

UN-SEAWORTHINESS OF CONTAINER VESSELS: COMMENCING VOYAGES WITH KNOWN DEFECTS IN CONTAINER STOWAGE AND SECURING

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Background

The World Shipping Council (WSC) reported that the 2-year, 2020-2021, average annual loss of containers overboard was 3,113 units – a number adjusted upwards to include non-member companies.¹ The previous 3-year, 2017-2019, average loss was 719 units. The collapse of container stacks results in containers falling overboard.

This article deals with the *two defects* that contribute to container stack collapses: first, containers loaded contrary to the Container Securing Manual (CSM) which include heavy containers stacked over lighter ones and container stacks exceeding permissible stack weight limits. Secondly, container stacks not being secured so they can withstand the most severe weather conditions expected on the voyage. Reports prepared by safety investigators following container stack collapses often refer to the first defect, however, the writer has not seen (but acknowledges there could be) reports that refer to container stacks not being secured as required. After discussing the two defects and proposing solutions to overcome same, the article considers the situation where a vessel whose container stacks collapsed due to any *one* of the two defects, could be found by a court, to have been unseaworthy at the commencement of its voyage.

The International Maritime Organisation's *Code of Safe Practice for Cargo Stowage and Securing (the IMO Code)* has a number of General Principles, of which the following two are relevant to the above-mentioned defects:²

- a. Personnel, planning and supervising the stowage and securing of cargo should have a sound practical knowledge of the application and content of the Cargo Securing Manual (CSM); and
- b. Decisions taken for measures of stowage and securing cargo should be based on the most severe weather conditions which may be expected by experience for the intended voyage.

In relation to (a) above, it will be shown that shore planners who prepare container loading plans, do not possess sound practical knowledge of the application and content of the CSM; this is noted below by the P&I Club GARD.³ Reports by safety investigators following container stack collapses, also mention containers loaded contrary to the CSM. With regard to (b) above, if vessels' container securing systems could withstand the most severe weather conditions expected on voyages, then, provided containers were loaded in compliance with the CSM, container stacks should not collapse.

Containers loaded contrary to the CSM

The accepted practice is that container loading plans are prepared by shore planners using computerised loading programs and CSMs provided by shipowners. Shore planners are used because masters apparently do not have the time to prepare such plans. In 2016, GARD, described how shore planners, without knowledge of vessel stability, breached the CSM when preparing loading plans:⁴

As previously indicated, the CSM is valid only for certain GM values,⁵ which is problematic if the ship operates at a higher GM value. The following are typical examples which describe the problems and explain the need for lashing software.

The same CSM shows that in a certain bay on deck the containers can be stacked six tiers high, and that the tier weight from the base to the top is: 30 t, 20 t, 20 t, 15 t, 10 t, 7 t. The maximum stack weight is

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¹ World Shipping Council, 'Containers Lost at Sea' *World Shipping Council Containers Lost at Sea Report 2022 Update published* (Web Page, 22 June 2022) <<https://www.worldshipping.org/news/world-shipping-council-containers-lost-at-sea-report-2022-update-published>>.

² International Maritime Organisation, *Code of Safe Practice for Cargo Stowage and Securing (CSS Code)* (Web Page, 2019) <<https://www.imo.org/en/OurWork/Safety/Pages/CSS-Code.aspx>>.

³ Gard, *Gard launches new Guidance on Freight Containers* (Web Page, 4 March 2016) <<https://www.gard.no/web/updates/content/20929971/gard-launches-new-guidance-on-freight-containers>>.

⁴ *Ibid.*

⁵ GM of a vessel is an indicator of the static stability of a vessel; upon commencing a voyage, a vessel's GM must comply with the CSM

then 102 tonnes. However, containers are never loaded exactly as prescribed by the CSM. If, for example, the container in the bottom tier weighs 21 tonnes instead of 30 tonnes, the first instinctive reaction may be that the forces will be less than the example given in the CSM, and the stowage would therefore be safe. However, the opposite is the case as less weight in the bottom tier will create higher forces as the centre of gravity of the stack moves upwards.

Shipowners have been aware of container stack collapses since 2006, with a 3-year project into container lashing, involving 2 ships, *CMA-CGM Rigoletto* and *NYK Argus*. The project included Marin (a Dutch research institute), shipowners, class societies, technology companies and lashing manufacturers.⁶ The project involved crew from these vessels completing a questionnaire with their reasons for container stack collapses. About 25% percent of respondents stated that:

Vessels were regularly operated in conditions outside of those described in the CSM. Typically, the GM values were above the maximum evaluated in the CSM. When sailing in part loaded condition, this could not be avoided on many vessels.

Disappointingly, none of the recommendations proposed either, a computerised loading program to ensure loading plans complied with CSMs, or a safer container securing system. A second 3-year project into container stack collapses commenced in mid-2021 (**the 2021 Project**).⁷ It includes shipowners, P&I Clubs, class societies and industries associated with container shipping. However, its scope of work does not include the earlier-mentioned proposals.

Safety investigation reports following container stack collapses

Diligent shipowners who read the safety investigation reports following container stack collapses – extracts from three reports follow – would be aware that a principal cause of such collapses was loading plans not complying with the CSM.

The report by Maritime Authority Investigation Bureau (**MAIB**) into the loss of containers from *Ever Smart* on 30 October 2017, states:⁸

General (2.4.1)

Bay 70 was fully loaded nine tiers high with 151 x 40ft hi-cube containers. The total stack weights of the containers in all 17 rows of the stow were below the calculated limits; the weight in the starboard outer stack was just below 63t, which was 62% of the maximum permissible weight given in the CSM's stack weight tables for a GM of 0.7m. Nevertheless, anomalies were identified between the bay plan produced by the shore planners and approved by the ship's master, and the requirements set out in the CSM. Of note:

- The container weights in the upper tiers of the stow exceeded the recommended limits given in the CSM's stack weight table.
- Hi-cube containers were loaded eight high in the stow's outer stacks (*contrary to the CSM*)
- The ship's GM was above the indicative GMs provided for a fully loaded ship and that used to calculate the lashing requirements and stack weight limits for bay 70 when loaded nine tiers high with 151 containers. Therefore, the stowage plan did not comply with the requirements set out in the ship's CSM and almost certainly contributed to the stow collapse.

The report by the Australian Transport Safety Bureau (**ATSB**) into the loss of containers from *YM Efficiency* on 1 June 2018, states:⁹

There were significant deviations, particularly with respect to container weights and stack weights, tier heights, and other inconsistencies, as summarised below:

- the stowage arrangement exceeded the 7-tier limit specified (loaded to a height of 8 tiers)
- many stacks of 40-foot 'high cube' containers exceeded the maximum stack weights specified

⁶ Marin, *Lashings @ Sea* (Web Page, 2022) <<https://www.marin.nl/en/jips/lashing-at-sea>>.

⁷ Marin, *TopTier: Securing Container Safety* (Web Page, 2022) <<https://www.marin.nl/en/jips/top-tier>>.

⁸ Marine Accident Investigation Branch, 'Accident Investigation Report 14/2020' *Loss of cargo containers overboard from container ship Ever Smart* (Web Page, 22 July 2020) <<https://www.gov.uk/maib-reports/loss-of-cargo-containers-overboard-from-container-ship-ever-smart>>.

⁹ Australian Transport Safety Bureau, *Loss of containers overboard from YM Efficiency* (Final Report, 344-MO-2018-008, 13 February 2020) 43.

- many container weights exceeded the weights specified for individual slots
- there were many instances of heavy containers above lighter ones, contrary to principles of vertical distribution.

The preliminary report by ATSB into the loss of containers from *APL England* on 24 May 2020 states:¹⁰

However, in addition to this, examination of the stowage arrangement showed that the security of the stow above the container cell guides used in bay 62 was affected by the use of high cube (2.9m (9'6") high) as opposed to standard height (2.6 m (8'6")) containers.

