

**Extract from The United Kingdom Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 – Regulation 5:**

“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

**NOTE**

This report is not written with litigation in mind and, pursuant to Regulation 13(9) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

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## SUMMARY

At 1004 (UTC+1) on 15 May 2011, the UK registered container vessel *CMA CGM Platon* made heavy contact with a quay on the south bank of the River Thames. The quay sustained superficial damage but the vessel suffered significant damage to her bow, and her forepeak tank was punctured. Fortunately there was no pollution and no one was hurt.

*CMA CGM Platon* had sailed from a berth at the Northfleet Hope Container Terminal at Tilbury at 0958. The pilot had conducted the manoeuvre, under similar tidal conditions, on a number of occasions without incident.

The MAIB investigation found that the pilot had applied port helm too late to prevent the vessel's bow from swinging to starboard once it entered the tidal stream.

## MV CMA CGM PLATON

### Contact with Bevans Wharf River Thames 15 May 2011

The tug used during the unberthing operation was released shortly after the vessel's departure from the berth and, once control of the vessel had been lost, there was little the pilot and bridge team could do, in the time available, to prevent collision with the quay on the opposite riverbank.

Simulator studies conducted after the accident indicated that the complex tidal flow in the area during flood tides meant that there was little margin for error.

A recommendation has been made to the Port of London Authority on the use of tugs which, in concert with action already taken by the Authority, is designed to prevent similar accidents in the future.



## FACTUAL INFORMATION

### Narrative

*CMA CGM Platon* was berthed portside to, facing downstream alongside the Northfleet Hope Container Terminal. Loading of cargo was completed at 0250 on 15 May 2011. *CMA CGM Platon* was scheduled to leave her berth at 1000 to proceed to Rouen, where the balance of her cargo was to be loaded, for discharge ports in the Caribbean Sea and South America.

At 0900, the bridge equipment and steering gear were tested and, at 0930, the main engine was tested. All were found to operate satisfactorily. At 0936, the pilot boarded and the engine was set to 'standby'. At about 0940, the master and pilot exchanged information on the vessel's status and briefly discussed the planned departure manoeuvre. The bridge was manned by the pilot, master, chief officer and a helmsman.

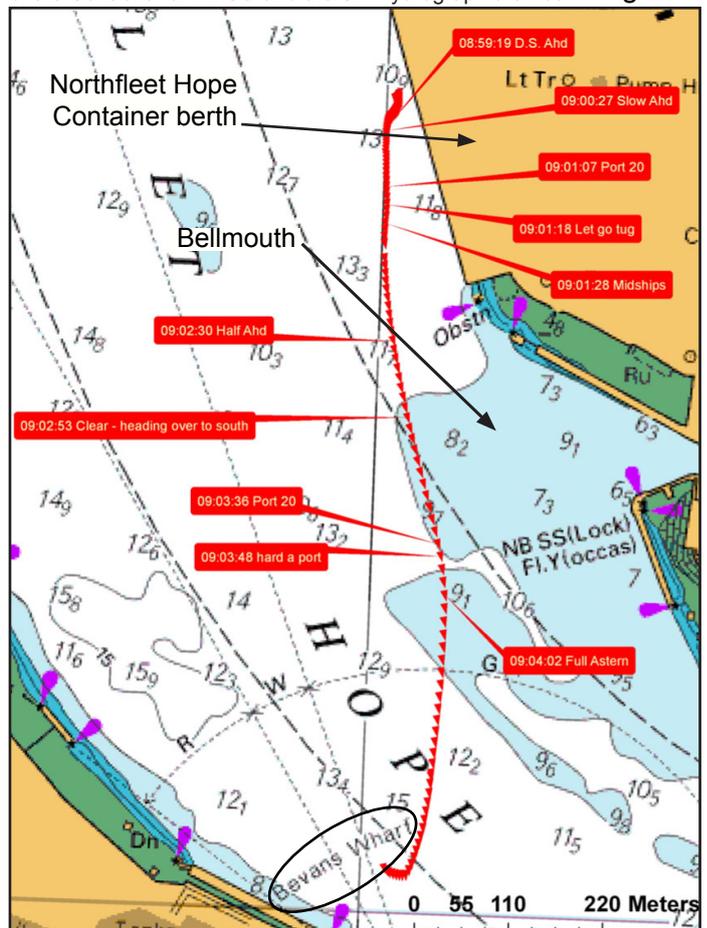
At 0945, control of the main engine was transferred to the port bridge wing. At 0947, *Svitzer Josephine*, a 51-tonne bollard pull tug was made fast on the starboard quarter. At 0952, the pilot notified London Vessel Traffic Services (VTS) of the vessel's readiness to depart and requested a traffic update. London VTS advised him of one outbound and two inbound vessels, which the pilot considered would not affect his intended departure manoeuvre.

