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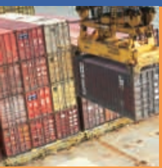
# RISK WATCH

Britannia
The Britannia Steam Ship Insurance Association Limited













# The importance of a proper lookout

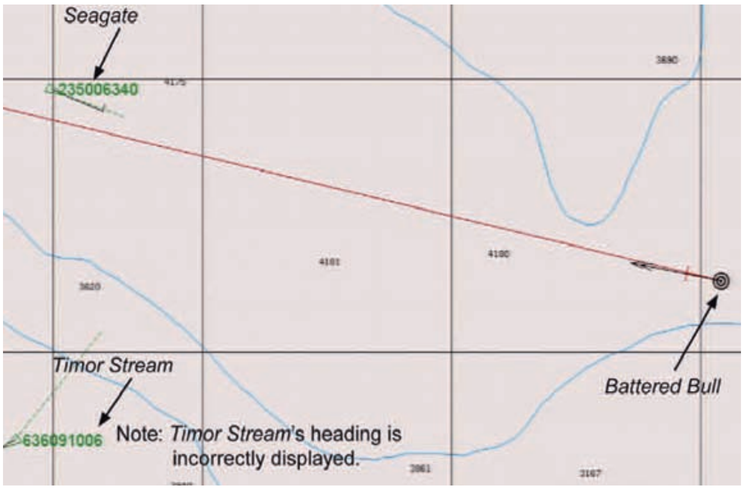
At 0540 on 10 March 2012 the bulk carrier *SEAGATE* (17,590gt) and the refrigerated cargo ship *TIMOR STREAM* (9,307gt) collided in open waters, 24nm north of the Dominican Republic.


The following description of events was taken from an investigation report issued recently by the British Marine Accident Investigation Branch of the Maritime and Coastguard Agency (MAIB). It shows how complacency and poor watchkeeping practices can lead to collision, even with experienced masters and officers on board.

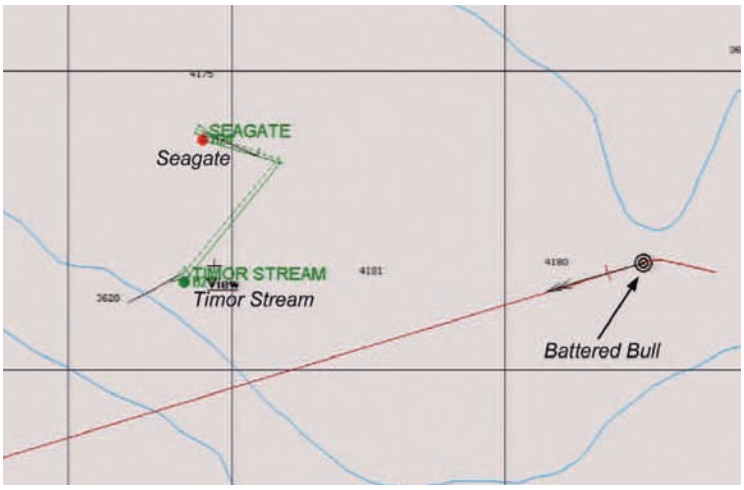
At 0248 on 10 March *TIMOR STREAM* departed Manzanillo in the Dominican Republic. She had called at several Caribbean ports prior to this last call and was loaded with a cargo of refrigerated bananas and a deck cargo of containers. Her destination was Portsmouth, United Kingdom. At 0325 the crew completed a stowaway search. Following the search the chief and second officers (who had both previously been busy with cargo operations) were released to go to their beds. The bridge watchkeeping system was in transition from a routine suited to the ship's frequent Caribbean port calls to one more suited for the long ocean passage. Due to this transition the master considered himself best placed to take the watch. A lookout was available to assist but the master decided not to call him. At 0416 *TIMOR STREAM's* master set an auto-pilot heading of 043° and a speed of 19.5 knots for the 3,592nm track across the Caribbean Sea and Atlantic Ocean.

