National Transportation Safety Board

Marine Accident Brief

Allision of *James H Hunter* Tow with Dock and Fire Boat

Accident no.	DCA17FM015
Vessel names	*James H Hunter* (and barges *PBM 403*, *PB 2013*, and *PBM 141*) and *Nashville Fire Boat No. 9*
Accident type	Allision
Location	Cumberland River, mile marker 191.1; Nashville, Tennessee; 36° 9.7' N, 86° 46.3' W
Date	June 6, 2017
Time	2250 central daylight time (coordinated universal time – 5 hours)
Injuries	None
Property damage	$300,000 est.
Environmental damage	None
Weather	Partly cloudy, visibility 10 miles, wind 8 mph from the north-northeast, air temperature 65°F
Waterway information	Cumberland River, downtown Nashville. Minimum channel depths are maintained by the US Army Corps of Engineers. The river had a projected navigational depth of 9 feet at a normal pool reading of 16.8 feet. At the time of the accident, the river gage was 26 feet, corresponding to a navigational depth of about 18.2 feet.

About 2250 on June 6, 2017, the towing vessel *James H Hunter* was pushing three gravel and sand barges upstream in the Cumberland River through the city of Nashville, Tennessee, when two barges broke from the tow; hit the bank; and then allided with a floating dock underneath a pedestrian bridge, a fire boat moored at the dock, and a bridge pier.[1] The fire boat broke free of its moorings as the barges pushed the dock downriver. There were no injuries or reports of pollution. The fire boat sustained damage in the form of dents and scrapes to its hull, and the dock sustained damage estimated to be about $300,000. Damage to the barges was reported to be superficial.

***James H Hunter* after the accident in the Cumberland River.**

[1] In this report, all miles are *statute miles*.

Allision of *James H Hunter* Tow with Dock and Fire Boat

The *James H Hunter* —a 3,600-horsepower, twin-kort nozzle towboat—was built in 2007 at Quality Shipyards, LLC, in Houma, Louisiana. It was operated by Hunter Marine Transport, which was purchased by Hines Furlong Line in January 2018.

Accident Events

About 1740 on June 6, 2017, the *James H Hunter*, with nine crewmembers on board, departed the Hunter Marine fleeting facility at mile marker (mm) 176 in the Cumberland River with six barges for delivery at various facilities upriver, including the Cherokee Marine Terminal and the Pine Bluff Materials (PBM) fleeting facility. The Cumberland River was at a high-water stage with the water level at the Nashville Cumberland River (NAST1) gage, located at mm 191.1, at about 26 feet; the captain of the *James H Hunter* estimated the current to be about 5 mph.