At 0956, the mooring lines were singled up and London VTS gave the pilot permission to leave the berth. The master and pilot then moved to the port bridge wing manoeuvring console and the master ordered all lines to be cast off. At 0958, all lines were reported clear. The pilot then ordered the tug to pull the vessel's stern off the berth and operated the bow thruster to move the bow to starboard.

At 0959, when the vessel was clear and parallel to the berth, the engine was set to 'dead slow ahead' and, at 1000, to 'slow ahead'. At 1001, the pilot ordered the helm to 'port 20°' and, a few seconds later, gave instructions for the tug to be cast off. He then ordered the helm to 'midships'.

At 1002, the engine was set to 'half ahead'. Soon afterwards, the pilot told London VTS that the vessel was clear of the berth, passing the bellmouth (**Figure 1**) and heading towards the south side of the river.

Reproduced from Admiralty Chart BA 2151 by permission of the Controller of HMSO and the UK Hydrographic Office **Figure 1**



AIS track of vessel

At 1003, the engine control was transferred to the central manoeuvring console, and the master and pilot returned to the bridge conning position. The pilot then ordered the helm to 'port 20°' and, 12 seconds later, with the bow unexpectedly paying off to starboard, ordered it to 'hard-a-port'. He asked the helmsman if he had moved the helm to starboard and was informed by the chief officer and helmsman that the helm was 'hard-to-port'. Eleven seconds later, as the bow continued to pay off to starboard, the master intervened and suggested to the pilot a need to set the engine full astern. The pilot immediately agreed.

At 1004, the engine was set to 'full astern'. The pilot ordered *Svitzer Josephine* to return immediately to assist the vessel. Although *CMA CGM Platon*'s engine developed full astern power, this was insufficient to arrest her headway in the space available. The vessel narrowly avoided *Cristina Masaveu*, a cement carrier moored alongside Bevan's Wharf and, at 1006, at a speed of 3.7 knots her bow made contact with the quay (**Figure 2**). Shortly before the contact, the third officer, who was at the forward mooring station, dropped the port anchor in an attempt to slow the vessel.



CCTV image showing contact with quay

An extract of *CMA CGM Platon*'s voyage data recorder (VDR), covering the relevant period up to the contact, is provided in **Table 1**:

Time	Heading	COG	SOG	Event
0959:19	169			Dead slow ahead
1000:27	170	180	1.3	Slow ahead
1001:07				Port 20°
1001:18				Let go the aft tug
1001:28				Midships
1002:30	164	171	5.0	Half ahead
1002:53	161	166	5.4	Pilot reports to London VTS that vessel is clear of the berth and heading to the south. VTS acknowledged.
1003:36	162	164	6.3	Port 20°
1003:48	165	166	6.5	Hard-a-port
1003:59	166	173	7.0	Master advises pilot to apply full astern power
1004:02	167	175		Pilot acknowledges
1004:24	168	181	7.0	Full astern – 61 RPM
1005:50	177	202	3.7	Contact with Bevans Wharf

Following the contact, the master and pilot held the vessel off the berth by using the engine and bow thruster. At 1012, *Svitzer Mercia* and *Svitzer Josephine* were made fast forward and aft respectively and full control of the vessel was restored. The port anchor was recovered and, at 1104, the vessel docked at the upper berth of Northfleet Hope Container Terminal.

### Environmental conditions

At the time of the accident, visibility was good and the wind was west-north-west at about 16 knots. High water at Tilbury was predicted for 1156 with a predicted height of 6.2m. The actual height of tide at high water was recorded as 6.1m. The tidal stream 2 hours before high water was estimated to be 1.9-2.0 knots.

The tidal stream around Tilburyness is complex due to the fluvial flow of the river. During a flood tide, an outward flow of water known as the 'downdrain' near the face of Northfleet Hope Container Terminal interacts with the inward tidal stream to create a counter-flow off the berth, as depicted in **Figure 3**.

### Previous accidents

In 2007, a tanker was outbound from Grays Terminal on an ebb tide. As the pilot manoeuvred the vessel around Tilburyness, he lost control of the vessel and she contacted the quay at Northfleet Terminal. This resulted in damage to the vessel's shell plating. A contributing factor was the vessel's bow entering an area of counter-flow while her stern remained in the main ebb flow, causing her bow to unintentionally pay off to starboard.

