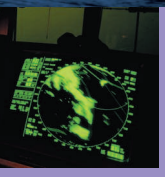
Volume 20: Number 2
August 2013

RISK WATCH

Britannia
The Britannia Steam Ship Insurance Association Limited



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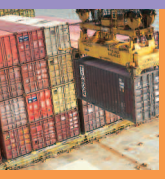

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Collision case studies

Two recent investigations by the German Marine Casualty Investigation Authority (BSU) illustrate the basic need for the Officer of the Watch (OOW) to have full situational awareness.

CASE STUDY 1

On board the *MARTI PRINCESS (MP)*

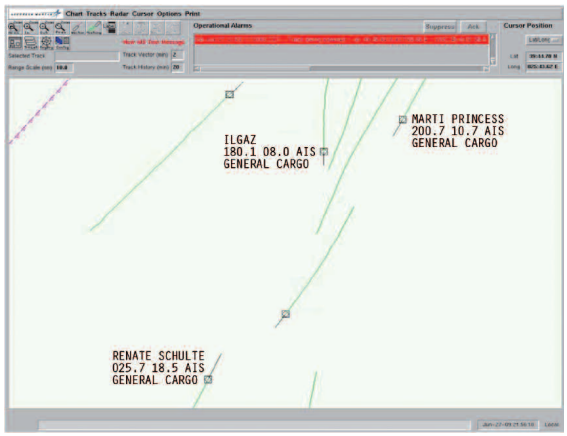
The *MP* had just exited the Sea of Marmara in Turkey and was proceeding on a course of 208˚ at 11 knots. At about 2150 the Master made his way to chart room to check some documents. The chart room curtains were drawn closed. The Master neither heard any exchange of messages on the VHF nor did the OOW inform him of any particular navigational problems. The Master then checked the chart and proceeded to the bridge. Immediately the Master observed a ship on his starboard bow. The ship seemed very close. He also observed two other ships on *MP's* port bow, at about 5˚ and 10˚ respectively. The Master asked the OOW to indicate the speed and distance of the first ship.

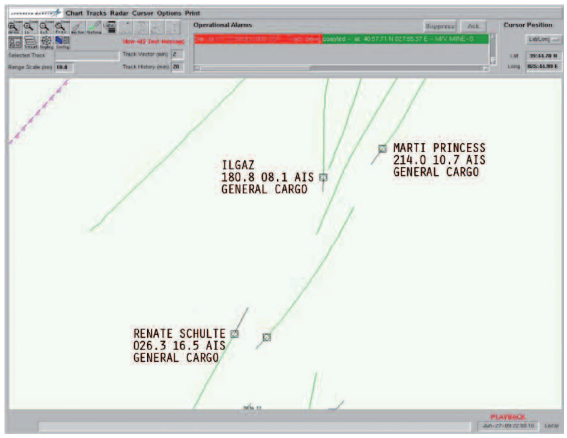
The OOW reported a distance of about five nautical miles. Somewhat surprised, the Master requested the OOW to double check the calculations as the ship seemed to be much closer than five nautical miles. The OOW checked again and this time he reported that the distance was eight cables.

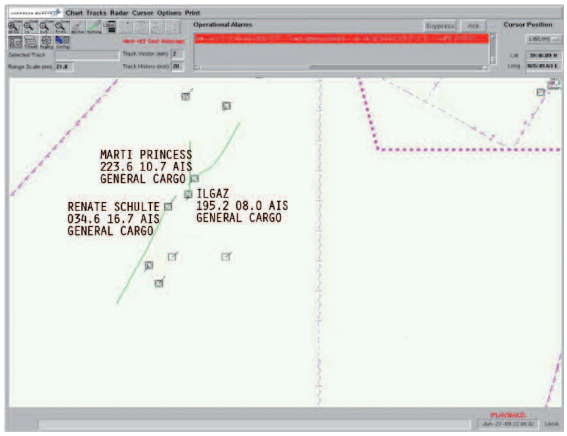
The Master ordered the OOW to change over to hand steering and alter course to starboard, the intention being to pass astern of the ship on her starboard bow. This ship was later identified as *ILGAZ*. Given the close proximity of the two ships, the Master followed the situation and manoeuvred visually rather than by radar.