At 0500 the master noted the ship's position from the Global Positioning System (GPS). He wrote it in the deck logbook and plotted the ship's position on the chart. He then adjusted the ship's heading to 041°. Information from the ship's voyage data recorder (VDR) indicated that the master then occupied himself on the bridge with other tasks.

**Navigation and seamanship**




*BATTERED BULL'S* ECS display at 0520




*BATTERED BULL'S* ECS display at 0533

# The importance of a proper lookout (continued)

Meanwhile, on board *SEAGATE* the chief officer was on the bridge. *SEAGATE* had been at sea for a week having departed Beaumont, Texas (USA) on 3 March 2012 with a cargo of wheat bound for Lagos and Warri, Nigeria. The chief officer had taken over the watch at 0400 and was assisted by an ordinary seaman as lookout. *SEAGATE* is said to have been on an auto-pilot heading of 104° at a speed of 10.8 knots.

At around 0515, in good visibility, *SEAGATE's* lookout alerted the chief officer for the first time to a ship on his starboard side. Automatic Identification System (AIS) data showed that *SEAGATE* was on a heading of 114°. From the aspect of the navigation lights of *TIMOR STREAM* the chief officer determined (incorrectly) that the target (*TIMOR STREAM*) was overtaking his ship (*SEAGATE*) on a course of around 90° and would overtake 3 or 4 cables clear of his ship's starboard side. He attempted to plot *TIMOR STREAM's* radar target, but was unsuccessful. He did not take a visual bearing of the ship.

Officers on both ships failed to observe that by 0532 *SEAGATE* and *TIMOR STREAM* were 2.8nm from each other on a collision course. The chief officer on board the *SEAGATE* was aware of the *TIMOR STREAM*, but had not bothered to thoroughly assess the risk of collision. On board the *TIMOR STREAM* the master was distracted with other tasks (presumably ship's paperwork) on the bridge and had not acquired *SEAGATE* as a target either visually or using his radar's Automatic Radar Plotting Aid (ARPA).

Separated from *TIMOR STREAM* and *SEAGATE* by a distance of approx 10nm, a pleasure yacht, *BATTERED BULL*, was steaming at 12.5 knots on an almost reciprocal course to *SEAGATE*. The chief officer was on watch and had acquired both *TIMOR STREAM* and *SEAGATE* as targets using his ARPA and AIS. He identified that the two ship's were on a collision course and that action was required by *SEAGATE*, the give way ship, to avoid a close quarters situation or collision. At 0532 he altered course 24° to port to avoid the developing situation.

On board *SEAGATE*, the lookout again told the chief officer about the ship on his starboard side. He did this a further time as the distance between ships reduced. At 0539 the chief officer started to alter *SEAGATE's* heading slowly to port. He predicted that this adjustment would increase the passing distance of the two ships. Shortly afterwards the lookout shouted at the chief officer to 'do something'. When he realised that a collision was imminent, the chief officer put the steering controls into manual mode and turned the helm hard to port. *SEAGATE's* heading altered by only 7° before the collision occurred.

By the time the master of *TIMOR STREAM* saw the *SEAGATE* she was very close on his port bow. He was unable to take avoiding action in the short time available to him before the collision occurred at 0540.

*TIMOR STREAM's* bow hit *SEAGATE's* starboard quarter in the area of the accommodation block and engine room. The engine room immediately started to flood and the electrical power system failed. *SEAGATE's* starboard life raft was destroyed and its starboard lifeboat fell onto *TIMOR STREAM's* damaged forecastle deck.