In 2009, an outbound container vessel left Northfleet Hope Container Terminal on a flood tide. Shortly afterwards, the pilot lost control as he manoeuvred the vessel around Tilburyness and she contacted the quay at Bevans Wharf. The vessel sustained superficial damage but the quay and its supporting structures were

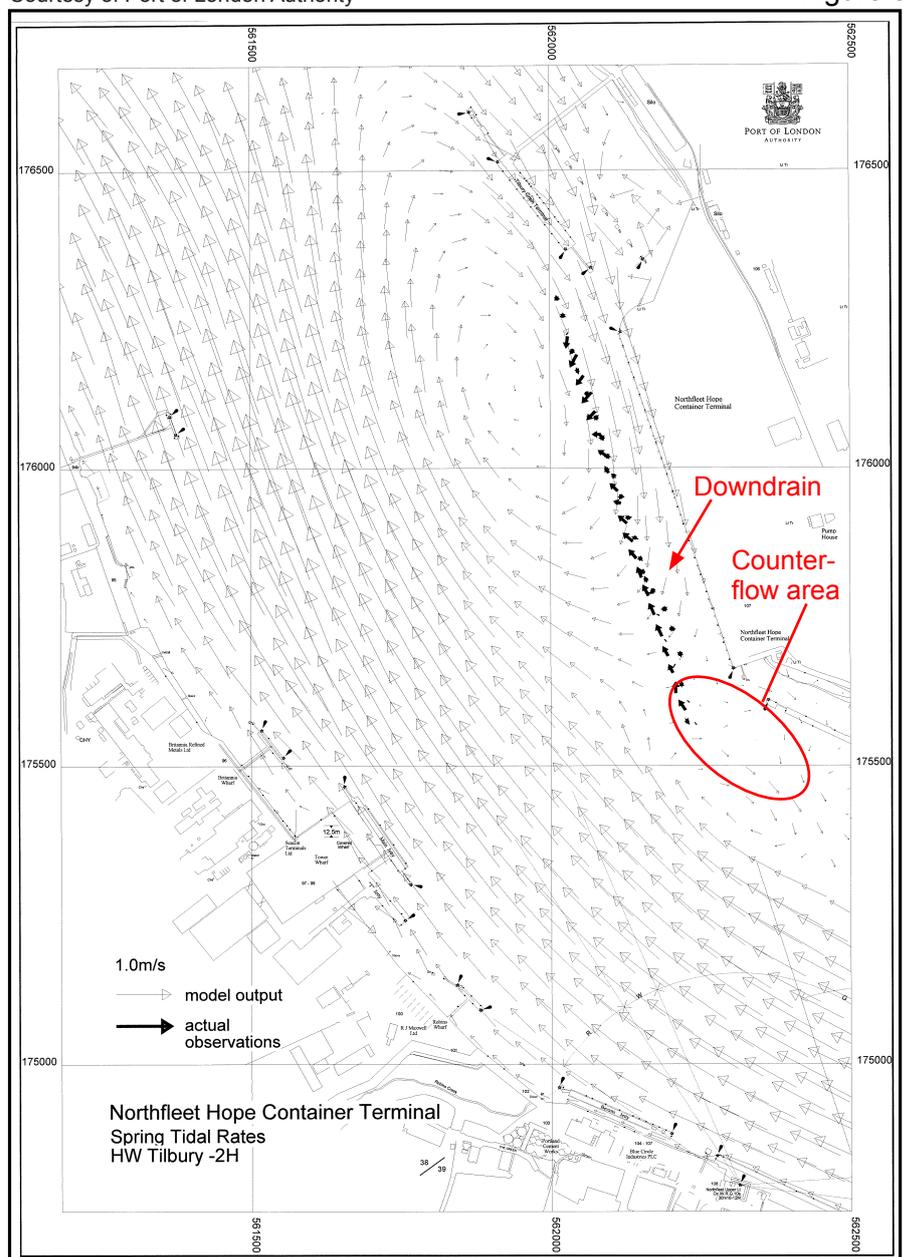
severely damaged. The visibility was poor and caused the pilot to lose situational awareness. The vessel's bow had entered the strong flood tidal stream while her stern remained in the downdrain, which caused the vessel's bow to unintentionally pay off to starboard.

The PLA investigations revealed that, in both accidents, tugs had been used for unberthing the vessels and had then been released and were unavailable to provide assistance in time to prevent the vessels from contacting the quay.

The PLA previously operated a paper-based system for circulating information to its pilots. This was made available to them in the pilots' ready room and was also sent to their homes on a weekly basis.