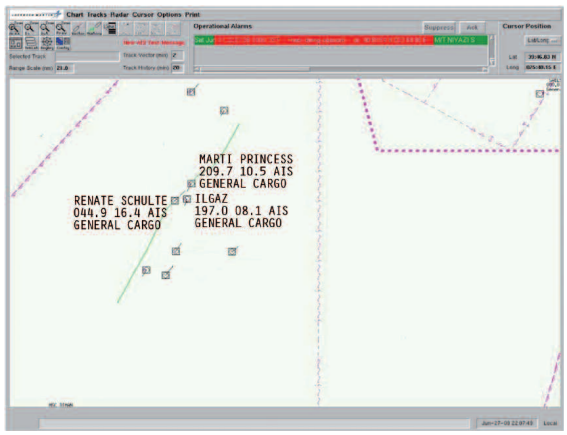
Once *ILGAZ* was on the port side of *MP*, the OOW asked the Master whether he could manoeuvre the ship back to the original course. Focusing entirely on *ILGAZ*, and with his mind at rest that *ILGAZ* was now clear, the Master gave his consent to the OOW. The OOW had already started the manoeuvre when the Master noticed another ship very close, almost dead ahead, with both side lights clearly visible. At about 2209, when this ship was less than half a nautical mile away, the Master called by VHF to the 'ship on my starboard side' and requested that both ships pass port to port and he began altering course to starboard. The Master repeated his request, this time addressing the 'ship dead ahead'.

Collision case studies (continued)









At no point in time did the Master refer to the ship, the *RENATE SCHULTE (RS)*, by her name.

At 2210, *MP* and *RS* collided. *RS* contacted *MP* on her port side, almost perpendicular to cargo hold no. 2. *MP* sustained a huge tear on her port side. No. 2 hold was open to sea.

On board the *RENATE SCHULTE (RS)*

At 2140, while north bound on the same channel as the *MP* (on a course of 025˚ and speed of 16.5 knots) the OOW on the *RS* had consulted his radar and observed *ILGAZ* when she was on his port bow and at a distance that was calculated to be 11 nautical miles. *ILGAZ* was crossing the bow of the *RS* from port to starboard, with a closest point of approach (CPA) of about 0.5 nautical miles.

When *MP* was first detected on the radar by *RS*, shortly before 2200, she was on the starboard side of *RS* at a distance of about five nautical miles. *MP* was crossing *RS's* bow from starboard to port. Consequently, the OOW focused his attention on *ILGAZ*. As soon as *ILGAZ* cleared the bow of *RS*, the OOW altered course to starboard by about 27˚ but only so far as to be sure of clearing the stern of *ILGAZ*.

Soon after 2200 the lookout reported a ship, one point on the starboard bow, showing her green sidelight. The ship was initially not visible to the lookout because of the ship's deck cranes. Following the lookout's remark, the OOW switched the radar to the six-mile range setting. At this time (approximately 2203) *MP* was about 2.2 nautical miles ahead and still slightly on *RS's* starboard bow. The OOW on *RS* identified *MP* from the AIS (which was interfaced with the radar). He called *MP* by her name on the VHF four times between 2204 and 2207. There was no reply. Some time later, the lookout reported that he could see both sidelights. It was evident that *MP* was dead ahead on a reciprocal course.

The OOW was quite surprised with the manoeuvre made by the *MP* and concluded that the ship must have altered course to her starboard to give way to *ILGAZ*, although shortly afterwards she came back to her initial course with a port alteration. The OOW concluded that a further alteration to starboard was only possible to a limited extent since as *ILGAZ* was now on her starboard side, almost abeam and was herself now altering course to starboard. *RS* continued swinging to starboard until 2209 when the Master, having been called to the bridge, attempted to come to port in order to avoid hitting *MP* in the accommodation block.

Analysis

The investigation was unable to determine why the OOW (and the lookout) on *MP* had not been monitoring the situation until it was brought to their attention by the Master of the ship when he visited the wheelhouse at about 2150.