### Actions of *SEAGATE's* chief officer

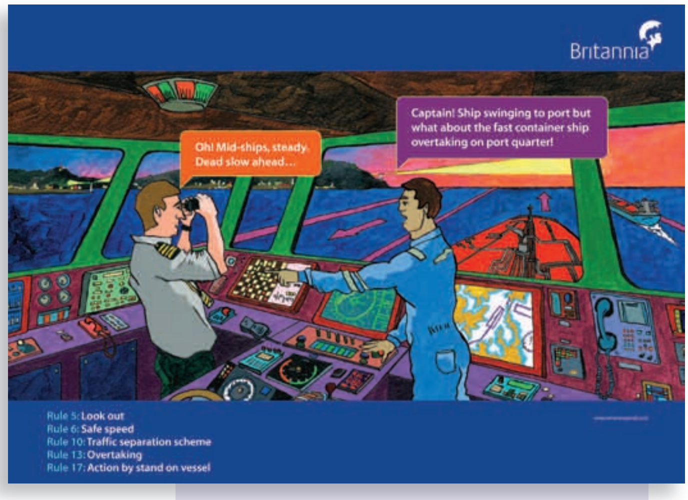
*SEAGATE's* chief officer believed that *TIMOR STREAM* was overtaking his ship and would pass clear with a closest point of approach (CPA) of 3 or 4 cables. He had made a visual assessment of the situation from the aspect of *TIMOR STREAM's* navigation lights and he remained unaware that his assessment was not accurate.

Had the chief officer established *TIMOR STREAM's* actual heading using his radar's ARPA, he would have realised that his estimate differed by about 50° from its actual heading. He would then have identified that *SEAGATE* was in a crossing situation rather than an overtaking one. This would have been obvious with any amount of continued monitoring of the target as *TIMOR STREAM* remained forward of *SEAGATE's* beam throughout, on a steady bearing of 187° from *SEAGATE* and with a steady aspect, until the two ships collided.

*SEAGATE's* lookout repeatedly reported the presence of *TIMOR STREAM*. Had the chief officer properly considered what was being reported to him by the lookout he would probably have identified that he was on a collision course in good time.

The chief officer's attitude could have been influenced by several factors. Travelling at 11 knots, *SEAGATE* was a relatively slow ship and the chief officer could have expected that faster ships would routinely overtake his ship. He might also have been lulled into a false sense of security by the conditions; it was a warm, occasionally moonlit, night with light to moderate winds, good visibility and little other traffic in an open sea. In these circumstances, it is possible that any watchkeeper, no matter how experienced, might allow himself to become complacent.


*TIMOR STREAM'S* bow section – post collision




### Actions of the master of *TIMOR STREAM*

The master of *TIMOR STREAM* chose not to have a lookout in addition to himself on the bridge. About an hour prior to the collision he sent a departure email message from the computer located at the desk on the starboard side of the bridge and then busied himself with various tasks on the bridge. Given the favourable prevailing weather conditions, *SEAGATE* would probably have been detectable on *TIMOR STREAM's* radar from about the time when he sent his departure email.

By 0500, when the master plotted the ship's position on the chart, *SEAGATE* was 34° on *TIMOR STREAM's* port bow at a range of 12nm. However, the master did not detect *SEAGATE* visually or on his radar display. Incorrect heading information was being transmitted from his ship's AIS and either he did not notice, or took no action to correct this error.

Given the good visibility and radar conditions, it is likely that at the time of collision the master had not been keeping an effective lookout for at least 40 minutes and perhaps longer. He allowed himself to become distracted while sending the departure email, and then positioned himself where he could not see what was going on around him.

In choosing to take the watch alone and not setting the watch alarm, he demonstrated poor judgment.

### Lookout

The actions of both the master of *TIMOR STREAM* and the chief officer of *SEAGATE* were contrary to the COLREG's Rule 5 (lookout) which requires watchkeepers to assess the situation and the risk of collision. *TIMOR STREAM's* master allowed himself to be distracted by tasks rather than keeping a lookout. The chief officer of *SEAGATE* had a misplaced confidence in his ability to determine by eye alone whether a risk of collision existed and felt able to ignore the risks of making a misjudgment based on little information.

