Volume 21: Number 3
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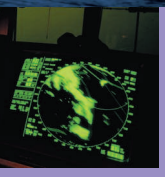
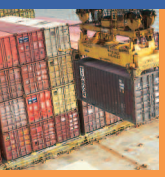
RISK WATCH

Britannia
The Britannia Steam Ship Insurance Association Limited



Navigation and seamanship

Risk management



Containers and cargoes

Miscellaneous

Collision case study

PAULA C and *DARYA GAYATRI*: the importance of proper bridge team management in busy traffic lanes

Damage to *DARYA GAYATRI* and *PAULA C*

On 10 December 2013 at 2245 the general cargo ship *PAULA C* was heading south-west in the Dover Strait traffic separation scheme (TSS). It was a dark, clear night with good visibility. She was in ballast and heading for Poole in England.

PAULA C's master was keeping the navigation watch. At 2300, having completed his night orders, he handed over the watch to the second officer. The second officer was 20 years old and had finished his cadetship in June of that year. It was his first trip as a qualified officer.

Prior to passing Dover the second officer had kept ten watches as the sole watch keeper, most of which were during the passage from Spain to Germany and in comparatively quiet waters. He had joined *PAULA C* as a supernumerary junior officer in August and for his first three months on board had accompanied the ship's previous second officer (also relatively junior) on bridge watches.

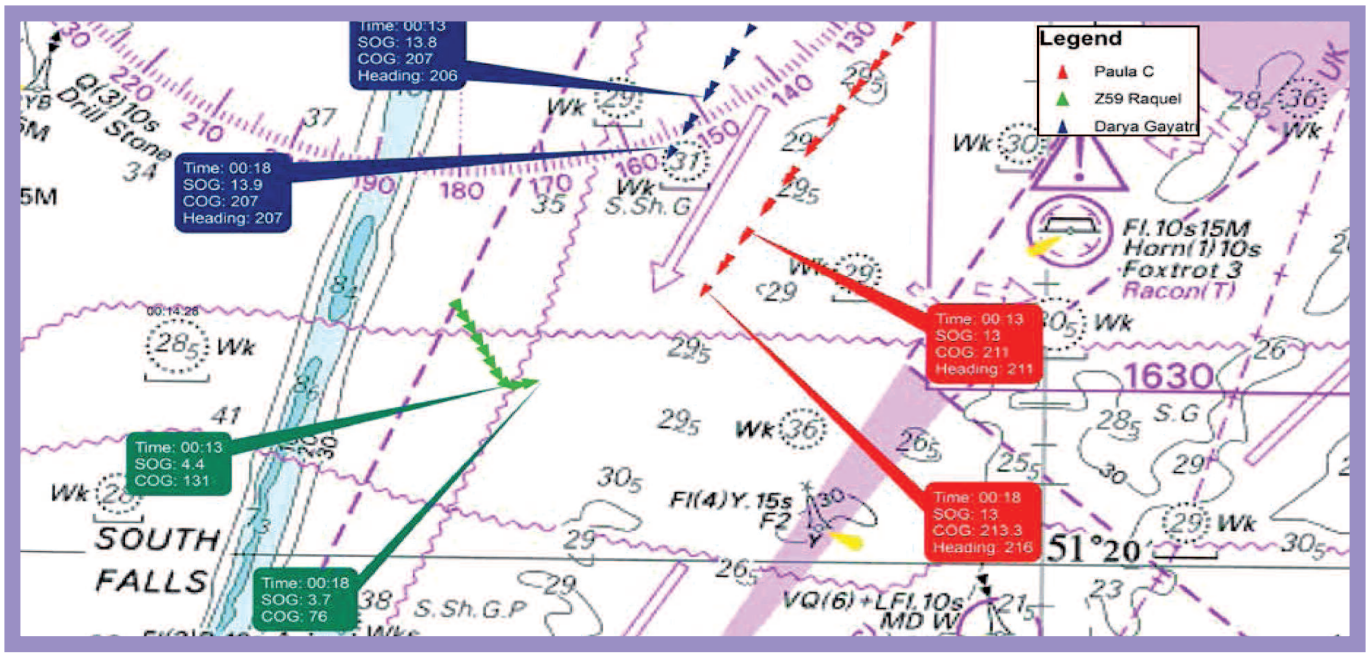
During the watch handover the second officer noticed a number of radar targets following the south-west traffic lane, in particular a target on *PAULA C's* starboard quarter at a range of 1.9nm. Using the AIS data shown on the radar display he identified the radar target as *DARYA GAYATRI*, a bulk carrier in ballast on passage to Baltimore, USA. He also identified that *DARYA GAYATRI* was overtaking *PAULA C* with a closest point of approach (CPA) of 0.5nm. Both ships were transiting the Dover Strait TSS in a south westerly direction.