It was acknowledged that in this particular situation *MP* (as an overtaking ship) was under the obligation to keep out of the way of *ILGAZ* as prescribed in Rule 13 of the COLREGs. However, the manoeuvre that was undertaken was neither substantial nor conducted in ample time as required by Rules 8(b) and (c), eventually resulting in another close quarters situation in contravention with Rule 8(c). A substantial alteration to starboard by *MP* alone (as the give-way ship) to a new heading of 296˚ would have meant that *MP* crossed the course of *RS* at 90˚ and still passing behind the stern of *ILGAZ*.

In fact, had the OOW on board the *MP* maintained his course, *ILGAZ* would have crossed the bow of *MP* at a distance of three cables and would have passed *RS* on her starboard side nine cables away.

Adequate plotting by both ships could have prevented the close quarters situation arising.

It was concluded that manoeuvring by *RS* could not have avoided the collision but it was observed that at no stage did *RS* reduce speed or come astern on her engines.

Situational awareness:

• MARTI PRINCESS

The third officer on board *MP* was under the impression that *ILGAZ* was five nautical miles away when in fact the two ships were only eight cables apart. This indicates the OOW had either misinterpreted the data from the radar or was (psychologically) disconnected from the surrounding situation or that it was a combination of both.

While the Master managed to intervene and succeeded in his manoeuvre to avoid a potential collision with *ILGAZ*, none of the crew members focused on the wider context in order to determine the consequences of their manoeuvres vis-à-vis the northbound *RS*. The fact that the OOW on *MP* asked for the Master's authorisation to steer back to the original course, once the stern of *ILGAZ* was cleared, suggested that either he was unaware of *RS* or that he was aware of *RS* but was relying on the Master to assess the wider situation.

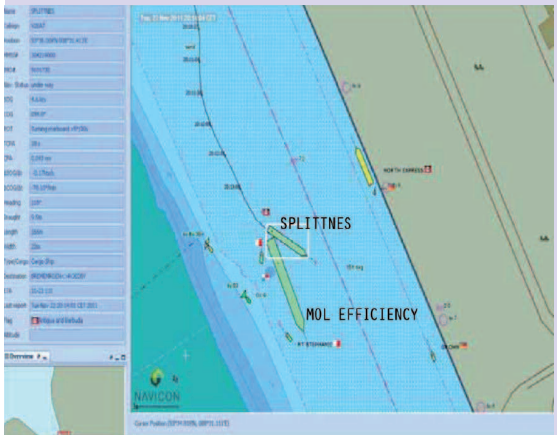
It is clear that due to the evolving situation between *ILGAZ* and *MP*, the Master was unaware of *RS*. Neither officer had accurate situational awareness.

• RENATE SCHULTE

The OOW on *RS* had noticed the presence of *MP* at an early stage, but only concentrated on *ILGAZ*. After being distracted from continuously monitoring the situation by a VHF conversation with the local ITS, he did not reassess the situation and was surprised when his lookout finally drew attention to the approaching *MP*. This raised the immediate question of when, if at all, the OOW of *RS* would have recognised that *MP* had manoeuvred in an unexpected way since first being detected.

Since the situations are dynamic it is imperative that monitoring by the OOW is continuous and uninterrupted.

The full report can be found at:
http://www.bsu-bund.de/SharedDocs/pdf/EN/Investigation_Report/2012/Investigation_Report_230_09.pdf?__blob=publicationFile



CASE STUDY 2

On 22 November 2011 *SPLITTNES* was proceeding up river (R. Weser, Bremen) behind *MOL EFFICIENCY (ME)* with a flood tide and low visibility due to fog. Several times between 1956 and 2006 the Blexen Radar Station advised that *ME* would stop and turn in order to berth and several times *SPLITTNES* acknowledged and stated they were stopping to await the turn of *ME*. At 2006 the two ships were 2.2 nautical miles apart and *SPLITTNES* was doing 6.12 knots and *ME* was doing 0.5 knots astern. At 2005 *SPLITTNES* had turned slightly to starboard using rudder and bow thrusters so as to sit in behind *ME* and also to stay clear of the down stream bound ship. At 2009 the pilot of the *ME* suggested *SPLITTNES* ought to pass them before they turned and *SPLITTNES* agreed.