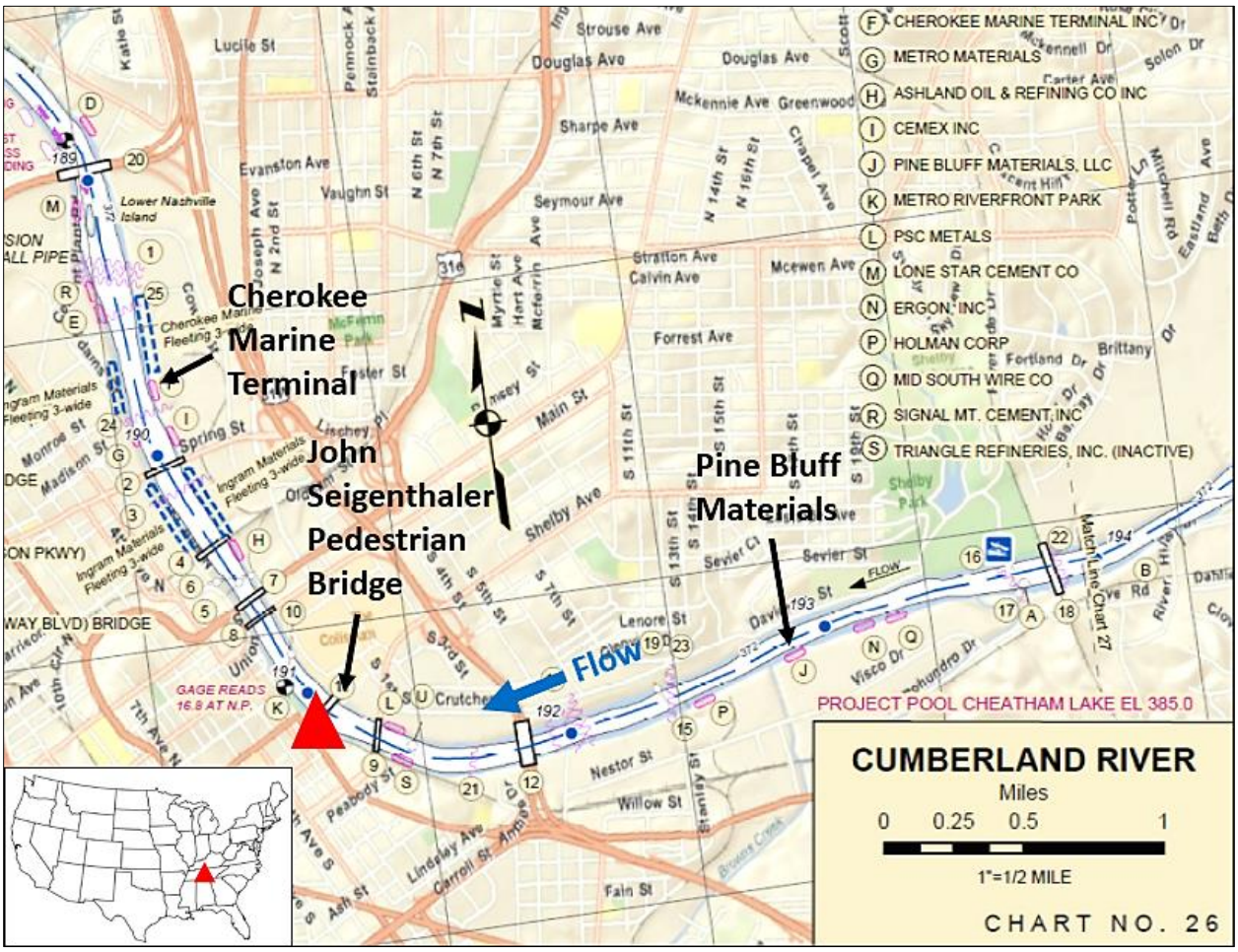


Chart no. 26 with red triangle indicating the accident location. (US Army Corps of Engineers)

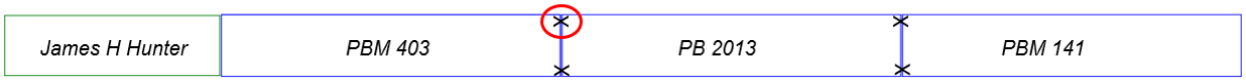
After the vessel dropped off three barges at the Cherokee Marine Terminal at mm 189.5, the remaining three barges, carrying cargo of gravel and sand, were arranged in a single string with the *James H Hunter* faced up (connected) to barge *PBM 403*, barge *PB 2013* in the middle, and barge *PBM 141* at the head of the tow. The *James H Hunter* and *PBM 403* were connected by face wires from two boat winches, one each on the boat's port and starboard side forward. *PBM 403* was connected to *PB 2013* by a steel fore-and-aft wire arrangement (the steering coupling) on both

the port side and starboard side.[2] *PB 2013* and *PBM 141* were connected by a similar wire arrangement. The barges were 195 feet long, and the overall length of the towboat and barges was about 714 feet with a maximum beam of 35 feet. The deepest draft of the loaded barges was about 12 feet. The barges were evenly loaded, with their decks at similar heights above the water.

The *James H Hunter* departed the Cherokee Marine Terminal about 2200 to continue upstream to drop the three barges at the PBM fleeting facility at mm 192.8, some 3 miles away. After about a 15-minute wait for the CSX Railroad drawbridge to open at mm 190.4, the captain, who was operating the vessel at the time, continued through the city of Nashville. Meanwhile, the towing vessel *Charlie Everhart*, located at mm 191, was faced up to the *Spirit* barge, which was secured along the left descending bank. Due to the high-water conditions, the *Charlie Everhart* was tending the barge, which was to be used as a riverfront stage for the Country Music Association festival from June 8 to 11.

About 2242, the pilot of the *James H Hunter* arrived in the wheelhouse to relieve the captain for his scheduled watch.[3] The captain and the pilot worked a watch rotation of 6 hours on/6 hours off (the captain worked 0500 to 1100 and 1700 to 2300; the pilot worked 1100 to 1700 and 2300 to 0500). The captain recalled being relieved from watch about the same time as they passed the *Charlie Everhart* and the *Spirit* barge, about 2247. He noted the head of the tow might have been going under the John Seigenthaler Pedestrian Bridge at the time.[4] After being relieved, the captain remained in the wheelhouse with the pilot.

The pilot took the conn of the *James H Hunter* and reduced the speed to pass the *Charlie Everhart* and the *Spirit* barge. Upstream from the bridge and ahead of the tow, there was a bend in the river (about 30 degrees) around mm 191.2 to the left (port). About 2249, the head of the tow started to fall off (to starboard) as it neared the bend. The pilot counteracted by putting the steering rudders to port. Seconds later, the pilot and the captain noticed that the port steering coupling between *PBM 403* (the face-up barge) and *PB 2013* (the middle barge) parted. The captain immediately notified the deck crew by radio that the barges were coming loose and put the vessel in astern propulsion; it was stopped about 2251. The pilot notified nearby vessels of the breakaway barges by VHF radio.