When the master left the bridge at 2305 he advised the second officer to keep to the passage plan and to call him if in any doubt. No AB accompanied the second officer as lookout.

At 2345 *PAULA C* arrived at a waypoint and her second officer altered the ship's heading from 227° to 212°, plotting her position on the paper chart at 0000.

At 0011 the second officer of *PAULA C* saw a ship 20° off the starboard bow. Through binoculars he was able to see the ship's port side light and its deck lights. From the target's AIS data shown on the port radar display he identified that the ship was at a range of 3.9nm and had a CPA of 0.1nm. The second officer did not acquire the ship on the ARPA or use the AIS data to determine the ship's name or status. He assessed that the ship was crossing *PAULA C's* bow from starboard to port and that *PAULA C* was the give way ship.

Contrary to the second officer's assessment, the ship ahead of *PAULA C* was not a power driven ship (for the purpose of the collision regulations). Rather it was the Belgian registered fishing vessel *RAQUEL,* which was displaying the appropriate lights for a fishing vessel engaged in trawling. The second officer of *PAULA C* had not realised this fact, possibly due to the glare from the deck lights which were switched on. She was towing her nets on a course of 153° and at a speed of 4.8kts.



Positions of ships at 0013 and 0018

Collision case study (continued)

RAQUEL's skipper was on watch and he was monitoring other ships in the area visually, by radar and by AIS. The skipper had seen *PAULA C* and *DARYA GAYATRI* following the traffic lane and he was aware that he needed to take action in order to keep out of their way. At 0013, with *PAULA C* 3.4nm off the trawler's port bow, *RAQUEL's* skipper began the first of several alterations to port, which were intended eventually to turn the fishing vessel onto a north-westerly heading. Because *RAQUEL's* manoeuvrability was limited by its fishing gear, a single broad alteration was not possible.

At 0018 *PAULA C's* second officer adjusted the autopilot heading to 230°, an alteration of almost 20° to starboard, in line with his understanding that he was the give way ship. *RAQUEL* and *PAULA C* were 1.82nm apart, no sound signal was made and the second officer did not look over the starboard quarter to make sure that there were no other ships in close proximity.

As *PAULA C* steadied onto her new heading, the second officer noticed that the *RAQUEL*, which was now almost directly ahead, had altered course to the north-east. This made no sense to the second officer. He did not understand why a power-driven ship that had been crossing the traffic lane would manoeuvre in this way. In response, the second officer adjusted *PAULA C's* heading further to starboard. By 0022 *PAULA C's* heading was 266° and the fishing ship was about 30° off her port bow at a distance of 1.1nm. *DARYA GAYATRI* was on the *PAULA C's* starboard beam at a distance of 0.98nm.

Over the next two minutes, *PAULA C's* second officer adjusted the autopilot to alter the ship's heading to port (as far as 253°) and then back to starboard (up to 287°).

PAULA C's changes in heading were observed on radar by the duty Dover Coastguard (DCG) watch officer. He called *PAULA C* via VHF radio channel 11 in order to clarify the second officer's intentions:

DCG: 'I see the situation there sir, er, can you tell me why you have gone hard to starboard?'

PAULA C: 'Yeah, I've got a ship..um..crossing my bow....and I, I've started giving way but he has altered his course, over' replied the second officer.

DCG: 'Is that the fishing vessel on your port bow now, sir?' asked the Coast Guard.

PAULA C: 'Right, that's errrrrr right, over' replied the second officer, sounding unsure.

DCG: 'What's your intention now? Are you going to do a three sixty?' asked the Coast Guard.

Being unclear of what action to take and having lost situational awareness, the second officer interpreted the Coastguard's question as a suggestion:

PAULA C: 'Errrr, my intention now…is to, err, do a three sixty, over. Yeah, to starboard'.

DCG: 'Have you spoken to the ship that is south-west bound, the *DARYA GAYATRI*?' The Coast Guard asked.

PAULA C: 'No, not yet I'm ehhhhh still making my manoeuvre. I haven't had a chance' replied the second officer.