SPLITTNES came ahead and to port but failed to complete the manoeuvre before her stern contacted hard with the stern of *ME*. Crucially, at the time *ME* was doing 2 knots astern (in order to keep herself in the turning circle) thus significantly reducing the distance and time that *SPLITTNES* had to complete the newly agreed overtaking.

In addition to highlighting the risks associated with sudden change of plans the BSU called on German pilots to 'consult with foresight and prudence in the future'.

The full report can be found at:
http://www.bsu-bund.de/SharedDocs/pdf/EN/Investigation_Report/2013/Investigation_Report_507_11.pdf?__blob=publicationFile

Solutions

For the majority of our readers – seafarers on board our Members' ships – it is imperative that the bridge team should monitor the voyage and remain alert to everything happening around them – situational awareness. As illustrated by the case studies, situational awareness is dynamic, hard to maintain and easy to lose. The following actions can help a team retain or regain situational awareness:

- **Communicate clearly and effectively any observations on the ship's progress and contribute to any decision made by the team**
- **Assertive error spotting by the team should be encouraged to combat complacency or distraction**
- **Look out of the window as often as possible**

Failure of ship's crane steel hoisting wire

The April 2006 edition of *Risk Watch* contained an article about crane wires, with specific reference to their maintenance and lubrication. A recent incident reported to the Association has once again highlighted the importance of ensuring that steel wire ropes on ship's cranes are properly lubricated.

A general cargo ship was fitted with twin cranes between nos. 1 and 2 cargo holds. During the discharge of an item of project cargo weighing 27mt, which was within the safe working load of the crane and the wire, the steel hoisting wire failed. The project cargo fell down into the hold and damaged other items of cargo as well as causing damage to the ship's tween deck.

The wire rope was supplied to the ship in 2009 and was inspected annually by a classification society surveyor, with the most recent inspection taking place just two months before the incident. Despite this recent inspection, experts appointed by the Association concluded that the wire failed as a result of serious local degradation of the wire in excess of the limits set by the classification society in their 'Rules for the Certification of Lifting Appliances Onboard Ships'.

The degradation of the crane wire was attributed to the long term lack of a suitable protective lubricant. It appeared that normal engineering grease was being used by ship's crew to lubricate the wire but that this had not penetrated to the core of the wire. Not only had this thick layer of grease failed to penetrate the core of the wire, but the use of such grease meant that moisture had been trapped within the wire which accelerated the corrosion. In addition, the thick layer of grease made it hard to make a proper inspection of the wire.

Classification society surveyors can only spend a limited time on board looking at the whole ship and crew and shore staff must be aware that inspection of the crane wires may be visual only and will not usually involve a close examination of the core of the wire. Therefore, they should make their own, systematic, assessment of the condition of ship's crane or derrick wires at regular intervals.

In order to avoid corrosion of the core of the wire rope, a suitable penetrative lubricant should be applied. Even if the correct type of lubricant is used, it is important to make sure that the wire ropes are always cleaned prior to lubrication to avoid the effects of marine salt and trapped moisture within the wire.

Chemical tankers – carriage and sampling of cargoes of benzene

Benzene is an organic chemical compound classed as a hydrocarbon. A constituent of crude oil, benzene is a basic petrochemical product usually extracted from mineral oils.

The main use of benzene is as a solvent and as a constituent part of gasoline where its high octane characteristics are beneficial. Benzene is known for its carcinogenic properties. Stringent specification requirements are applied to benzene.

The Association was recently involved in an incident involving benzene which highlighted various issues relating to sampling and testing. The entered ship, a chemical tanker, carried several parcels of benzene from Kuwait to various ports in the Netherlands. The ship was equipped with pump stack sampling equipment in the form of an outlet valve to which a poly vinyl chloride (PVC) sampling hose was connected as well as a dedicated hermetically sealed sampling system. In Kuwait, the cargo was loaded through the common manifold connection and in accordance with usual practice, on the orders of the chief officer, a pumpman took cargo samples from the ship's manifold sampling outlet. Additionally, first foot and final samples of the relevant cargo tanks were taken while circulating the cargo on the pump stack and by taking samples with the PVC sampling hose. Following analysis of the samples the content of chlorides in the benzene was reported as varying between nil and 1.5 mg/kg (this was within the maximum specification of 3 mg/kg). Samples were retained on board and the ship sailed.