Simplified diagram of the single-string tow arrangement of the *James H Hunter* (green rectangle) and the three barges (purple rectangles). An X marks the approximate location of each coupling. The red circle shows the location of the port steering coupling that parted.

A witness who was standing on the pedestrian bridge provided mobile phone video to investigators showing the barges after the port steering coupling parted. *PBM 403* was under the bridge, still connected to the *James H Hunter*, which was on the downriver side of the bridge. *PBM 403* and *PB 2013* were connected only by the starboard steering coupling as the barges

[2] The *steering coupling* connects the first two barges ahead of the towboat and takes the most stress when the boat is steered.

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

[4] The John Seigenthaler Pedestrian Bridge was formerly known as the Shelby Street Pedestrian Bridge and the Sparkman Street Bridge and was renamed in April 2014 by the city of Nashville (ordinance no. BL2014-695).

headed toward the left descending bank and a floating dock on that side of the bank. *PB 2013* and *PBM 141* (the head barge) contacted the bank and the starboard coupling between them broke, leaving them connected only by the port coupling. *PB 2013* and *PBM 141* ended up perpendicular to the bank and began to top over on each other after contacting the bank. Then, about 2252, the two barges struck the dock and the port side of a fire boat moored there, knocking the dock and the fire boat loose before drifting and striking the upriver pier of the bridge on the left descending bank. The fire boat continued downriver, and the dock drifted about 84 feet downriver before coming to rest on the shoreline.

The three barges, fire boat, and pedestrian bridge pier about 2254. (Image taken from witness video)

The *James H Hunter* and the three barges drifted downriver with the middle and head barge topped around toward the left descending bank pedestrian bridge pier. About that time, the *Charlie Everhart* crewmembers unfaced (disconnected) their vessel from the *Spirit* barge and went to the fire boat, where they secured it to their starboard side. The *Charlie Everhart* then went to the starboard side of the *James H Hunter* and put two crewmembers on *PBM 403* to help the *James H Hunter* crew secure *PB 2013* back to *PBM 403*. The towing vessel *Charles B Holman,* which was about 1 mile upriver working at the PBM fleeting facility, headed to the accident location after hearing the radio call. About 2259, the *Charles B Holman* crew secured *PBM 141*, released the coupling connecting it to *PB 2013*, and took *PBM 141* upriver to the PBM fleeting facility.

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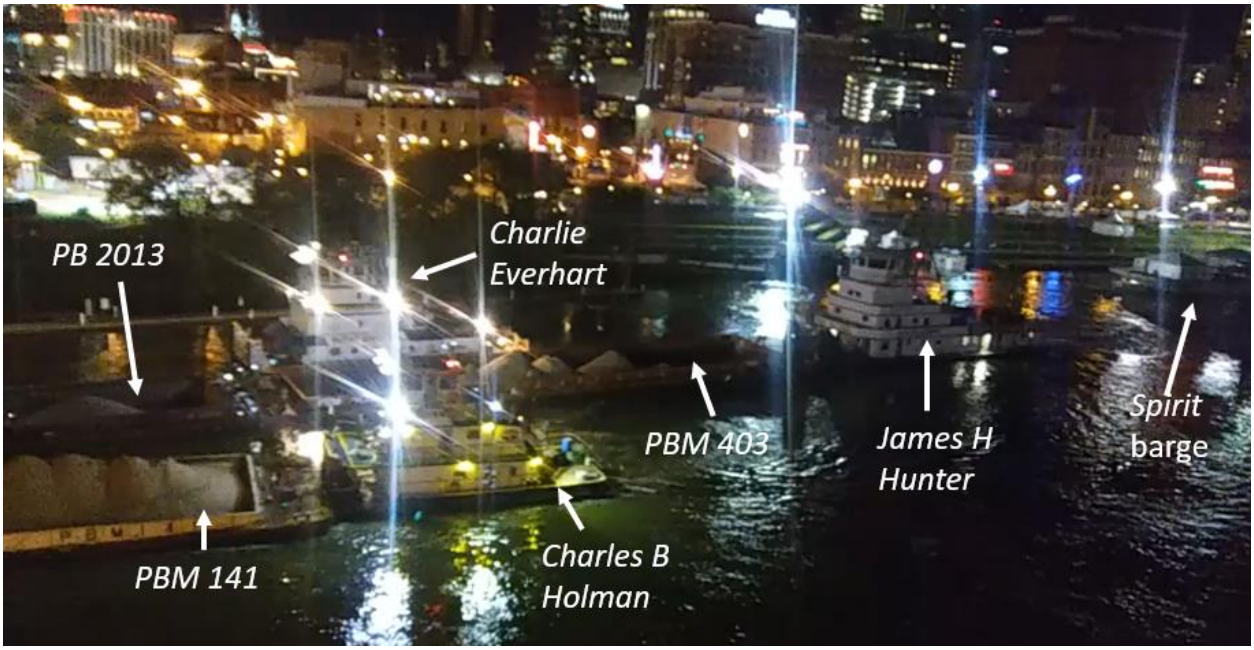

***James H Hunter* (faced up to *PBM 403*), *Charlie Everhart*, and *Charles B Holman* (faced up to *PBM 141*). (Image taken from witness video)**

After the two remaining barges were made up about 2310, the *James H Hunter* continued upriver to the PBM fleeting facility to drop off the barges. The *Charlie Everhart* took the fire boat across the river to a dock on the right descending bank to await fire department personnel, who then took possession of the fire boat.

The *James H Hunter* captain and the pilot were tested for drugs and alcohol, and the results were negative. Two deckhands involved in responding to the accident were tested for drugs, and the results were negative. The pilot and the captain held valid master credentials for towing vessels upon western rivers.

When the captain and the pilot were interviewed by investigators after the accident, the pilot stated that he started to lose the head of the tow and adjusted the rudders to counteract the set. The captain stated that "the pilot steered a little hard and broke one side" of the coupling and that overcorrecting while operating in high water moving at about 5 mph put too much stress on the coupling. Both the captain and the pilot stated that they had not operated tows above mm 187, which includes the accident location, in their current positions on the vessel.

Analysis

The captain and the pilot of the *James H Hunter* were both aware of the high-water conditions on the Cumberland River, which produced stronger-than-normal currents that they were proceeding against as the *James H Hunter* moved upriver. They were, however, not familiar with that area of the river (above mm 187). After the vessel dropped off three barges at the Cherokee Marine Terminal, the remaining three barges were arranged in a single string with single coupling arrangements securing them in place. The single coupling arrangement could have been due to the short distance between the Cherokee Marine Terminal and the PBM fleeting facility (about 3 miles).

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As the *James H Hunter* approached the bend upriver from the pedestrian bridge, the pilot put the steering rudders to port just after the head of the tow started to fall off in an attempt to counteract the set. The pilot did not recall how much rudder was used, and there were no systems on board that recorded this operator input. The captain stated that overcorrecting (the rudders) with high water put too much stress on the coupling. Considering the length of the tow and the effect of the current against the side of the tow (underwater profile), a large rudder input could have put excessive load on the single steering coupling, exceeding its breaking load limits. As seen in this case, the single steering coupling on the port side (the side that had the force of the current acting on it) was the first point of failure.

Investigators visually examined the wire rigging that was recovered. The appearance of fractured strands indicated the wires had fractured while in tension. There was no physical evidence of damage to any of the ratchets or deck fittings. Investigators requested certificates and maintenance records for the wires; however, investigators were informed that the wires did not belong to the operator and were portable, meaning that they were transferred among the various fleeting facilities along the river.

At the time of the allision, the operator did not have any specific policies or procedures for high-water conditions. The current operator of the *James H Hunter*, Hines Furlong Line, informed investigators that it has developed navigation risk assessments and bridge transit procedures, including an assessment of barge wiring; crews are now expected to double up rigging at the couplings, even for short trips.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the allision of the *James H Hunter* tow with the dock and fire boat was the practice of using single barge couplings in high-water conditions, which resulted in the parting of a steering coupling after rudder input to counteract the strong current.

Precautions to Consider During High-Water Conditions

In high-water conditions, which often include strong currents, precautions should be taken to mitigate the risk of losing the tow. Examples of mitigating measures include doubling up on couplings and/or reducing the length of the tow.

Vessel Particulars

Vessel	*James H Hunter*	*Nashville Fire Boat #9*
Owner/operator	Hunter Marine Transport	City of Nashville Fire Department
Port of registry	Nashville, Tennessee	Nashville, Tennessee
Flag	United States	United States
Type	Uninspected towing vessel	Firefighting and response vessel
Year built	2007	2004
Official number (US)	1199294	N/A
IMO number	N/A	N/A
Classification society	N/A	N/A
Construction	Welded steel	Welded aluminum
Length	124 ft (37.8 m)	43.1 ft (13.1 m)
Draft	10.6 ft (3.2m)	3.0 ft (0.9 m)
Beam/width	34 ft (10.4 m)	14.3 ft (4.4 m)
Gross tonnage (GRT)	535	N/A
Engine power/ manufacturer	Twin 1,800-hp/Caterpillar 3516 (3,600 hp, 2685 kw)	2 X 580 hp Cummins QSM11/Hamilton twin jet 322
Persons on board	9	0

NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Detachment Nashville throughout this investigation.

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA17FM015.

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