The performance of the bridge watchkeepers on both *SEAGATE* and *TIMOR STREAM* fell well short of expected standards. Both were well qualified and experienced, yet neither considered that their watchkeeping duties required their full attention.

This accident emphasises the importance of maintaining a methodical approach to watchkeeping and collision avoidance. It is extremely difficult to determine a ship's aspect at night and, even if correct, aspect is no guarantee of a ship's actual heading or course.

## Collision regulation posters: COLREGs rules 5, 6, 10, 13 and 17

The scene played out in the poster depicts the ship at dusk in a traffic separation scheme with a bustling port on the port side. The ship is intending to cross the separation scheme and head for the anchorage in order to take on bunkers. The ship is beginning to alter course across the traffic separation scheme and is proceeding at a safe speed, with the engines on immediate notice for manoeuvring to comply with the factors for the setting of a safe speed as set out in Rule 6. All appears to be fine…

The master orders hard to port, however the cadet has observed a fast ship overtaking at high speed on the port quarter. The master retracts the helm order and reduces the engine revs to maintain steerage. The overtaking ship is obliged to keep clear under Rule 13 and as the stand-on ship the overtaken ship is required to keep her course and speed. In this case, providing the overtaken ship maintains steerage and does not alter course in front of the overtaking ship, the Rules are met.

Unfortunately accidents of this nature do occur even when the bridge team is well manned. On a positive note, the bridge team management clearly is working, as the cadet has the confidence to question the master which results in the avoidance of a serious incident.

## Risk management

# Life saving appliances – maintenance of lifeboats and life rafts (survival craft)


In this article we will address maintenance requirements of survival craft and launching arrangements and how to ensure operational readiness for when it is needed most.

SOLAS Chapter III Reg. 20 details requirements to be followed by all ships with regard to operational readiness, maintenance and inspections. The regulation includes the requirement for pre-sailing checks, as well as weekly and monthly checks.

Maintenance of survival craft and their launching arrangements should be of the utmost importance to any ship's operation. However, we have seen a number of troubling findings from our routine surveys where equipment has been past its service date, inspections have not taken place in accordance with SOLAS requirements and, in some cases, life rafts have been rigged incorrectly.

Due to their very nature, survival craft are located at the ship's side, often at some height from sea level, to protect them from the elements. It is vital that maintenance procedures fully embrace the content of the IMO MSC circular 1206 (MSC.1/circ.1206/rev1) which details measures to prevent accidents involving lifeboats. This guidance was produced in response to an increasing number of fatal incidents resulting from drills and maintenance on lifeboats.

In addition to these requirements, SOLAS Chapter III Reg. 36 sets out the requirement for appropriate instructions for on board maintenance of life saving appliances. It is essential that all required checks feature in the on board planned maintenance system with adequate instructions, critical spares lists, schedules of periodic maintenance, checklists and appropriate records of inspection and maintenance.

## Checks of operational readiness can be divided into the following groups:

### Operational readiness visual checks

A visual inspection of all survival craft prior to departure including a positive report to the master to confirm that:

- All survival craft are present, in good order and ready to deploy
- Harbour pins are removed from lifeboat davits and fall prevention devices are rigged correctly for launching
- Battery chargers are in good condition, plugged in and operational
- Gripes are secured and the craft is correctly in its mountings
- Launching equipment (bowsing tackles, manropes, embarkation ladder) are in good order and ready for deployment
- Access to survival craft is safe and clear
- Brake is clear and operational and remote brake release wire runs free to the survival craft operating position
- All life rafts are installed correctly with painter line attached to the weak link on the hydrostatic release unit
- The condition of fall wires has been checked, including areas where wires run over sheaths and turn onto winch drums.