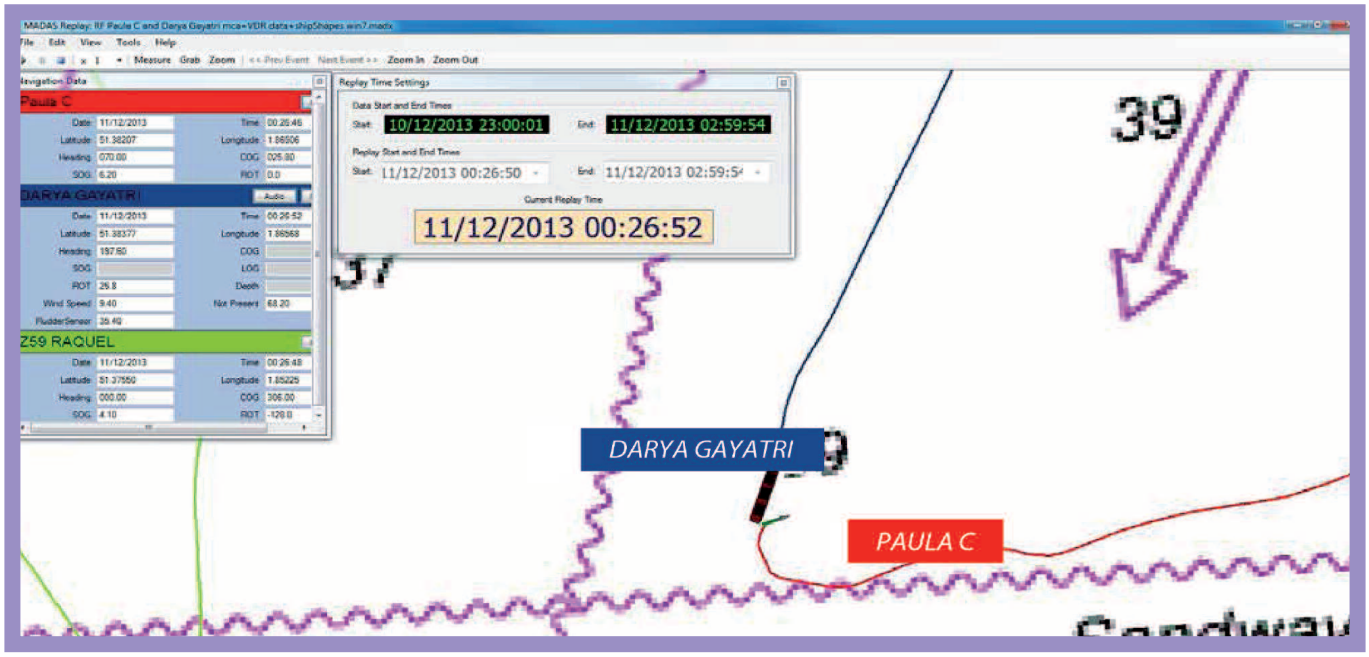
Immediately after the exchange the second officer selected hand steering and applied 35° of starboard helm. *PAULA C* started to turn quickly to starboard. He did not check visually or by radar that the intended manoeuvre was safe or make a sound signal to indicate he was turning to starboard. He was unaware that the *DARYA GAYATRI* was 51m off *PAULA C's* starboard beam.

On the *DARYA GAYATRI* the second officer was on watch. He was relatively experienced and had transited the Dover Strait on three or four previous occasions. He was accompanied by an AB lookout and at 0023 had determined that *PAULA C* would now pass about two cables ahead of his ship. He was also aware that *RAQUEL* was ahead of him and was engaged in fishing. He was closely monitoring both ships.

As *PAULA C* turned to starboard at 0024, the Dover Coastguard (DCG) watch officer called *DARYA GAYATRI (DG)* via VHF radio, channel 11 and the OOW answered:

DG: 'Dover Coastguard, *DARYA GAYATRI*, I did copy your conversation ah about he will be doing a three sixty ahhh I'll be coming to port, over'

DCG: 'Are you aware of the situation?' replied the Coast Guard 'You can actually see the fishing ship ahead of you: is that correct?'



The collision

DG: 'Yes, Dover Coastguard, I can see the fishing ship ahead of me. She altered her course north-west of me now over' he confirmed.

DCG: 'Roger. Thank you sir. As long as you are aware. Many thanks' ended the Coastguard.

Immediately after *DARYA GAYATRI's* OOW finished talking on the VHF, he changed to hand-steering and instructed his lookout to take the helm.

Though the officers on board both ships were 'in doubt', neither had so far called the master to the bridge.

