot. He had piloted the *American Liberty* or a sister vessel 12 times, and he had performed 8 undockings and 5 dockings of vessels of different classes at Marathon Garyville Dock No. 1 or No. 2.

Analysis

Investigators did not identify an operational issue with the main engine on the *American Liberty*. The pilot and the master stated the ship's rpm did not rise quickly enough for a slow ahead order as the vessel topped around. The engine manufacturer found that the engine appeared to have reached its load limit beginning with the slow ahead order, and its rate of acceleration was lowered. However, they confirmed that the engine appeared to have performed as expected. Although both the master and the pilot were aware that the river's current in that area pushed down toward the wharfs, and later expressed current as a known concern and challenge, the master/pilot exchange did not address challenges or precautions from the fast current due to the high river conditions. The ECDIS vector shows that, at the time of the pilot's initial slow ahead order, the (5 knots to 6.5 knots) current was already carrying the vessel toward the wharfs on the left descending bank at 2.1 knots.

Good communication amongst a bridge team is key to successful BRM. Brief standard messages are used by many marine operators. Inaccurate, incomplete, or ambiguous messages are a common cause of major accidents. Crew members should acknowledge and repeat orders to ensure that the orders were understood and are responsible for responding to the conn to clarify misunderstood commands.

Up until 2034 when the pilot released the aft tug, orders to the tugs and engine commands were issued and executed without issue. However, at 2035:09, the pilot ordered the engine "bring her up to slow…whenever you can"— the first of the pilot's orders that deviated from the standard commands. The master's response, "…yeah we're probably going to need a little while especially…with the current," compounded the ambiguous order by adding his explanation of why it would take longer instead of a standard execution of moving the EOT from dead slow ahead to slow ahead. At 2036:38, with the slow ahead not having the desired effect, the pilot gave a second

order to "give me whatever you can give me cap…you want to start shoving on it and get a little speed here." When the pilot attached a caveat to the slow ahead order ("whenever you can"), it allowed the captain his own interpretation of how he could execute the order. The pilot's subsequent order indicated that he needed more speed than he was getting, but the master, based on the first qualifier of "whenever you can," was bringing the engine up slower.

When the pilot gave this slow ahead order, the master did not interpret the order as needing to be immediately executed, while the mate did not interpret the statement as an order. In addition, when the master did input slow ahead, he did not inform the pilot, so the pilot did not have an accurate picture of the engine's current order. The pilot's situation awareness was further diminished when the master changed the EOT four times without informing him, so he continued to give engine orders without knowing what the EOT was set at. A pilot cannot be expected to successfully maneuver a vessel if their orders are not being followed or contrary orders are being executed without their knowledge.

When the pilot released the *Vera Bisso* at 2034, he lost one of the best tools he had to position the ship so that he could control its movement in the fast current. At 2037, when he recalled the *Vera Bisso*, the *American Liberty* was closing on the ATB moored to the first wharf and it was already too dangerous to have the tug push on the port quarter. The pilot ordered the *Josephine Anne* to reposition to the starboard quarter at 2037, but the tug could not reposition in time to prevent any of the multiple contacts by the *American Liberty*. Both tugs should have been used alongside until the undocking maneuver was completed and the pilot had established control of the vessel in the current.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the contact of the tank vessel *American Liberty* and multiple vessels, barges, and wharfs was poor bridge resource management and miscommunication between the pilot and the master, which led to the bridge team's delay in carrying out an engine order and caused a delay in the vessel attaining sufficient speed to conduct an undocking maneuver in high river conditions. Contributing to the accident was the decision to release the assisting tugs before the undocking maneuver was completed.

Bridge Resource Management (Communications)

The pilot and the bridge team should share the same mental model for the maneuver and fully understand the planned tasks. Communications should be open, involve discussion of the intended maneuvers, and should continue throughout the evolution. Clear orders and commands should be acknowledged and carried out promptly.

Vessel Particulars

	American Liberty	*African Griffon*	*Don D*	*Ever Grace*
Owner/operator	American Petroleum Tankers X/ Intrepid Ship Management	African Griffon Shipping Co./ Mur Shipping BV	Associated Marine Equipment/ Tidewater Marine	Continent Maritime SA/ ISM Ship Management Pte
Port of registry	Wilmington, Delaware	Nassau	New Orleans, Louisiana	Nassau
Flag	United States	The Bahamas	United States	The Bahamas
Type	Tanker	Cargo	Barge	Cargo
Year built	2017	2014	1978	2015
Official number (US)	1266795	N/A	600130	N/A
IMO number	9763851	7000681	N/A	9750309
Classification society	ABS	ABS	ABS	NK (Japan)
Construction	Steel	Steel	Steel	Steel
Length	601.33 ft (183.3 m)	656 ft (200.0 m)	250 ft (76.3 m)	751.3 ft (229.0 m)
Beam/width	105.7 ft (32.2 m)	105.7 ft (32.2 m)	72.1 ft (22.0 m)	105.8 ft (32.2 m)
Draft	36.75 ft (11.2 m)	21.75 ft (6.6 m)	5.0 ft (1.5 m)	26.7 ft (8.1 m)
Tonnage	29,801 GT ITC	34,815 GT ITC	2,500 GRT	43,466 GT ITC
Engine power; manufacturer	1 X 10,996 hp (8200 kW); Hyundai MAN 6S50ME-B9.3 diesel engine	1 x 11,077 hp (8,262 kW); Mitsui MAN-B&W 6S50ME diesel engine	N/A	1 x 11,721 hp (8,260 kW); MAN B&W 6S60ME-C8.2 diesel engine
Persons on board	24 persons (23 crew & 1 pilot)	23 persons (22 crew & 1 stevedore)	5 stevedores	20 crewmembers

NTSB investigators worked closely with our counterparts from Coast Guard Sector New Orleans, Louisiana, throughout this investigation.

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA19FM034.

Issued: December 10, 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).

Appendix

The *American Liberty*'s parametric data graphed for Speed, Rudder, Engine, and Heading/ Course from 2034:30 to 2040: