

National Transportation Safety Board

Marine Accident Brief

Collision between Containerships *St. Louis Express* and *Hammersmith Bridge*

Accident no.	DCA15RM014
Vessel names	St. Louis Express and Hammersmith Bridge
Accident type	Collision
Location	Western Scheldt River, near Hansweert, Netherlands, 51°24'49" N, 004°01'56" E
Date	February 22, 2015
Time	0549 central European time (coordinated universal time + 1 hours)
Injuries	None
Damage	Repairs to both vessels totaled over \$500,000
Environmental damage	None
Weather	Clear visibility in darkness, air temperature 44°F, winds west-northwest at 8 knots
Waterway information	The Western Scheldt, or western branch of the Scheldt River, flows from northern France across Belgium to its North Sea outlet in the Netherlands; a 2-knot ebb current was present at the time of the accident

About 0549 local time on February 22, 2015, the US-flagged containership *St. Louis Express* and the Panama-flagged containership *Hammersmith Bridge* collided while meeting on the Scheldt River, west of Antwerp, Belgium. The *St. Louis Express* was outbound from Antwerp heading to its next scheduled port of Bremerhaven, Germany, while the *Hammersmith Bridge* was inbound to Antwerp. The accident resulted in combined vessel damages greater than \$500,000. There were no reports of injuries or environmental pollution.



St. Louis Express moored port side to. (Photo courtesy of Martin Tolle)

Accident Events

The Scheldt River is over 2 miles wide for much of its length, but the navigable channel is narrower. From the mouth of the river near Flushing, Netherlands, to the port of Antwerp, the channel makes a series of turns, including a nearly 180-degree bend near the town of Hansweert, Netherlands.

Marine traffic in the Scheldt area is overseen by a series of vessel traffic service (VTS) centers under the control of the Common Nautical Authority, a cooperative arrangement of both Belgium and the Netherlands. The transit from Antwerp to sea (or vice versa) involves passage through five VTS sectors supervised by the Scheldt Coordination Centre located in Flushing.



Satellite image of the Scheldt region of the Netherlands and Belgium. The accident location is marked by a red "X." (Background by National Geographic MapMaker Interactive)

According to the Common Nautical Authority, "the Western Scheldt is one of the busiest waterways in the world. It is also one of the most dangerous rivers in the world. For this reason, clear communication between all parties involved is of essential importance to safety on the river. It therefore helps to have a common language." Dutch or English language is compulsory for communications in the river, and the VTS network requires all commercial shipping to call in to the various traffic centers along the river via VHF radio.

Pilotage is mandatory for ships transiting the Scheldt River, a waterway served by licensed pilots from both Belgium and the Netherlands.¹ All pilots carry a portable pilot unit (PPU), which is a laptop computer that interfaces with the ship's automatic information system (AIS) to obtain the vessel's position, speed, heading, as well as other traffic and navigational information.² Although the PPU is not certified to international maritime standards, it is considered to be an effective aid to pilots, displaying information unique to the pilot's needs in a particular waterway.

At 0354 on February 22, a Belgian pilot boarded the 798-foot-long, 106-foot-wide *St. Louis Express* as it prepared to depart the port of Antwerp. He proceeded to the bridge and a master/pilot exchange was conducted before the vessel got underway at 0433.³ The pilot was conning the vessel, the second mate was the officer of the watch, and the master was on the bridge in overall command.

The master and second mate were familiar with the transit into and out of Antwerp on the Western Scheldt as it was part of the vessel's regular route. The master had been on the vessel making the same voyage for about four years. The second mate had been making the voyage for about three years.

The initial transit out of Antwerp was normal and uneventful according to the pilot and bridge team. Upon departure from the dock, the vessel's ordered speed was full ahead, or 65 rpm, equivalent to 14.5 knots. About 0522, the pilot requested an increase in speed to 84 rpm, equivalent to 17 knots. He later told investigators he needed increased speed to arrive at Flushing in time to board an inbound vessel. The master contacted the engine room to request the increase and the vessel gradually accelerated to 84 rpm. The master and pilot both told investigators this speed was normal for the transit.

The pilot communicated with VTS centers when the *St. Louis Express* reached call-in points along the route. All communications between the pilot and VTS were in Dutch. The master stated that pilots normally translated relevant information from VTS into English, but on this transit that did not occur. At 0543, six minutes before the collision, the *St. Louis Express* advised the Hansweert VTS center that it was at reporting point "Berm." The traffic center advised the pilot of two vessel movements, neither of which were the *Hammersmith Bridge*.

The second mate said he first noticed the *Hammersmith Bridge* when he exited the chart room after plotting the *St. Louis Express*'s 0545 position south of the bend at Hansweert. He believed the master and pilot were aware of the vessel and that nothing seemed out of the ordinary. The pilot said he heard the *Hammersmith Bridge* communicating with VTS and was generally aware of its location heading inbound. The master, however, indicated that he did not notice the

¹ A pilot is retained by a ship to provide local knowledge of the waterway and an understanding of local procedures. Pilots usually operate by issuing manuevering instructions to the crew; however, the vessel's master is ultimately responsible for safe passage through the waterway.

² AIS is a maritime navigation safety communications system. At 2- to 12-second intervals on a moving vessel, AIS automatically transmits vessel information, including vessel name, type, position, course, speed navigational status, and other safety-related information to appropriately equipped shore stations, other vessels, and aircraft. The rate at which the AIS information is updated depends on vessel speed and whether the vessel is changing course. The system automatically receives information from similarly equipped vessels.

³ An effective master/pilot exchange includes a discussion of the vessel's navigation equipment, any limitations of manueverability, available engine speeds, un-berthing maneuvers, intended courses and speeds, anticipated hazards, weather conditions, and other related factors.

Hammersmith Bridge until he saw it at the top of the bend, about 3 miles away. As it headed towards the bend, the *St. Louis Express* was positioned in about the center of the channel (see image below).



Image from VTS showing AIS positions of both vessels just prior to the collision. The *Hammersmith Bridge* symbol is at the top and the *St. Louis Express* is at the bottom. Range lines drawn from the bow of each vessel to the channel limits show both vessels were near the center of the channel.

At 1,102 feet long and 150 feet wide, the *Hammersmith Bridge* was considerably larger than the *St. Louis Express*. About 0400 on the morning of the accident, a Belgian pilot boarded the *Hammersmith Bridge* underway at the Flushing pilot station for the trip into Antwerp. He proceeded to the bridge, where a master/pilot exchange was conducted. According to the pilot, the exchange was minimal. The pilot stated that all propulsion, steering, and navigational systems were operational. At some point after the transit inbound commenced, the master left the bridge and did not return, leaving the chief officer and helmsman alone on watch with the pilot. The pilot told investigators that the crew did not speak to the captain again prior to the accident.



Hammersmith Bridge under way. (Photo courtesy of R. Ludwigson)

According to recorded audio, the *Hammersmith Bridge* checked in with the Hansweert VTS center at 0524, about 25 minutes before the collision, to report that it was entering the sector. The traffic center received the call and did not communicate any activity or vessel movements in the sector.

The *Hammersmith Bridge* was travelling at 50 rpm, or 14 knots, as it approached the Hansweert bend. The pilot stated that he slowed to 40 rpm, or 12 knots, as they entered the bend at buoy 45. As the vessel continued around the bend, its speed was increased back to 14 knots between buoys 49 and 51. About 0543, the Hansweert VTS center communicated to another vessel, the *Martinique*, the presence of the *St. Louis Express* and its "considerable" speed. The *Hammersmith Bridge* pilot told investigators that he monitored the *St. Louis Express* on radar and then saw it visually when he reached buoy 51.

There were no communications between the *Hammersmith Bridge* and the *St. Louis Express* as they approached each other in the vicinity of buoy 53 at a relative closure speed of about 30 knots. At 0547:49, the VTS in Hansweert called the *St. Louis Express* to ask if they had left enough space for the *Hammersmith Bridge*. The pilot on *St. Louis Express* replied, "Yes, yes, it is going to be alright." The dialogue between the pilot and VTS was in Dutch and was not communicated to the bridge team. At that time, the speed of the *Hammersmith Bridge* was

about 12.5 knots, and the speed of the *St. Louis Express* was about 17.5 knots. The distance between each vessels' bows was roughly 300 feet.

The pilot and bridge team on the *St. Louis Express* told investigators that as they approached buoy 53 they saw the stern of the *Hammersmith Bridge* continue to advance across the channel towards them as the vessel came out of its turn around the bend. The *St. Louis Express* pilot ordered the rudder hard to starboard to avoid hitting the aft port side of the other vessel with his bow. Once the bow was clear, the pilot ordered the rudder hard to port in an attempt to clear the stern of his vessel.



A portion of British Admiralty Nautical Chart 120 (*Westerschelde, Vlissingen to Baalhoek and Gent–Terneuzen Canal*). The chart, which is from the *St. Louis Express*, contains handwritten positions, notes, and corrections. A red "X" marks the accident location.

On board the *Hammersmith Bridge*, the pilot stated he saw the *St. Louis Express* at buoy 51 but had no concerns with the position of that vessel. Nearing buoy 51A, he ordered a course of 175 degrees, then 178 degrees as he saw the *St. Louis Express* directly ahead. Seeing both running lights on the *St. Louis Express*, he realized he needed to take action and therefore ordered starboard 20 degrees rudder to come further right. As the bow on the *Hammersmith Bridge* passed the bow of the *St. Louis Express*, port side to port side, the pilot on the *Hammersmith Bridge* ordered hard to port to swing the vessel's stern away.

The actions of both pilots, however, were insufficient to avoid impact. At 0548:57, the vessels collided, with the aft port corner of the *St. Louis Express* making contact with the port side of *Hammersmith Bridge* in vicinity of the larger ship's no. 6 cargo hold. The *St. Louis Express* pilot reported the accident to VTS and proceeded to an anchorage so that a damage assessment could be carried out. The *Hammersmith Bridge* continued on to its assigned dock in Antwerp.

Accident Analysis

Although requested, voyage data recorder (VDR) information for the non-US-flagged *Hammersmith Bridge* was not provided to the US Coast Guard and the NTSB, and investigators were not able to interview the vessel's bridge team. Investigators were able to review the US-flagged *St. Louis Express*'s VDR data and interview the vessel's bridge team.



St. Louis Express moored in Bremerhaven, Germany, for repairs. Scaffolding is visible around the damaged area on the vessel's port quarter.

At the time of the accident, both the *Hammersmith Bridge* and the *St. Louis Express* had Belgian pilots on board. A court surveyor appointed by the Nautical Commission with the Antwerp Court of Commerce interviewed the pilots: both were found to be duly qualified and experienced. The pilot on the *Hammersmith Bridge* had the highest category rating for the Scheldt River—category 7—which allowed him to pilot the largest and deepest draft vessels. In addition, he had about 18 years of experience as a pilot sailing on the river. The pilot estimated he had about 16 hours of rest prior to boarding the *Hammersmith Bridge*. The pilot on the *St. Louis Express* had a category 6 rating, which allowed him to pilot ships up to 853 feet. He had over 30 years of service as a pilot on the river. Prior to boarding the *St. Louis Express*, his first ship for the day, he estimated he had 24 hours of rest.

The pilots from both the *Hammersmith Bridge* and the *St. Louis Express* carried out all communications with VTS in Dutch. They said that during "normal traffic" they did not communicate any traffic or passing arrangements with the bridge teams unless the bridge team inquired or there was something out of the ordinary. While this practice may be normal in the waterway, the failure to share all communications with bridge teams negatively impacted their situation awareness.

Additionally, there were no communications between the *Hammersmith Bridge* and *St. Louis Express* until after the collision occurred. The pilots said that it was not their policy to communicate passing arrangements with other vessels unless there were "exceptional circumstances." They explained that the traffic density in the river did not allow for ship-to-ship communications.

By not making a full appraisal of the risk of collision, both pilots and bridge teams displayed a lack of situation awareness and inadequate bridge resource management as the vessels approached each other. Although each pilot claimed to be generally aware of the other vessel, there were no communications between them, nor did there appear to be any consideration for potential risks associated with the area where they were meeting. There was no evidence that the *St. Louis Express* reduced speed, and no recognition by either vessel that their rate of closure was about 30 knots prior to impact.

A sampling of AIS information in the area during similar tidal conditions indicated that vessel speeds were typically between 12 and 15 knots. While the pilots, VTS, and the Common Nautical Authority all agreed there were no speed restrictions in the area where the collision took place, the 17-knot speed of *St. Louis Express* is concerning considering the nearly 180-degree turn it was approaching and the bridge team's lack of awareness of oncoming traffic.

The bridge team on the *St. Louis Express* was distinctly hands-off, deferring completely to the pilot. Although the bridge team could not understand any communications or warnings from VTS, they clearly did not recognize the developing situation between both vessels. Although the vessel was adequately manned according to the company's safety management system, there was little evidence of individual bridge watchstanders monitoring vessel movements to determine risk of collision nor was there any report from the lookout posted on the bow.

On board the *Hammersmith Bridge*, the master stated he was present on the bridge when the pilot came aboard, but went down to his cabin for rest shortly afterward leaving only the chief officer and a helmsman with the pilot. Watchkeeping duties—including actively monitoring the position of the vessel, maintaining traffic awareness, and complying with pilot requests (such as speed changes)—involved a high workload for only one officer on a large container vessel in a narrow channel. Due to the limited information provided, investigators were unable to determine whether the bridge team complied with the vessel's safety management system and the operating company's navigational policies and procedures. Nevertheless, it is cause for concern that only one officer was on the bridge without the master or another officer also present.

The channel in which the two vessels collided was just over 1,600 feet wide at the accident location, which provided ample room for the vessels to pass each other safely. Vessels proceeding along the course of a fairway should keep as near to the right side of the channel as is safe and practicable. However, the 1,102-foot-long *Hammersmith Bridge* was just coming out of its turn, and encroachment toward the center of the channel was not completely avoidable. On the other hand, the *St. Louis Express*, a smaller and narrower vessel by comparison, was well-established on

the main channel. The pilot and bridge team had ample time to determine and anticipate the movement of the *Hammersmith Bridge*, yet the vessel was near the middle of the channel as it approached the bend.

Despite not having any controlling authority over the movement of vessels, the Scheldt River VTS has the responsibility to monitor vessel movements in the river and warn of any potential conflicts. This is done by monitoring radar, AIS data, and vessel position reports. The exact time that the VTS operator noticed that a risk of collision existed between the two vessels is unknown, but the call to the *St. Louis Express* pilot was about 1 minute before the collision. Although the call alerted both vessels to the developing situation, there was not sufficient time to maneuver the vessels to avoid collision.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between the containerships *St. Louis Express* and *Hammersmith Bridge* was the failure of the pilots and bridge teams on both vessels to assess the risk of collision, inadequate bridge resource management on both vessels, and a lack of communication between the pilots. Contributing to the accident was the failure to establish adequate passing room between the vessels while meeting near a major bend in a narrow channel.

Vessel Particulars

Vessel	St. Louis Express	Hammersmith Bridge
Owner/operator	Marine Transport Management, Inc.	Primavera Montana S.A.
Port of registry	St. Louis, Missouri	Panama City, Panama
Flag	United States	Panama
Туре	Containership (3237 TEU)	Containership (9040 TEU)
Year built	2002	2008
Official number	1191641	40300-09-A
IMO number	9243186	9395147
Construction	Steel	Steel
Length	798 ft 5 in (243.4 m)	1102 ft 4 in (336.0 m)
Draft	36 ft 2 in (11.0 m)	46 ft 1 in (14.0 m)
Beam/width	105 ft 8 in (32.2 m)	150 ft 3 in (45.8 m)
Gross and/or ITC tonnage	40,146 gross tons; 765 ITC tons	98,747 gross tons; 1,102 ITC tons
Engine power; manufacturer	39,200 hp; Mitsui B&W 8K80MC-C X 1 Engine	88,820 hp; Kawasaki-Man B&W 12K98ME
Persons on board	23	23

NTSB investigators worked closely with our counterparts from Coast Guard Activities Europe throughout this investigation.

For more details about this accident, visit <u>www.ntsb.gov</u> and search for NTSB accident ID DCA15RM014.

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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. 49 *United States Code*, Section 1154(b).

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 49 *United States Code* 1131. 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." 49 *Code of Federal Regulations*, Section 831.4.