At 0026 the OOW on the *DARYA GAYATRI* ordered the helm hard to port and no sound signal was made. By now, *PAULA C* was turning through a heading of 297° at an increasing rate. *DARYA GAYATRI's* OOW was not aware that the *PAULA C* was turning to starboard. He assumed that she would pass ahead of his ship. He expected the ships to pass starboard to starboard because of his own alteration to port.

Shortly after 0026, 18 seconds after port helm was applied, *DARYA GAYATRI* started to turn to port. At the same time, the second officer noticed that *PAULA C* was turning towards the bulk carrier. He immediately ordered the lookout to put the helm hard-to-starboard and then telephoned the master in his cabin to inform him that there was another ship 'very close'. He attempted to slow down by putting the engine telegraph astern for several seconds but returned it to full ahead after assessing that there was no time for an astern movement to take effect.

At 0027 *PAULA C's* port bridge wing collided with *DARYA GAYATRI's* port anchor. The master of the *DARYA GAYATRI* arrived on the bridge just as contact was made. At the time of the collision *DARYA GAYATRI* was heading 198° at 12.9kts; *PAULA C* was heading 070° at 6.2kts.

Meanwhile *RAQUEL*, who had started to alter course to port at 0013, had already exited the TSS and manoeuvred clear of any danger.

Loss of situational awareness

The United Kingdom's Marine Accident Investigation Bureau (MAIB) determined, among other things, that:

1) The master of the *PAULA C's* decision to allow an inexperienced officer to keep the bridge watch alone in one of the busiest shipping lanes in the world was ill judged. Since qualifying, the second officer had been in charge of only 10 bridge watches and had arguably not yet developed sufficient competency to keep a bridge watch in the Dover Strait at night and without a lookout for support. It was not surprising therefore that he lost situational awareness when tested in such a busy shipping channel for the first time.

2) The *PAULA C's* second officer had not effectively used the electronic aids available to maintain a proper lookout, nor to identify *RAQUEL's* identity as a fishing ship. He did not use the ARPA's 'trial manoeuvre' function prior to the initial alteration of course to 230°, or complete basic checks such as ensuring that the ship's starboard side was clear before altering course.

3) The second officer's inexperience also turned the intervention of the Dover Coastguard, which was timely and well-intentioned by itself, into a contributory factor to the collision. While a more experienced officer might not have been so easily influenced by the Coastguard's question regarding a 'three-sixty', to the young second officer (given that he did not know what action to take next) it was extremely influential.

4) It is evident that an additional lookout was rarely, if ever, employed on board *PAULA C*, regardless of the circumstances. If an AB had accompanied the second officer on the bridge he could have assisted him in his duties (for example by checking the starboard side was clear, monitoring the *DARYA GAYATRI,* or taking the helm when required) and helped the second officer to maintain his situational awareness.

5) Neither *PAULA C's* nor *DARYA GAYATRI's* OOW called their masters to the bridge as they had been instructed, despite clearly being 'in doubt'. It is possible that *PAULA C's* OOW did not want to disturb the master, who was also a watch-keeper and had recently gone to bed. To be effective, a master's order to call 'if in any doubt' needs to be meaningful and followed, not just written.

Lifeboat safety and fall preventer devices (FPDs): an update

Over recent decades, there has been a slow but steady movement towards improved standards in lifeboat safety. There has been much work undertaken, focussing on improving the standards of the equipment and the required training.

In 2001 the UK Marine Accident Investigation Branch (MAIB) published its Lifeboat Safety Study which led to recommendations being given to the IMO. These recommendations evolved into amendments to SOLAS chapter III and the International Life-Saving Appliance Code (LSA Code) which were adopted in May 2011 at the 89th Session of the Maritime Safety Committee.

The new regulations required all existing lifeboat on-load release and retrieval systems (OLRRS) to be evaluated at the earliest opportunity, but not later than 1 July 2013. This evaluation process was set up in order to find out whether the OLRRS meet the new requirements of the LSA Code (chapter IV). If existing systems do not meet the requirements of the LSA Code then the non-compliant release gear must be modified by the manufacturer or it must be replaced with equipment that does meet the new requirements. This modification or replacement must take place not later than the first scheduled dry docking after 1 July 2014 (but in any event no later than July 2019). A full explanation of the process is set out in the IMO Maritime Safety Committee circular 1329 (MSC.1/Circ. 1392) which can be accessed at the following link:
www.imo.org/blast/blastDataHelper.asp?data_id=30629&filename=1392.pdf

A key point of the IMO circular is that:

'On each ship, fall preventer devices in accordance with the Guidelines for the fitting and use of fall preventer devices (FPDs) (MSC. 1/Circ. 1327) should be employed for each existing lifeboat release and retrieval system until the system is:

1) Found compliant with the LSA Code; or

2) Modified and found compliant with the LSA Code; or

3) Found compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code and paragraphs 16 and 17 (overhaul examination) of these Guidelines; or

4) Modified and found compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code and paragraphs 16 and 17 (overhaul examination) of these Guidelines; or

5) Replaced by a new lifeboat release and retrieval system.'