Courtesy of Port of London Authority

Figure 3



Tidal flow 2 hours before high water

'Lessons Learnt' letters, promulgated by the PLA following the above investigations, highlighted the following:

- *The potential of disturbed tidal flows to cause loss of control of a vessel. (2007) [sic]*
- *Where the use of tugs is critical to the manoeuvre and reduced visibility may have an adverse effect on the safety of a towage operation, early consideration should be given to aborting the manoeuvre. (2009)*

Due to an administrative error, the 'Lessons Learnt' letter resulting from the accident in 2009 was not circulated to all pilots.

Since January 2010, the PLA has moved to an electronic-based system. Information is now posted on the Pilot Information Register and can be found on the organisation's intranet that can be accessed via the internet. In addition, routine information is transmitted to the pilots via e-mail.

### **Risk assessment**

The PLA has a formal hazard identification and risk assessment database. The hazard of vessels strongly setting and contacting berths or vessels alongside the southside of Tilburyness was ranked 22<sup>nd</sup> out of a possible 116 recorded risks. This risk assessment, which includes reference to the possibility of a vessel being caught in local tidal eddies off Tilburyness, was reviewed in February 2010 following the accident in 2009.

## **ANALYSIS**

### **The accident**

Although *CMA CGM Platon's* speed through the water was about 8.5 knots, the flood tide acting on her port bow, coupled with the downdrain and wind acting on her starboard quarter, was sufficient to overcome the turning effect of the applied port helm. This resulted in the vessel unexpectedly turning to starboard.

Although the engine was then set to 'full astern', the vessel's stopping distance of 4 cables exceeded the available space ahead and she consequently made contact with the quay.

### **The pilotage**

The pilot was employed by the PLA and had served 21 years as a river pilot. In the month prior to the accident, he had conducted four pilotage acts from the same terminal on vessels of similar size.

It was the pilot's usual practice to release the assisting tug as soon as he had established that the vessel had sufficient steerage. Clearing the bellmouth was his cue for initiating the turn to port. He had conducted the same manoeuvre many times in the past and was surprised that after applying port helm, *CMA CGM Platon* turned to starboard. He had never experienced this before and his initial conclusion was that the helmsman had incorrectly applied starboard helm. Having then ordered the helm to 'hard-a-port' and received confirmation that it had been applied correctly, the pilot surmised that the vessel had suffered a steering failure.

The near-reciprocal nature of *CMA CGM Platon's* heading and the direction of the flood tidal stream meant that a small change in the lateral position of the vessel and/or the edge of the tidal stream could make a significant difference to the point at which the vessel's bow entered the tidal stream. The fact that, in the pilot's experience, 20° port helm applied on clearing the bellmouth caused the vessel to turn to port indicates that, in each of his previous manoeuvres, the vessel's bow had not yet entered the tidal stream. On this occasion, the VDR recording shows that the vessel was already turning to starboard before the 'port 20°' order was given.

Exercises conducted on the PLA's simulator for a similar type of vessel confirmed that the margin for error in achieving the intended manoeuvre was small and, in the prevailing circumstances, the pilot had unintentionally not applied port helm until after the vessel's bow had entered the flood tidal stream.

### **Decision to abort**

With the helm 'hard-a-port' and the vessel's bow continuing to pay off to starboard, and the pilot concluding that the vessel had suffered a steering failure, the master and pilot agreed to abort the manoeuvre and set the engine to 'full astern'. They both recognised that this action would be insufficient to prevent the vessel contacting the quay ahead. However, their immediate aims were to prevent *CMA CGM Platon* from hitting the vessel moored alongside Bevans Wharf and to limit damage to their own vessel.

Exercises conducted on the PLA's simulator for a similar type of vessel indicated that a decision to continue with the intended manoeuvre to port or, alternatively, to alter course to starboard would have resulted in the vessel approaching dangerously close to the opposite bank of the river, at speed, with a high risk of incurring significant additional damage.

### **Operational towage**

*CMA CGM Platon's* departure from Northfleet Hope Container Terminal was conducted in accordance with PLA's Code of Practice for Ship Towage Operations on the Thames (Towage Code), which required utilising one tug for the operation. The guidelines contained in the Code are based on the assumptions that: the weather conditions are favourable; tidal conditions are advantageous; and the vessel's equipment, including the engines, bow and stern thrusters is operational and in good working order. All of these conditions were met.

Currently, there is no requirement in the Code for a tug to be retained during a vessel's transit around Tilburyness. The PLA relies on the judgment of the pilot to determine to what extent tug assistance is required. In this case, the pilot had released the tug soon after clearing the berth and establishing steerage, as was his custom. He was not required to retain the tug while rounding Tilburyness and, in

his experience, did not feel the need to do so for a vessel of *CMA CGM Platon's* size. However, this accident might have been prevented had the pilot retained the tug and used it to assist the vessel to turn into the flood tidal stream. Alternatively, he could have used the tug to pull the vessel off the berth while applying starboard bow thrust until the vessel had completely entered the flood tidal stream and was in a safe position to start making way ahead.