Upon arrival at the first discharge port the Chief Officer ordered the pumpman to carry out a pre-discharge sampling of all the tanks using the same sampling hose and in the same manner as was done in Kuwait i.e. sampling while circulating the cargo on the pump stack. The test results revealed the cargo was clearly off specification with a high content of organic chlorides present. First test showed 48 mg/kg and second test showed 16 mg/kg. The local correspondent was notified as soon as these discrepancies were discovered. Surprisingly, similar results were shown from the re-testing of the samples taken in Kuwait even though these samples were initially on specification when tested in Kuwait. This substantiated suspicions of contamination.

Due to the level of organic chlorides in the benzene the terminal refused to accept the cargo and the ship was asked to vacate the berth. At this stage a specialist surveyor was appointed to attend. The ship sailed to a vacant berth nearby where joint sampling was arranged. On this occasion the samples were taken utilising the ship's dedicated hermetically sealed sampling system and, to the surprise of the parties, no organic chlorides were found i.e. the cargo was perfectly within specification. At the second discharge port a similar joint sampling was arranged and the ship's dedicated hermetically sealed sampling system was again used. The benzene was perfectly within specifications.

The ship now returned to the first discharge port to discharge the parcel initially rejected. Again, the surveyor participated in the joint sampling using the ship's hermetically sealed system and he also used a brought-in hermetically sealed absolute bottom sampling system. The cargo was within specifications and was subsequently discharged.

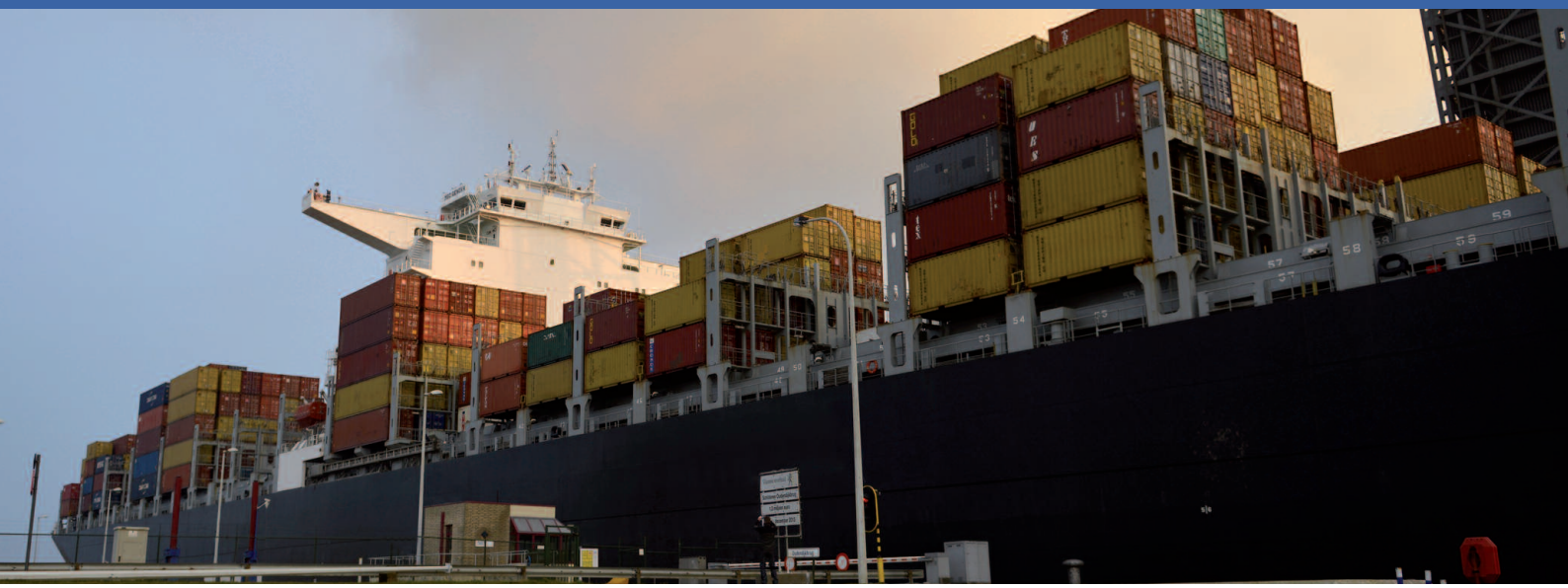
Following investigation by the surveyor appointed by the Association the source of the confusion became clear. The pump stack sampling arrangement on the ship was positioned at a high level above the weather deck and so, for practical reasons and to make sampling easier, the crew on the ship had rigged up a PVC hose extension to the pump stack sampling gear. When this PVC hose was exposed to benzene, which is a solvent, the inner reinforcement of the hose dissolved causing an accumulation of organic chlorides in the samples taken via the PVC hose. As the hose was only used for sampling, the increased level of organic chlorides was present only in the samples and did not in any way give a representative view of the condition of the cargo. Accordingly, sampling of the cargo done using the ship's dedicated hermetically sealed sampling equipment and the external bottom sampling appliance brought in for the occasion showed that the cargo was consistent with the specifications.

The observant reader will have noticed that the initial sampling carried out in Kuwait using the pump stack sampling gear (including the PVC sampling hose) did not show excessive presence of organic chlorides. The surveyor found that the testing carried out on the loading samples in Kuwait responded only to inorganic chlorides i.e. chlorides originating from seawater and thus not to organic chlorides. The testing carried out in Kuwait was incorrect.

With hindsight one might say that the correlation between the pump stack sampling and the results appear obvious. However, the combination of inappropriate testing carried out in Kuwait as well as the seemingly correct operation of the sampling equipment by the crew – it was not until later the PVC hose modification itself was discovered – led to an increasingly stressful situation as the supposed contamination would have resulted in substantial depreciation in the value of the cargo.

It should also be noted that, due to the minor nature of the discrete modification to the sampling gear, it went unnoticed by the shipping company's own operational audits, vetting inspections and external cargo surveyors.

The lesson to be learned from this incident is that on chemical tankers, the crew must only modify or change the cargo sampling gear after due consultation with the ship's technical managers.



Container ships: safe stowage and securing recommendations

The stack collapse and loss of containers overboard can pose a significant risk to crew, salvors and stevedores. Lost containers may float semi-submerged for some considerable time and can be a hazard for other shipping in the area. There may also be pollution of the marine environment from hazardous contents of the lost containers leaking into the sea.

When trying to assess the number of containers lost overboard there is much disagreement. The World Shipping Council (WSC) surveyed its members and has reported that around 600 – 700 containers are lost overboard each year. Other reports mention figures as high as 10,000 containers lost per year. The truth is that there are no dependable global statistics available. Despite the relatively small numbers lost in relation to the total number shipped, it should always be remembered that any container stow collapse may have serious repercussions.

Root cause analysis (RCA)

The Club's risk managers have conducted a RCA of container operations for several Members. Common trends identified were:

1 Maximum tier weights as detailed in the ship's Cargo/Container Securing Manual (CSM) do not appear to be checked regularly either by shore or by ship's officers when planning or approving a stow. The weight allowances of individual containers for the tiers are therefore often exceeded. This is important even if the total stack weight is still within limits.

2 The lashing modules incorporated into the various stowage planning programmes, such as CASP, TSB Supercargo, LashMate etc. are not often utilised to the fullest extent by ship's officers, with the result that the actual lashing applied is inadequate for the containers as stowed.

3 Laden heavy units were observed to be stowed on upper tiers, often over lighter units in lower tiers, with the result that allowable stresses on the lashings and maximum weight for the stowage position(s) were exceeded.

4 In many cases, the ship's metacentric height (GM) when sailing exceeded the GM provided for in the CSM (as well as the industry recommendation of the maximum GM not exceeding 3% of the ship's beam). In such circumstances it is often not possible for the ship's officers to verify the stowage and lashings as being within acceptable limits without doing complex multiple calculations. This deficiency might be minimised if available software is utilised to its fullest extent by ship's officers.

Responsibilities

There is often some misunderstanding about the responsibilities of owners and charterers with regard to stowage planning and securing.

Even if the charterers are responsible under a charterparty for the stowage and lashing of containers, it remains the Master's obligation to ensure that the proposed stowage provides the ship with acceptable draught, trim, stability and stress limits and also that the containers are secured within the constraints set out in the CSM so that the ship is safe and seaworthy in its loaded condition.

This means that all stowage plans proposed by charterers should be checked in detail by the Master or Chief Officer.

Clearly the number of containers loaded on modern large container ships will require software to be used to work out the stowage plan. It is the Master's (or Chief Officer's) duty to ensure that the on board computers are able to receive and utilise all the data received from shore planners in order that they can carry out the stowage checks mentioned above in good time and before departure.

It is the shipper who is obliged under SOLAS to declare the gross weight of the container and contents. There is discussion at the International Maritime Organisation (IMO) which may lead to the requirement that shippers produce a verified gross weight in the future. The intention is that without a verified gross weight the container cannot be loaded on board. This is to be debated at IMO DSC17 in September this year.

MARPOL ANNEX V – residues from solid bulk cargoes

The new MARPOL Annex V regulations came into force on 1 January 2013. These new rules largely prohibit the disposal of garbage at sea with few exceptions.

These new regulations mean that ships and their operators need to have procedures in place to ensure that pollution by garbage disposal overboard does not occur. Ships must plan for disposing of garbage ashore and will need to be aware of all relevant local regulations when doing so. The best way to achieve this is to contact the local agents in advance and ask for advice relevant to the particular port.

Rules governing the disposal of residues from solid bulk cargoes are now addressed by Annex V. The remains of cargo in wash water are also defined in the regulations as 'Cargo Residues,' the disposal of which will also need to be carried out as per the Code.

Cargo that is harmful to the marine environment (HME):
The most important aspect to consider when dealing with solid bulk cargo residues is whether or not the cargo is HME or not.

IMO guidelines state that it is the responsibility of the shipper to declare the cargo as HME when completing the information required under section 4.2 of the IMSBC Code (Provision of information). Members should, therefore, always insist on full documentation being provided by shippers to protect their position in this regard.

Hold cleaning chemicals:
It is important to find out whether the hold cleaning chemicals being used are classed as a marine pollutant. This will depend on whether or not they contain any carcinogenic, mutagenic or reprotoxic (CMR) components and this should be clearly identified in the Material Safety Data Sheet (MSDS).

General requirements:
The general requirements for disposal of bulk cargo residues under the revised Annex V are as follows:

• If the cargo is declared as HME, or the chemicals used to wash down the holds are a marine pollutant, then cargo residues along with wash water must be retained on board and discharged to shore reception facilities.

• If the cargo is non HME, then the cargo residues (hold sweepings and any remaining cargo not removable by accepted methods) may be discharged overboard whilst at sea, provided the ship is more than 12 nautical miles from the coast and also provided the ship is not in a Marpol Special Area.

• Cargo residues contained in wash water may be discharged overboard as long as the cargo was non HME and the chemicals used for washing down were not a marine pollutant and also did not contain any of the CMR components, again provided the ship is more than 12 nautical miles from the coast and not in a Marpol Special Area.

• If the ship is sailing in a Marpol Special Area then discharge of cargo residues contained in wash water is prohibited unless it is under the circumstances set out in Annex V regulation 6.1.2. The circumstances in which it may be permitted to discharge within a Special Area include (a) where the port of departure and the next port of destination are within a Special Area and the ship will not transit outside the Special Area between those ports AND (b) no adequate reception facilities are available at either the port of departure nor the destination. In any case, the ship must be at least 12 nautical miles from the coast.