### Additional weekly checks

The following checks should be completed weekly along with the operational readiness visual checks and a report of the inspection should be entered into the log book:

- Visual inspection of all survival craft and launching appliances to ensure that they are ready for immediate use. This inspection should include the condition of the hooks, their attachments to the lifeboat and condition of the on load release gear and ensure that it is properly and completely reset. Manufacturers' manuals should be consulted when developing instructions to ensure all critical parts are identified for inspection
- Lifeboat engines should be started and run for a minimum period of three minutes. The gearbox and gearbox train should be checked for correct operation as well as the boat's steering system
- On cargo ships, lifeboats (except free-fall lifeboats) shall be moved from their stowed position without persons on board to demonstrate the correct working of the launching appliance (as long as weather and sea conditions allow this to be conducted safely).

### Monthly checks

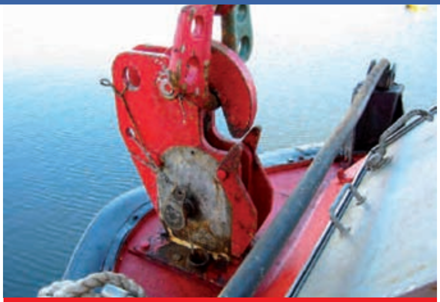
The following should take place monthly with records of maintenance kept along with completed checklists as required by SOLAS Chapter III reg 36 and a log book entry made with a report of the instruction:

- All lifeboats, (except free fall lifeboats) shall be turned out from their stowed position without persons on board, weather and sea conditions permitting
- Inspection of the life-saving appliances, including lifeboat equipment, carried out. An inventory of the boat's equipment should be taken.

Detailed procedures for the maintenance of the equipment should be provided and officers responsible for maintenance should be familiar with each ship's specific equipment during handover on joining the ship. On board maintenance procedures must be produced from manufacturers' guidance and be type specific due the wide range of systems available on the market. Failure to properly maintain lifeboat fittings and launching apparatus can have fatal consequences.

The proper operation of life saving appliances must be given priority ensuring that officers responsible have time to complete inspections thoroughly without effecting their hours of rest in accordance with MLC 2006 requirements.

A brief summary of areas where extra vigilance is required (based on survey feedback):



**Lifeboats: release gear, lifting hooks and fittings**

- Check all fastening bolts are sound inside and outside the boat; ensure there are no cracks and the hull of boat in these stress areas is in good condition
- Check the condition of the hook and safety devices; ensure hook is completely reset and the release gear seated correctly
- Check on-load release gear is set correctly; check all control wires are in sound condition and correctly located
- Check indicators on release gear are correct and moving freely with moving gear
- When conducting in water testing ensure that a thorough check on all working parts of the release system is conducted ensuring all parts move freely and reset correctly
- Hydrostatic switch (if fitted) should be tested at the waters edge to ensure it engages immediately the boat leaves the water.

**Launching appliances**

- Ensure limit switches are operating correctly
- Inspection of davit structure and fastenings to the deck
- Lubrication of sheaves, wires and moving parts
- Control units in good condition and are free to move
- Mechanical systems in good condition
- Arrangements free from excessive paint and rust
- Brake pads inspected and in good condition
- Power supply and back up stored power for launching
- Visual inspection of fall wire for damage, corrosion and lack of lubrication.

**Life rafts**

**Stowage and inspection**

- Ensure painter line is correctly rigged to the weak link on the hydrostatic release unit. At no time should the painter line be connected directly to strong point on the ship
- Ensure raft is secure in its frame. The bellyband should be tight enough to restrict movement at sea and should be made of material easy to cut
- Ensure quick release slip is in good working condition and not seized
- Ensure embarkation ladders are in good condition and accessible
- Ensure the rafts casing is showing no signs of damage.

**Launching arrangements for davit launched rafts**

- Ensure controls, winch and slewing arm are accessible and in good working order
- Ensure any cleats for additional painter (and if applicable container) lines are in good condition
- Inspect the life raft release hook to ensure it is in good condition, free to move and functions correctly
- Inspect the davit foundations and connections to the deck
- Inspect the winch wire, sheaves and slewing gear to ensure adequate lubrication and free from corrosion and excessive paint.

# The importance of bilge pumping records

On completion of discharge of dry bulk cargoes there are often allegations of shortlanding, with the discharge port draught survey showing a substantially different cargo quantity from that at load port so that part of the cargo appears to have gone missing during the voyage. The resultant claims are often accompanied by financial penalties or fines imposed by customs authorities.

Clean mates receipts, load and discharge port tallies, shore scale figures and discharge port preliminary, interim and final draught surveys are not always sufficient to protect shipowners' interests in dry bulk claims.

Three recent examples serve to highlight the usefulness of keeping detailed bilge cleaning, monitoring and pumping records throughout a voyage and how, despite the utmost vigilance, owners remains exposed to frivolous claims from persistent cargo interests.

In the first example our Member loaded a cargo of sinter feed for a trans-pacific voyage to China. The quantity of cargo on loading was measured by shore scale and recorded in the bill of lading. A loadport draught survey was performed. On arrival at the lightering port and later at the final discharge port the quantity of cargo discharged was measured by draft surveys. At the final discharge port, the shore-side surveyor recorded in his survey report the total quantities recorded daily in the bilge pumping logs during the voyage. The discharge survey report showed that the ship discharged the amount shown in the bill of lading once the bilge quantities lost during the voyage were accounted for. The survey report was accepted by the receivers and the ship departed without delay. It was not until almost 10 months later that the receivers' insurers sought to bring a subrogated claim under the bill of lading for shortlanding. Despite being provided with a copy of the bilge pumping records and the discharge draught survey report verifying the bilge pumping records, a court action has been commenced which involved the threat of arrest and provision of Club security. Despite provision of all available evidence to cargo insurers, proceedings were commenced in China. The bilge records are likely to be crucial evidence in those proceedings.

The second example involved a cargo of petcoke loaded on the east coast USA for a voyage to Gangavaram in India. About 15 days into the laden voyage charterers advised owners that they required daily updates on the quantity pumped from the bilges together with quantities pumped to date in order to avoid customs fines at the discharge port in respect of shortlanding differences which had been capped by Indian customs at 1%.

Daily logs were to be produced at the discharge port, failing which owners would be held responsible. The bilge records at that stage showed that the bilge water discharge was close to 10% of the weight as loaded. This might expose owners to substantial liabilities if detailed and accurate records were not kept of all bilge pumping and the ship could not show that any bilge pumping was as a result of drainage from the cargo.

After taking advice from our Indian correspondent, we were informed that unless certified verification is filed with the Ministry showing that the water collected in the bilges is actually from the cargo, the bilge pumping records will not be accepted to avoid customs penalties on shortage quantity provisions under the Indian Customs Act 1962.

We therefore recommended to our Members that they appoint a surveyor at the discharge port to ensure that the bilge pumping records were properly preserved and taken into account when calculating discharge quantities. Fortunately this recommendation was acted upon by Members and the ship sailed from the discharge port without delay.

In our final example our Member loaded a cargo of prilled sulphur from the USA to a Moroccan port. At the time of loading there was heavy rain (the cargo's condition was not affected by rain) and the amount of water accumulating in the bilge wells exceeded their capacity. Thorough bilge records were kept with the assistance of a surveyor at load port. On completing the load port draught survey the surveyor was diligent in recording the accumulation of water and the master and crew continued with that process during the entire voyage, keeping meticulous records for use in the event of a shortlanding claim at discharge port. Again, recommendations were made and acted upon by Members to appoint a surveyor at discharge port. As a result of this diligence there were no claims bought at the discharge port, the ship completed discharge and departed without delay.