The full text of the Guidelines contained in the MSC circular can be accessed at the following link:
www.mardep.gov.hk/en/msnote/pdf/msin1350anx2.pdf

It is important to take note of the Guidelines for the fitting and use of FPDs (MSC. 1/Circ. 1327) to ensure they are correctly used and provide a genuine benefit without compromising safety.

Despite the new regulations coming into force on 1 July 2014 and the IMO guidance being issued in May 2011, we are still seeing a number of ships that are operating without FPDs where they should be fitted. In addition, we have been notified of a recent incident where a lifeboat fell into the water from the falls due to equipment failure of the release hooks and because no FPDs were fitted. A number of crew required hospital treatment but luckily there were no fatalities.

The causes of accidental release are varied and not confined to failure of the mechanisms in place. Crew are often not familiar with the equipment fitted on board and a lack of maintenance can also be a reason for accidental release.

The use of FPDs effectively prevents any accidental release caused by the failure of the release hook system or by human error. It is recommended that all owners, operators, masters and crew members check whether the use of FPDs is common practice on board their ships.

Even if the system is in compliance with the new requirements of the LSA Code these provisions cannot protect against every eventuality. The benefits of using FPDs should still be encouraged as a topic to be discussed at on board safety meetings.

The benefits are obvious. They provide another level of safety to ship's crew operating lifeboats, and may also go some way to restore confidence in these life saving appliances both in an emergency and during drills.

Mechanical failure


Fatal consequences


FPD correctly rigged

Loss prevention: review of tanker shortage claims

We have recently reviewed a number of tanker shortage claims with a total value of US$1.7 million, including 32 claims on dirty oil tankers (US$1.02 million) and 64 on clean and chemical tankers (US$0.68 million). In this article we will focus on one of the key areas, which is paper losses.

Liquid cargoes can be measured in various ways:

- By volume or mass;
- In metric, imperial, or US units;
- In vacuum or in air; or
- At different temperatures.

The percentage differences between the bill of lading figure and the discharged quantity measured in the tanks will often seem to be different depending on which unit of measurement is adopted.

In the absence of a like-for-like comparison at load and discharge port terminals, the ship is the only common factor and, therefore, the measurements taken on board are critical. The cargo surveyor must be accompanied at all times and all relevant ullage measurements must be actively verified.

In many shortage claims, no physical loss has occurred. Rather, the amount of cargo has been overstated when loading and/or understated when discharging. This type of shortage claim is known as a paper loss – all the cargo on board was pumped out and any differences in loaded and discharged quantities can be attributed to the different methods of measuring the cargo amount between the shore and the ship.

In our recent loss prevention review, it was found that 30 claims from clean product tankers and 10 claims from dirty oil tankers were entirely due to paper shortages. Claims were made for shortages at the discharge port on the basis of shore figures. The defence of such claims often depends on the assessment of evidence relating to which of the ship or shore figures are reliable. This, in turn, depends on the extent and accuracy of the inspections and surveys that are undertaken on board.

A typical example of such a case is as follows:

- Cargo tanks were in an inert condition and dry prior to loading a fuel oil cargo.
- All relevant tanks were checked by a cargo surveyor.
- All heating coils were tested in the presence of the surveyor and no concerns were noted.
- A tank inspection was carried out and an on board quantity certificate was issued and endorsed by the surveyor and chief officer.
- During loading and on completion of loading of cargo, measurement of cargo ullages was carried out by the surveyor. All ullage and cargo temperatures were obtained using ship's calibrated MMC tape.
- All ballast tanks were checked by the surveyor after cargo loading and noted to be empty.
- Cargo at load port: ship's figure: 61,751.399mt, bill of lading figure 61,876.849mt, i.e. a difference of 125.450mt.
- The surveyor issued a statement of facts stating the difference between the quantity received on board and the bill of lading quantity. The master issued a note of protest based on this difference.
- During the voyage, cargo was heated to maintain the temperature close to 40°C, as per the charterer's instruction.
- At the discharge port, prior to discharging, all cargo tank ullages were checked by the cargo surveyor and the cargo on board figure was noted to be within a small tolerance of the ship's load figure.
- All relevant tanks were checked prior to and after loading and the quantities were recorded.
- The remaining on board (ROB) quantity was checked by the surveyor and it was noted that all cargo tanks were well-stripped and empty. The certificate was endorsed by the surveyor and by the chief officer.
- Cargo at discharge port: ship's figure: 61,738.884mt, outturn (shore figure): 61,474.330mt.
- The alleged shortage compared to the bill of lading quantity was 402.519mt (0.65%).