It is important to note that if HME cargoes are carried, the disposal of any cargo residues must be properly documented in the Garbage Record Book.

Guidelines for reporting are set out in the IMO Circular MEPC.1/Circ.469/Rev.1.
http://www.imo.org/OurWork/Environment/PollutionPrevention/PortReceptionFacilities/Documents/469-Rev-1.pdf

Members are also able to view details and to report ports with inadequate reception facilities via the IMO GISIS (Global Integrated Shipping Information Service) website which can be found at:
http://gisis.imo.org

The standard format of the advance notification form for waste delivery to port reception facilities is contained in MEPC.1/Circ.644:
http://www.imo.org/OurWork/Environment/PollutionPrevention/PortReceptionFacilities/Documents/644.pdf

If further information or guidance is required, Members should contact the Managers.

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Miscellaneous

Risk management poster campaign: COLREGs

The International Regulations for Preventing Collisions at Sea (COLREGs) are the basic rules to avoid collisions which have been in existence for 41 years and must be understood by all seafarers before they can pass an examination to become a bridge watchkeeping officer.

Collision claims handled by the Club show that infringement of one or more of the collision rules is the single most common cause of collisions. The cases seen by the Club demonstrate a lack of understanding and application of the COLREGs by the officer of the watch.

The Club is producing a series of posters to remind bridge watchkeeping officers of the requirements of COLREGs. The first two posters are being sent out with this edition of Risk Watch, together with a full description of the relevant regulations and a full copy of the text.

It is hoped that the posters will be displayed on the bridge and in common areas. If extra copies are needed, please do not hesitate to contact us. Posters can also be downloaded from the Britannia website.
www.britanniapandi.com

Personal injury

Stowaways: the Master is not alone

In the first six months of 2013 there has been a marked increase in stowaway activity from the West African ports of Tema and Takoradi in Ghana (with stowaways often hiding in empty containers) and also from the Red Sea port of Djibouti, where Ethiopian and Eritrean nationals are regularly embarking on ships bound for Europe or the Far East.

It is recommended that extra precautions are taken when calling at ports in these areas, including restricting access to ships and making regular searches for stowaways before departure and immediately afterwards. Most stowaways will reveal themselves within 48 hours of the ship being at sea due to lack of food and water. The reaction of the Master once a stowaway has been found can have a big impact on the subsequent handling of the incident.

When a stowaway has been found, it is important that the ship owners/managers' office is advised immediately

It is then essential that the P&I Club is contacted so that the Club can liaise with the network of correspondents and consultants straight away. Direct support can then be provided to the Master on a daily basis until the conclusion of the case.

The stowaway must be interviewed and photographed

If at all possible, the Master must find out the stowaway's identity and nationality as this makes repatriation much. Ideally, there should be a questionnaire based on a stowaway's supposed port of embarkation and specific to his nationality. Questions will include: port of embarkation, name, date of birth, home address and family contact details and nationality. There could be additional questions to discover nationality, such as being asked to name the President of his alleged country or describe its flag.

If more than one stowaway is discovered, interviews should be conducted separately with interpreters if necessary. To save precious time, interviews can often be arranged by telephone while the ship is at sea.

This information, together with a photograph, should be sent by email to all parties as soon as possible and this will allow the Club to decide how best to deal with the case and liaise with correspondents at the ship's forthcoming ports of call.

It should be noted that stowaways frequently lie about their identities in order to delay disembarkation and if a Master suspects this to be the case he should report this to the Club or the correspondents. Many stowaways are repeat offenders and therefore know what to expect when they are discovered.

The stowaway must be searched

This might give clues as to the identity and nationality of the stowaway. They will often hide ID documents about their person or in the location on board where they were discovered.

A more experienced stowaway who has targeted a ship because of its voyage destination may carry a mobile telephone with many contact details stored or he may choose the more traditional method of carrying a notebook or Bible in which to log his intentions.

Modern technology, together with a proactive Master who follows the steps detailed above, can help to identify the issues at an early stage and this can mean that the stowaway's time on board is greatly reduced and does not unduly affect the day-to-day operation of the ship.

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**