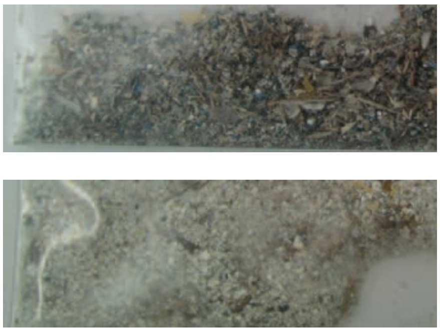
All three examples included a discharge port survey report that took into account the accurately recorded bilge pumping during the voyage and simply illustrates the importance of keeping meticulous bilge pumping records.



# Mysterious white powder found in reefer containers

## Since the article published in the December 2013 issue of *Risk Watch* concerning a 'mysterious' white powder found in several reefer containers, we have received reports of other similar cases.

Loaded cartons inside the container



Samples of white powder found in the container

White powder on the packed cartons

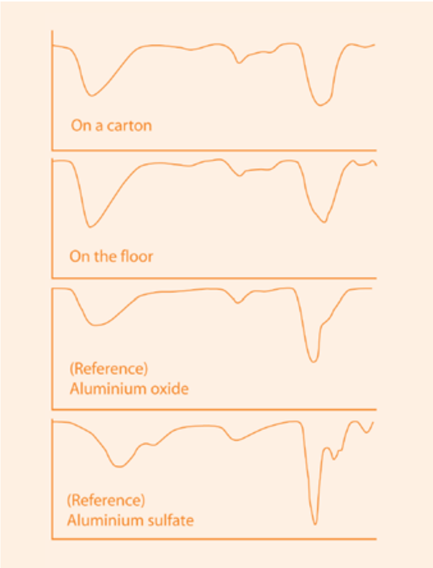



Fig.1 Infrared absorption spectrometry (FT-IR)

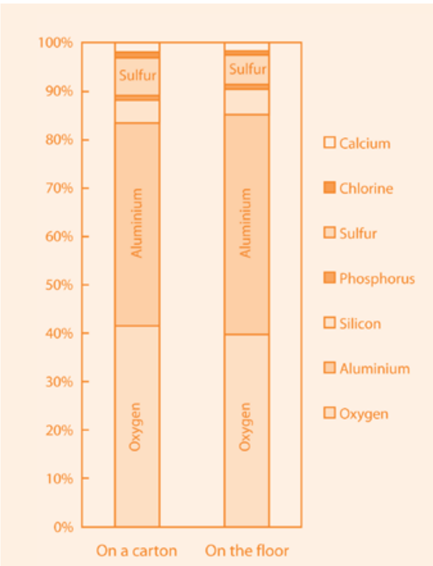



Fig.2 Element detection by SEM-EDX

Once again, aluminium oxide particles were found in a number of refrigerated containers. In order to establish the origin of the contaminant, we appointed a specialist scientist.

The powder was subjected to analysis: optical microscopic examination, infrared absorption spectrometry (FT-IR) (fig.1) and element detection by SEM-EDX (fig.2).

The samples were fragile, amorphous and their appearance was white or clear. It was found they had absorption bands between 3330 cm-1 and 1090 cm-1, which suggested that they were inorganic matter. The major components of the samples were aluminium, oxygen and sulphur with lesser amounts of silicon, phosphorus, calcium and chlorine.

These findings indicate the most likely source of the white powder could be as a result of corrosion of the aluminium materials within the reefer and the refrigeration system. The most likely cause of this is corrosive fumigants used over the period of the containers' life and a lack of necessary specialist cleaning.

Two other possible sources of aluminium oxide residue were identified:

**1** When reefers are kept in a galvanised storage facility the aluminium oxide residues from corrosion of the storage tower or warehouse may enter the container through open vents or if the reefer is powered.

**2** When non-food packaging is treated with a paint finish containing aluminium salts it can, in some circumstances, precipitate out.