Summary

1) No inter-tank leaks were noticed.

2) Cargo loading and discharging was managed on board satisfactorily.

3) All the required parameters were checked and recorded.

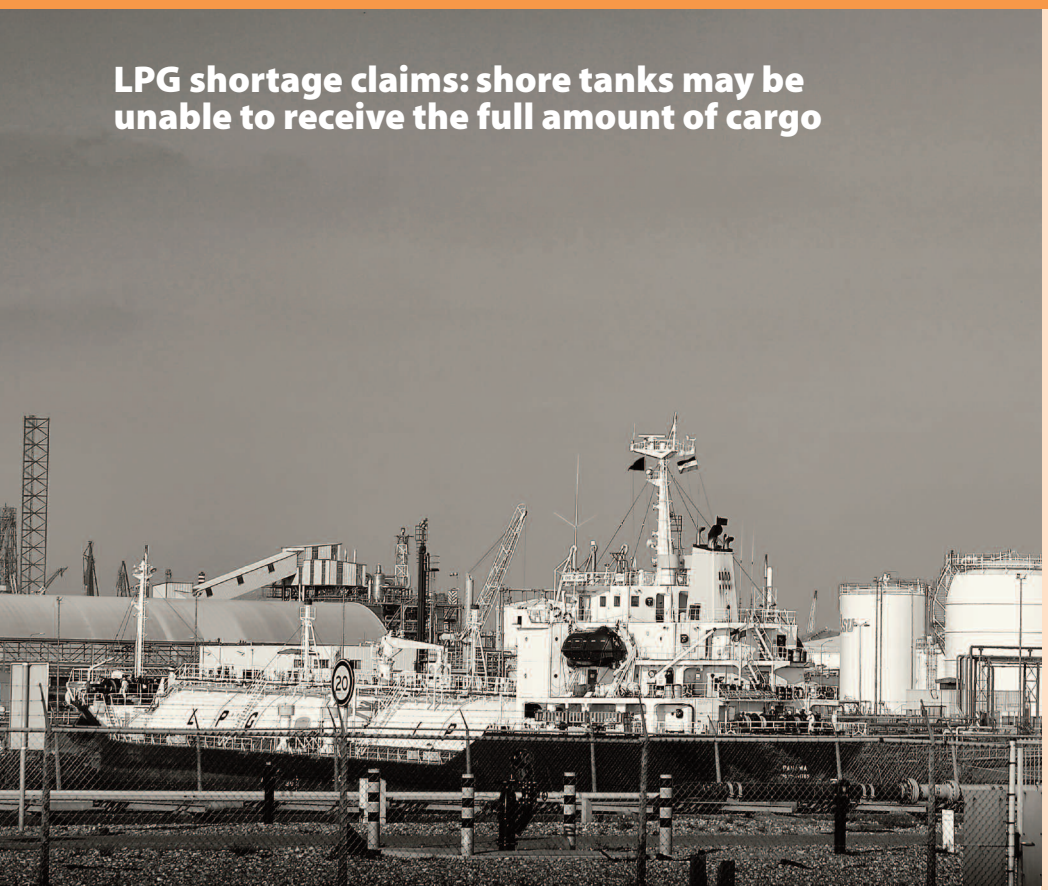
4) Based on various ullage reports, the ship's cargo discharge quantity was correct by ship's figure.

5) No other discrepancies were noted.

The master has no way of measuring or monitoring the shore figures so must rely on the ship's own calculated figures. It is essential that this is done and a protest issued in case of discrepancies in order for the Club to defend such claims.

Containers and cargoes

LPG shortage claims: shore tanks may be unable to receive the full amount of cargo



The Club has recently handled a case where a liquid petroleum gas (LPG) carrier was subject to a shortage claim at the discharge port despite the shore tanks being unable to receive further cargo.