This report references the earlier loss of containers from the same vessel on 18 August 2016:¹¹

At about 1500 (local time UTC + 8 hours) on 18 August 2016, while transiting the Great Australian Bight, *APL England* lost 37 containers overboard in rough seas.

The ATSB did not investigate the occurrence. The Australian Maritime Safety Authority conducted an investigation and concluded that:

- the vessel had a high metacentric height (GM) which may have contributed to generation of excessive dynamic forces leading to failure of container base sockets and collapse of the stow
- the topmost container tier in all rows of the collapsed bay was over the recommended weight although the stack weight in each row was not exceeded

Shipowners are required to know that Ch VI of the SOLAS Convention¹² places ultimate responsibility on masters, for the safe loading, stowing and securing of cargo/containers. In reality, masters receive loading plans perhaps a day, sometimes hours, before loading commences. This prevents masters, already overwhelmed by *officialesse*, from ensuring that loading plans comply with the CSMs. Moreover, commercial pressures, noted in the *Ever Smart* MAIB Report (para 2.6), would preclude the majority of masters from requiring amendments to non-complying plans:¹³

Regardless of the logistical and commercial challenges faced by the container shipping industry, the guidance provided in a ship's CSM and the warnings given by its loading computer should not be ignored. Ships' masters and C/Os might be able to identify and rectify isolated cargo stowage plan issues, but it is impractical to expect them to address large scale problems such as those identified in this report due to the potential commercial impact such interventions would have. The onus should be on the shore planners to deliver compliant and safe stowage plans.

The extract's last sentence about the *onus* for compliant and safe stowage plans to be placed on the shore planners, is contrary to a master's responsibility under SOLAS.

Solution to ensure computerised loading programs comply with the CSM

Containers could be loaded in compliance with the CSM if the computerised loading programs – used by shore planners *and* stevedores – were designed with fail-safe mechanisms. Using the GARD advice above as an example, the fail-safe mechanism would operate thus: if a container weighing 21 tonnes was allocated, by a planner, to a slot that had been designed by the CSM to take a container weighing 30 tonnes, the computer would reject the allocation. Fail-safe mechanisms are basic features of computer programs, achievable without sophisticated computer skills. Fail-safe mechanisms in computer loading programs used by shore planners *and* stevedores, would ensure that every loading plan, and every container loaded onto a vessel, by stevedores, complied with the CSM, ensuring masters' and shipowners' compliance with their obligations under SOLAS and the Hague/Hague-Visby rules.

Container stacks not secured to withstand severe weather conditions

¹⁰ Australian Transport Safety Bureau, *Loss of containers overboard involving APL England* (Preliminary Report, 351-MO-2020-002, 28 October 2020) 7.

¹¹ *Ibid* 9.

¹² *International Convention for the Safety of Life at Sea*, opened for signature 1 November 1974, 1184 UNTS 3 (entered into force 25 May 1980).

¹³ Marine Accident Investigation Branch, 'Accident Investigation Report 14/2020' *Loss of cargo containers overboard from container ship Ever Smart* (Web Page, 22 July 2020) <<https://www.gov.uk/maib-reports/loss-of-cargo-containers-overboard-from-container-ship-ever-smart>>.

The earlier-mentioned IMO Code requires the securing of cargo viz containers, to be ‘...based on the most severe weather conditions which may be expected by experience for the intended voyage’. A basic rule of securing cases of cargo similar in type and in the same location is to secure them as a *block unit*. If they were not secured as a *block unit* then, when the vessel rolled to port and starboard – the motion of a vessel most likely to cause improperly secured cargo to shift, break loose and get damaged – the individual cases would acquire a motion of their own, separate to the adjacent cases, and those individual motions would eventually de-stabilise all the individual cases, resulting in their collective collapse.

