Introduction

During the course of the webinar, the panellists were able to address a number of questions that had been raised by participants. It was, however, not possible to deal with all the issues raised during the course of the webinar. This document sets out the questions (some of which have been grouped by logical connection) and the panellists' responses.

If there are further issues to be raised, please send by email to:

marketing@ttclub.com

Q1 Is a Master not obliged to inspect, from time to time, at least some of the lashings to gain an appreciation and take or suggest appropriate remedial action?

It must be accepted that the Master cannot and isn't going to inspect every lashing. However, the company having established, under the ISM[1], its safety and environmental-protection policy, ensured that the Master is given the necessary support so that his/her duties can be safely performed, developed and implemented an SMS[2] giving instructions and procedures to ensure safe operation of ships and protection of the environment, and defined the Master's responsibility and authority - including with regard to implementing the policy and reporting its deficiencies to the shore-best management.

Additionally, how can the Master ensure that the lashing equipment is fit for purpose?

What is the evidence that the lashing was appropriate at the time of starting the voyage? How far are lashing checks of containers questioned during any incident investigations?

A1

The Cargo Securing Manual (CSM) may be expected to include an inspection / maintenance regime on board, in conjunction with the ship's Planned Maintenance System (as detailed by the SMS) and taking account of manufacturers' recommendations. Further, ships carry spare lashing material. When a hatch cover is clear of containers, the base-locks may be replaced with new from stock, and the used equipment is either inspected/serviced on board or sent ashore for refurbishment. If the new stock is colour-coded every time, a record can be maintained of the rotation.

A similar arrangement can be used with the twistlocks used within the container stacks. Lashing bins contain unused twistlocks, which can be replaced with new from ship's stores and if the same colour coding system is employed, a record of the exchanges can also be maintained. The same argument follows for the turnbuckles and lashing rods – turnbuckles are easier to maintain (it may be possible to do these while in service).

Where fit for service lashings have been applied in accordance with the CSM, and the appropriate lashing force calculations have been completed and there are no excessive forces, then the lashings can be deemed 'appropriate'.

Typically, lashings are checked before departure and regularly on a voyage (weather permitting). Depending of the nature of an incident, it may be expected that lashing checks of containers are questioned extensively during an investigation. Procedures, inspection and maintenance records, and the crew's actions/compliance with procedures often come under intense scrutiny during an investigation and any subsequent claim.

[1] International Safety Management (ISM) Code - http://www.imo.org/en/OurWork/HumanElement/SafetyManagement/Pages/ISMCode.aspx
[2] Safety Management System

Q2 Can you share how big is the commercial impact of container losses?

A2

It is impossible to collate data for the complete commercial impact of container losses, indeed the losses will be more extensive than 'commercial'. Inevitably, anything lost overboard has value.

- The container itself, depending on type, age and condition, could be worth tens of thousands of dollars.
- Any cargo packed inside the unit will also have value; obviously this depends on the commodity, but some average the value per unit at around USD60,000. Only about 60% of cargo interests (shipper or consignee, depending on sale terms) purchase cargo insurance, so the loss may remain with them, subject to any contractual remedy available.
- The ship itself may suffer physical damage as any unit detaches and falls overboard. The ship may also suffer additional port delays and expenses in the aftermath of a container loss.

Depending on the nature of any cargo lost (such as Dangerous Goods/marine pollutants) and the location, there may be considerable costs involved in clean-up and salvage. The ship operator may take these actions directly or another entity (such as a governmental authority) carry out the necessary operations to recover the debris, and protect or remediate the marine and coastal environment.

Q3 How can the industry address concerns that remain around the accuracy and enforcement of SOLAS 'Verified Gross Mass'?

The VGM treaty has not been applied as intended in many countries and it has therefore been reduced to additional data provided by the shipper that doesn't necessarily have to be true.

The shipper should remain liable of course for accurate VGM, but wouldn't it be more appropriate if container terminals at the port of loading were the ones that weighed containers, especially since handling every container requires the involvement of at least two lifts within the terminal and all modern crane equipment will read the weight?

Lots of cargo claims I have seen were related to shipper's mis-declaration. So, having the containers weighed by a reputable independent party prior to loading on board the ship would be a strong evidence [at the port of discharge] that the carrier has delivered the box as it was received at the port of loading. In some jurisdictions, discrepancies between measured weight at discharge and the declared VGM have led to criminal charges of smuggling. This emphasises the necessity of accurate data with respect to the VGM.

A3

For general background on VGM, TT Club's website[3] provides comprehensive information. The IMO Circular MSC.1/Circ.1475 guides the different actors in the supply chain as to their obligations to supply correct data or to modify them if that is found to be necessary.

While there is no tolerance set out within the regulation in SOLAS or the IMO Circular, some regulators have articulated what is described as an 'enforcement threshold'. Nevertheless, there is little in the public domain to suggest that government agencies have taken enforcement actions, but there is evidence that material mis-declaration of gross mass continues. In the absence of enforcement by authorities, it is left to the industry stakeholders to self-regulate, which may not be possible.

The possibility of weighing containers at the load ports was fiercely debated during the formulation of the VGM regulation, not least that it reduced the responsibility placed on the shipper – and, from a safety perspective, would generally occur after any initial inland transport had been completed. While much handling equipment will have load cells installed, these are historically focused on safe working capacity and may not be calibrated to national standards. Not all ports will, therefore, have

[3] https://www.ttclub.com/products-and-services/loss-prevention/container-weighing/

appropriate dynamic measurement capability, or even weigh bridges. Furthermore, some jurisdictions have precluded port operators offering a weighing service commercially. Therefore, it is not currently possible to rely on every port to be able to validate the shipper's declared VGM.

Q4 Why is the CTU Code[4] not known enough by container packers?

From my experience as Cargo Surveyor goods inside Containers are often not correctly secured. This amplify movements inside the container and consequently movements of the container itself.

A4

Many industry stakeholders, including the Clubs, are concerned that the CTU Code is insufficiently known and adopted. There may be many reasons for this, though any professional entity involved in consigning goods internationally might be expected to seek out appropriate guidance. Inevitably, good practice involves time and overhead; the industry needs to implement consistent and robust ways of penalising shippers/packers who choose to follow poor or inappropriate packing practices.

Those seeking more information in this aspect may be interested in TT Club's "cargo integrity" initiative[5].

Q5 How can improvements be made in relation to the use of 'twistlocks'?

Some operators claim that automatic twistlocks [fully automatic locks (FALs)] are the key to safer working, while others say that the number of different twistlock types makes this unworkable, what's your view?

Automatic twistlocks [FALs] vs semi automatic twistlocks [SATs], which is better for containership operations?

With so many twist locks in use, and most of them in use attached to containers, how do you ensure their maintenance and good working condition, particularly considering their utmost importance?

A5

From the perspective of ship operations, there may be attractions in deploying FALs. Since these have no or fewer moving parts, there is less to go wrong with them in comparison with SATs. The Master/Officer of the Watch remains responsible to check that all containers are seated properly after loading and before the ship sails with FALs; with SATs he/she needs additionally to check that all the wire handles are suitably deployed.

There are advantages for terminal operations in the use of FALs, since the only stevedore involvement is on the quay, when the locks are inserted into or removed from the lower container corner castings prior to the unit being loaded or after discharge, respectively. Problems may arise when one such lock jams in place during discharge operations and the crane operator is unable to release it. In such circumstances a man-cage and stevedores will have to be utilised to unlock the container manually using a spike and hammer. SATs require the same effort as FALs when loading, but more stevedore intervention to release the locking wire handles during the discharge process.

As regards maintenance and inspection, this normally falls within the ship's Planned Maintenance System (see Q1 above). However, one point to note is that twistlocks are designed on the assumption that the corner castings of the containers are adequate. Wear and tear of the corner castings needs to be considered in container maintenance programmes[6].

[4] IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU Code) - http://www.imo.org/en/OurWork/Safety/Cargoes/CargoSecuring/Pages/CTU-Code.aspx
[5] https://www.ttclub.com/products-and-services/loss-prevention/cargo-integrity/
[6] For further discussion of this see: https://www.ttclub.com/news-and-resources/news/tt-talk/2020/tt-talk---containers-do-not-just-fall-from-the-sky/

Q6 How can lashing gangs be kept safe on board ships?
Some 13 years ago, Lloyd's Register's container ship expert devised a system of railings that would make dockers safer while working on ships, the costs were very low. But nothing has ever come of this work. Is the industry guilty of ignoring these safety issues?

A6

The Code of Practice for Cargo Stowage and Securing (CSS Code)[7] at Chapter 14 requires that "*persons engaged in carrying out container securing operations on deck have safe working conditions and, in particular safe access, appropriate securing equipment and safe places of work.*" It is therefore incumbent upon the ship owner and Master to ensure that the appropriate safety rails are present and in good condition, lighting is adequate, potential hazards marked, etc.

Unfortunately, safety rails are sometimes damaged during cargo operations, in particular when moving hatch pontoon covers. While the responsibility lies with the ship, stevedores should also be aware of the dangers and not put themselves into a position whereby they are working with inadequate safety precautions. In some jurisdictions, a safety inspection is carried out by shore and ship personnel to ensure that the safety arrangement on board is suitable.

Q7 How do stakeholders gain assurance that the ship is stowed and lashed safely?

If the ship does not have effective lashing stress software available, then how is it possible to explain to third parties that the ship is safe to sail and lashing stresses are within limits?

What advice can be given in a stack collapse situation where the 'forces' for the container stack are within limits set out in the Cargo Securing Manual, although heavier units have been stacked on higher tiers?

A7

SOLAS Chapter VI, Reg 5 – Stowage and Securing states "*Cargo, cargo units and cargo transport units carried on or under deck shall be so loaded, stowed and secured as to prevent as far as is practicable, throughout the voyage, damage or hazard to the ship and the persons on board, and loss of cargo overboard… All cargoes, other than solid and liquid bulk cargoes, cargo units and cargo transport units, shall be loaded, stowed and secured throughout the voyage in accordance with the Cargo Securing Manual approved by the Administration.*"

It is incumbent upon the Master therefore that suitable calculations are prepared to ensure that lashing forces are not exceeded. A typical Lloyd's Register CSM states "*Ship owners and operators are strongly recommended to provide appropriate computer software to enable the ship's staff to deal with the complex problems relating to the proper stowage and securing of containers with varying gross masses, working under the usual time pressure experienced in port. In principle, shoreside ship loading planners require the same assistance. The forces on containers (including those induced by wind and sea on deck cargo) have to be calculated according to the classification societies' rules*." In practice, it may be expected that container loading programs have the facility to calculate lashing forces as per Class rules. Since the calculations are long and complex a purpose-built program is required; the task cannot be simply done by spreadsheet in the ship's office.

The rules used when lashing programs are created are based on smaller ships and have been scaled up to the modern size of ships currently plying the oceans. The rules rely on the ship itself being a rigid structure, where in practice a ship flexes in a seaway and in particular, during head seas. The MARIN "Lashing@Sea" study reported that when pitching into head seas, "*flexible hull deformation is adding around 40-50% to the accelerations that could otherwise be expected based on rigid body motions alone.*" This goes some way to explain why containers are frequently lost from the aft-most bays, but any such calculations are made for a pre-determined roll angle, which may not be the same as the roll angles experienced in heavy weather. As long as the ship has prepared lashing calculations with no resulting excessive lashing forces and the appropriate

[7] http://www.imo.org/en/OurWork/Safety/Cargoes/CargoSecuring/Pages/CSS-Code.aspx

lashings have been used (and the lashing bars are tight), they cannot be criticised, as they have complied with the CSM requirement for vertical weight distribution and lashing arrangement.

As a result, there may be situations where the ship may remain compliant with the CSM and regulations, the stow has been (correctly) calculated to be within all the approved limits for that ship but, upon investigation, the adequacy of those limits for the particular voyage may be questioned. Therefore, it may be a case of the regulations/criteria having to catch up with design and technological developments.

The stowage of heavier units higher up is not *necessarily* an issue. Usually, the weights and limits seen in CSM's/loading manuals are designed based on an 'optimum' or 'maximum' loaded condition for all stacks in the entire ship. That is to say that manuals often show the ship loaded to its maximum limit with the heaviest weight allowable in each and every bay for that loaded condition. Therefore, the optimum weight distribution indicated in each bay may not necessary be a weight limit for that bay in every other loaded condition and a different distribution or combination of weights may still meet the stack limits for a particular condition (depending on the design of that ship). A collapse may therefore have different causes. This, however, assumes that the loading software is correctly set-up (both ashore and on board), operated properly and alerts a user adequately to any conflicts with the ship's loading criteria.

Operators should carefully check that any loading and planning software properly takes account of, and calculates, all permissible limits correctly and that it is set up to alert the user accordingly. There have been instances where loading software has permitted distributions on board which were not strictly in compliance with all of a ship's criteria, but this was only apparent on detailed investigation.

Q8 Are there any specific actions/measures which have yielded positive results in managing mis-declared DG cargoes?

A8

The management processes in place in relation to Dangerous Goods (DG) were specifically not addressed in this particular webinar; there are plans to cover this topic in future. For current purposes, it may be noted that there are multiple initiatives underway seeking to address the problem of non- and mis-declared DG. These include work at the IMO, as well as within industry associations and, of course, at individual line level.

In this regard, there may be interest in the 'Safety Considerations for Ship Operators Related to Risk-Based Stowage of Dangerous Goods on Containerships'[8] published by the Cargo Incident Notification System (CINS) in November 2019.

Q9 Is container a packaging as per ICC (A) 4.3?

A9

For clarity, clause 4.3 operates to exclude cargo coverage where the 'loss damage or expense [is] caused by insufficiency or unsuitability of packing…' carried out by the insured cargo interest. Where cargo is intentionally packed in a defective container, it may be deemed insufficient.

Specific reference is made to the condition of containers in ICC (A) clause 5.1.2, again excluding cover where the insured cargo interest is 'privy to such unfitness' at the time the unit is packed.

[8] https://www.cinsnet.com/wp-content/uploads/2019/11/CINS-DG-Stowage-Considerations-Final.pdf

Q10 In your opinion, to what extent could discrepancies between the Cargo Securing Manual and the approved loading program regarding lashing lead to container losses?

A10

Stowage plans are often not prepared in accordance with the CSM, but it would be unusual for a CSM and load program to have discrepancies. Load programs should be run against a test case to ensure integrity of the results, this is typically done before it gets Class approval on commissioning. Much of a CSM is generic and stands the test of time. The vertical weight distribution shown in the CSM is usually for optimum GM values, so any difference between that and the actual GM have to be taken into account and the weight distribution amended accordingly. The lashing force calculations will show where there may be excessive forces, but they do not show the user how to rectify the issue. This is usually by reducing weight in the upper tiers – there is typically guidance within the CSM on this issue.