LPG is carried at pressure as it is liable to evaporate quickly at normal atmospheric temperatures and pressures. While it is under pressure, on board a ship, LPG is in liquid form but as the cargo is pumped out the cargo vaporises and turns into gas. The full quantity of cargo is not always pumpable as there is usually a quantity remaining on board (ROB) in the form of gas, the amount of which is subject to the ambient temperature. This is unavoidable and both owners and charterers generally account for this in the charterparty contract.

In the case in question the receivers claimed for a shortage. An investigation revealed that the ROB was slightly in excess of a normal margin but this was because the terminal had not allowed the ship to complete discharge of the vapour cargo because of the high pressure present in the shore tanks. In other words, the shore tank could not accommodate any more of the cargo. The master issued a Letter of Protest (LOP) but failed to get the terminal's cut off instruction in writing and did not manage to get a representative of the terminal to counter-sign his protest.

This made it difficult to refute a subsequent claim for short delivery because it could not be proved beyond doubt that the shortage was as a result of the terminal's Inability to receive more cargo.

The Club understands that it is common for a terminal to give STOP instructions verbally in this particular trade and it is almost impossible for the master to obtain written instruction from the terminal. That said, the master should endeavour to obtain the instructions in writing. If this is not possible, the master or the chief officer should ensure that all instructions from the terminal are clearly recorded in the deck log books and, if possible, shoreside should be asked to sign the log book to indicate that it was them who refused to take further cargo. Furthermore, the instructions from the terminal should also be clearly described on the time sheet or LOP. A clear note in the ship's log book is likely to be stronger evidence than issuing an LOP alone.

Bilge alarms

The Club has had another experience of a hold flooding caused by the crew ignoring bilge alarms. On this occasion the incident actually occurred during routine testing of the bilge in one hold (initiated by the new joining chief officer). It is thought that a defect in the bilge system allowed sea water to flow back through a faulty valve and pass through the bilge wells into an adjacent hold. While the chief officer and the crew were monitoring the water level and suction in the hold under test, the water level in the adjacent hold (which was full of container cargo) was slowly rising unnoticed.

It was found that the alarm in the flooding hold was not faulty, rather it continued to be active over a period of approximately ten hours. However, this alarm was repeatedly reset by the chief officer and ignored by crew on the basis that they were focussed on the bilge alarm under test and were not expecting an alarm in any other hold.

When the crew did eventually investigate, the water level had risen to the point where a significant number of containers were fully submerged and still more were partially submerged in approximately 100m^3 of sea water. This incident has resulted in a number of cargo claims. It serves as a cautionary tale for crew and shows the value of investigating all alarms, even if they are initially considered to be faulty.

The Club has much experience of crews failing to respond to alarms which they wrongly believe are faulty. It is perhaps unfortunate that the chief officer in this case was carrying out precisely the work needed to avoid such costly experiences when the flooding took place.

Rapeseed cake: problems with carriage in containers

Rapeseed cake is a familiar cargo to bulk carrier operators but we have recently had experience of problems with rapeseed cake which was carried in containers.

Rapeseed cake is the residue remaining after oil has been mechanically extracted from rape seeds. Rapeseed cake is categorised in the IMDG code as class 4.2 – which means it is liable to spontaneous combustion. In the IMSBC code it is a group B cargo which means that is classed as a 'chemical hazard which could give rise to a dangerous situation on a ship'. There are three types of seed cake which are classed as potentially hazardous: UN 1386 (a) which has an oil content greater than 10%; UN 1386 (b) which has an oil content of less than 10% but more than 1.5% and UN 2217 which has an oil content of less than 1.5%.

Our recent experience concerned two containers of rapeseed cake which self-combusted while on board. Fortunately, due to the prompt and professional actions of the crew, the fire was swiftly brought under control. It was necessary for the ship to divert to an intermediate port where the two containers were safely discharged and the fire was fully extinguished by the local fire services. A second shipment was discharged at an intermediate port as a precaution. Three containers in that second shipment caught fire after they were discharged and while they were ashore.

It was discovered that the shippers had mis-declared the rapeseed cake as being another, non-hazardous cargo.

It is essential that protocols are in place so that, at the time of booking, this cargo is IMDG flagged and the shipper automatically asked to make the necessary declaration.

Disposal of genetically modified (GM) cargoes in Asian countries

There is controversy in some Asian countries surrounding the import of genetically modified (GM) crops which can lead to difficulties for owners, in particular when cargo is damaged or rejected and owners are looking for potential salvage buyers of the cargo.