### **Master/pilot exchange**

Soon after boarding, the master and pilot exchanged information, but this was limited to the condition and readiness of the vessel. Both the master, who had previously visited the terminal, and the pilot considered the departure to be a routine operation which did not require any further discussion or elaboration.

However, as advocated in the Towage Code, they should have discussed the areas of transit that may have posed a risk and/or required the possible use of a tug. This might have prompted them to keep the tug connected until after the vessel had fully entered the flood tidal stream.

### **Dissemination of lessons learnt**

There was no system to check that the information circulated to pilots by the PLA had been received and read. The PLA therefore had no means for ensuring that the lessons identified in its accident investigations had been effectively promulgated to its pilots.

## CONCLUSIONS

1. As *CMA CGM Platon*'s bow entered the main flood tidal stream, her stern remained in the downdrain. This, together with the wind acting on her starboard quarter, caused a coupling effect, which resulted in the vessel unexpectedly turning to starboard.
2. The near-reciprocal nature of *CMA CGM Platon*'s heading and the direction of the flood tidal stream meant that a small change in the lateral position of the vessel and/or the edge of the tidal stream could make a significant difference to the point at which the vessel's bow entered the tidal stream. The margin for error in achieving the intended manoeuvre was small and the pilot had unintentionally not applied port helm until after the vessel's bow had entered the flood tidal stream.
3. This accident might have been prevented had the pilot retained the option of using the tug for longer, as he could have used it to assist the vessel to turn into the flood tidal stream. Alternatively, he could have used the tug to pull the vessel off the berth while applying starboard bow thrust until the vessel had laterally entered the flood tidal stream.
4. Although the master and pilot's aborting manoeuvre was insufficient to prevent the accident, their primary aims were to avoid contacting the vessel moored ahead and limit damage to their own vessel.
5. The master and pilot did not conduct a detailed exchange of information. Had they discussed areas of the river transit that may have posed a risk, they might have decided to retain the use of the tug until *CMA CGM Platon* was clear of the complex tidal flows that exist around Tilburyness.
6. The PLA had no means for ensuring that the lessons identified in its accident investigations had been effectively promulgated to its pilots.

## ACTIONS TAKEN

The **Port of London Authority** has:

1. Included the scenario of a container vessel leaving the lower berth at Northfleet Hope Container Terminal on the flood tide when berthed heading downstream, as part of the pilots' training, refresher training and revalidation.
2. Included tug skippers from both towage companies operating on the river in simulator training exercises.
3. Undertaken further work to identify the most effective utilisation of the various types of tugs in use on the river.
4. Reviewed the risk assessment relating to this incident. Subject to the findings of the review panel, an addition to the Towage Code will be made to cover the berth-specific element.
5. Created a 'Lessons Learnt' link on the port's intranet for pilots to access directly. Important items that are posted on the Pilot Information Register are now highlighted, and weekly e-mails to pilots now require a 'read acknowledgement' response from the recipient.

## RECOMMENDATION

The **Port of London Authority** is recommended to:

- |          |   |
|----------|---|
| 2011/127 | Include in its procedures a requirement for vessels departing Northfleet Hope Container Terminal to retain the use of a tug until they have fully entered the stream when a strong tidal counter-flow is present off the berth. |
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## SHIP PARTICULARS

Vessel's name	<i>CMA CGM Platon</i>
Flag	UK
Classification society	Bureau Veritas
IMO number	9362437
Type	Container vessel
Registered owner	Provence Shipowner 2007-5 Limited
Manager(s)	CMA Ships
Construction	Steel
Length overall	170.06m
Registered length (LBP)	160.51m
Beam	27.20m
Gross tonnage	17594
Minimum safe manning	14
Authorised cargo	Containers

## VOYAGE PARTICULARS

Port of departure	Tilbury - Northfleet
Port of arrival	Rouen
Type of voyage	International
Cargo information	Containers
Manning	21

## MARINE CASUALTY INFORMATION

Date and time	15 May 2011 at 1006 (UTC +1)
Type of marine casualty or incident	Serious Marine Casualty
Location of incident	Bevans Wharf - River Thames
Place on board	Not applicable
Injuries/fatalities	None
Damage/environmental impact	Material damage to forepeak tank
Ship operation	On passage
Voyage segment	Departure
External & internal environment	Wind: West-north-west 16 knots Visibility: Good Flood tide
Persons on board	22