Taking into consideration the information that was mentioned in the previous article and the conclusion from our appointed specialist, it would appear that the most proactive way to prevent such issues would be to regularly liaise with the shippers regarding cargoes carried and the fumigants used. The container operations department should then be able to arrange the cleaning of each reefer container with the relevant specific cleaning method and products. Refrigeration systems should be regularly and closely inspected to ensure no corrosion of the heat exchange fins has occurred in order to eliminate any possibility of corrosion inside the reefer container and the refrigeration system. This would prolong the life of the reefer container, thereby limiting the chance of any potential cargo contamination claims in the future.

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# Regulatory update

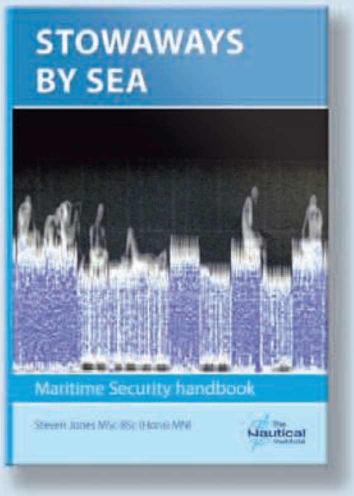
## India: use of satellite telephones prohibited in port (including at anchorage)

A recent case has highlighted the problem of using certain types of satellite telephones in Indian ports. A ship in Tuticorin had port clearance withheld for a prolonged period by the customs authorities and a penalty was requested as the thuraya satellite phone was used while at the port anchorage. The situation was exacerbated because of a train bombing by terrorists during the ship's call at Chennai. We are informed that other ships not entered with the Club have also encountered similar problems.

It appears that under a government order dated 17 May 2012, the use of thuraya, iridium and other satellite telephones is banned in India, apparently due to the fact that these telephones could be used by terrorist organisations. According to the order, satellite phones can be used only after a certificate is issued by the Department of Telecommunications and granting of these certificates is considered on a case by case basis. Local agents should provide authorities with full details of any such phones on board in advance of arrival in Indian ports. Members are advised to seek guidance from the local agents and to contact correspondents immediately if there are any problems.

# Miscellaneous

## Stowaways by Sea




The Nautical Institute has recently published a handbook which takes a very practical approach to making a ship secure against stowaways, managing any stowaways who have succeeded in getting on board, collecting the necessary evidence and organising the repatriation process.

The handbook is primarily written for those who are closely involved with dealing with stowaways and provides guidance on the preparation and training that is needed both on board and ashore. It includes an explanation of who stows away and why, how the trading patterns affects risk, the responsibilities of all parties involved in a stowaway incident and the importance of reporting.

Having knowledge of the risks being faced, and having appropriate responses will ensure that crews can react properly, while protecting themselves and their ship, both legally and physically. Stowaways need to be handled with care and must be processed and documented swiftly, safely and methodically, which calls for skill, knowledge and resources.

In doing the right thing with confidence and with the support of those ashore, shipboard personnel can keep themselves and the stowaways safe and free from harm. They can then take the necessary steps to get the stowaways off the ship as quickly as possible and into the care of third parties or the authorities.

The first aim is to keep stowaways from boarding the ship; if that fails it is vital to know how to deal with the subsequent problems. If stowaways do get on board, they need to be found, contained safely with due regard to their rights, and as much information as possible obtained from them to speed up the repatriation process.

The author, Steven Jones, is Maritime Director of the Security Association for the Maritime Industry. He spent 10 years working as a navigation officer in the merchant navy and experienced stowaway situations and instigated intensive searching processes while serving. After moving ashore he advised numerous shipping companies on security planning. He has written *Maritime Security – a practical guide* (published by the Nautical Institute in 2012).

*Stowaways by Sea* is recommended for all those working with the problem of stowaways and can be ordered directly from the Nautical Institute:

**www.nautinst.org**

Price GB £20 (although there are discounts available for members of the Nautical Institute, training institutions and for bulk orders).

**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**