If GM cargo is rejected by the consignee and abandoned to the owner, disposing of the cargo can prove difficult, time consuming and, in many cases, extremely costly.

Individual countries have adopted different approaches to the import of GM cargo and there is a lack of clear rules at national level. As a result there is little consistent and clear advice received from local sources or which can be given to owners in such cases.

In a recent case handled by the Club 100mt GM canola cargo suffered water damage as a result of a collision and was rejected by cargo interests in Japan who refused to discharge it. No salvage buyer could be found in Japan. Costs for disposal of the cargo exceeded US$2million due to the need to fumigate and quarantine the cargo. When searching for alternative places to discharge at a more reasonable cost, the advice received was that as the damaged cargo was a GM cargo, it could not be imported into China or Russia, not even for the purpose of destruction. Furthermore, when the ship arrived in China for repairs, the customs authorities there carried out very careful checks and put in place strict safety procedures to avoid any contact with the damaged GM cargo. The authorities even carried out a final check when the ship departed to make sure that the cargo was still on board and had not been discharged.

The Republic of Korea does permit the import of GM products for the purpose of destroying the cargo, but customs and health authorities impose strict and time-consuming documentary requirements. These include issuing a bill of lading to the destruction contractors and obtaining a phytosanitary certificate for the cargo from the authorities at the original loading port.

The advice is that care is needed when dealing with GM cargoes and reliable local advice should be sought immediately to avoid any possible complications. In particular, when dealing with salvage buyers and destruction contractors it is important to obtain confirmation that they will arrange the import of the cargo and obtain the required permissions from customs. Improperly discharging GM cargo in many jurisdictions, even if only discharging for the purpose of destruction, can lead to large fines and perhaps even criminal proceedings being brought against the ship and crew.

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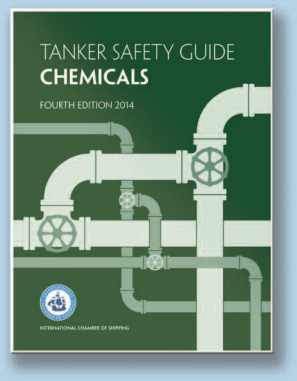
Miscellaneous

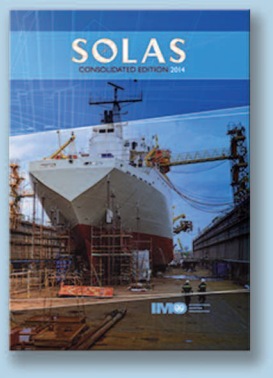
Publications



ICS Tanker Safety Guide (Chemicals)

The International Chamber of Shipping (ICS) has published a fully revised fourth edition of the ICS Tanker Safety Guide, replacing the previous edition that was published in 2002. The guide has been fully rewritten, using latest industry best practice and taking advice from experts across the industry. The new edition takes full account of the adoption by the IMO in May 2014 of important amendments to the SOLAS Convention, following a major IMO review of tanker safety that has taken almost ten years.

Full details of the guide and how to order it can be found at the following ICS link:
http://goo.gl/nINKjS



Recent publications from the International Maritime Organisation (IMO)

Full details of all publications and how to purchase them are available at the publications page of the IMO website:
www.imo.org/Publications/Pages/Home.aspx

SOLAS Consolidated Edition 2014

The International Convention for the Safety of Life at Sea 1974 (SOLAS) covers a wide range of measures designed to improve the safety of shipping. It was first adopted in 1914 after the sinking of the *TITANIC* and since then there have been four further versions. The current version was adopted in 1974 and entered into force in 1980.

This latest consolidated edition presents the text of the Convention together with its Protocols of 1978 and 1988 and all amendments that have been made since then, making it a very useful reference for all those in the industry.

IMDG Code 2014 Amendment 37 and supplement

The IMDG (International Maritime Dangerous Goods) Code was first published in 1965 and has since become the standard guide to all aspects of handling dangerous goods and marine pollutants by sea. Originally the Code was recommended to governments as the basis for national regulations by which the requirements of SOLAS 1974 and MARPOL Annex III were effected. However, the Code as amended by Amendments 35, 36 and 37 is now mandatory with effect from 1 January 2016 but may be applied by administrations in whole or in part on a voluntary basis from 1 January 2015.

Editor's message We are always looking for ways to maintain and increase the usefulness, relevance and general interest of the articles within Risk Watch. Please forward any comments to: **rwatched@triley.co.uk**