Container stacks could be considered as individual cases of cargo. They are vertical stacks of containers with the highest container currently about 12 high – comprising the 12th tier above the vessel’s deck or hatch cover. At the present time, containers that are stacked up to the 5th tier, generally, are secured with lashing bars connecting the bases of each tier of containers to securing points on the deck. It is my opinion, such containers can be considered as having been secured as *block units*. However, containers stacked above the 5th tier are not so secured. This is because securing would require lashing bars of greater length and weight – making them unsafe for handling by stevedores. Consequently, containers stowed between the 6th and the 12th tiers in container stacks, are not secured as *block units*. Although connectors are used to tie containers above the 5th tier to one another, the on-going collapse of container stacks speaks to their in-effectiveness.

Para 1.5.0 of the *Ever Smart* report notes the transverse accelerations experienced by containers in the upper tiers of a stack:¹⁴

The magnitude of the transverse accelerations experienced by containers stowed on deck at sea differs depending on their location within a bay and their fore and aft position within the ship. The greatest transverse accelerations are typically experienced by those stowed in the upper tiers of the outer stacks.

Because the container stacks are not secured as *block units*, then, when the vessel rolls, each stack in the higher tiers, develops its own synchronous movement that eventually affects, inter alia, the securings of the containers within the stack, causing the stacks to collapse. If the container stacks were secured as *block units*, they would be capable of resisting the vessel’s rolling. It is unfortunate that none of the investigation reports perused by the writer have considered whether the container securing systems accorded with the IMO Code and, if so, whether the stacks would have collapsed had the containers been loaded in compliance with the CSM.

Research into securing container stacks as block units

Shipowners should, as a matter of urgency, assemble a team of experts comprising P&I Clubs, class societies, hull and machinery underwriters, ports authorities, stevedores and manufacturers of containers/lashing equipment, to design a system that secures container stacks as *block units*. The experts may decide to design lashing bars with carbon fibre, (considered to be superior in terms of weight, tensile and shear properties), that would permit the use of longer, but lighter lashing bars; or employ drones to handle longer and heavier lashing bars, with or without AI (artificial intelligence); or a system that secured intermediate tiers between the 6th and 12th tiers. The probability that a safer securing system would delay a vessel’s schedule would not be acceptable, noting that a number of container ships have been slow steaming, resulting in extended schedules, since 2008.

It is inexcusable that, despite the availability of expertise, construction materials, technologies and artificial intelligence, shipowners have not taken measures to design a safer container securing system. As noted earlier, the 2021 Project is not tasked with designing a safer system for container loading plans and container securing systems.

Shipowners’ awareness of defects in container loading plans and container securing systems

The material provided above demonstrates that shipowners have been aware of the defects in their container loading plans and container securing systems *before, and at the commencement of the voyages* for a number of years. Shipowners who claim ignorance of the defects in question leave themselves open to criticism of wilful blindness, as articulated by Lord Denning MR in *The Eurysthenes*:¹⁵

¹⁴ Ibid.

¹⁵ *Compania Maritima San Basilio SA v Oceanus Mutual Underwriting Association (Bermuda) Ltd (The Eurysthenes)* [1977] QB 49, 68 (Lord Denning).

If a man suspicious of the truth, turns a blind eye to it, and refrains from enquiry — so that he should not know it for certain — then he is to be regarded as knowing the truth. The ‘turning a blind eye’ is far more blameworthy than mere negligence.

And Lord Roskill LJ in the same case:¹⁶

If the facts amounting to unseaworthiness are there staring the assured in the face so that he must, had he thought of it, have realised their implication upon the unseaworthiness of his ship, he cannot escape from being held privy to that unseaworthiness by blindly or blandly ignoring those facts or by refraining from asking relevant questions regarding them in the hope that by his lack of inquiry he will not know for certain that which any inquiry must have made plain beyond possibility of doubt.

Seaworthiness of vessel at beginning of voyage

In a situation where a vessel’s container stacks collapse in heavy weather, and the investigation reveals that the vessel commenced its voyage with either one of the two known defects in question, a court could decide that the vessel was unseaworthy at the beginning of its voyage. Such a decision would be similar to the United Kingdom Supreme Court’s unanimous decision in the *CMA CGM Libra*.¹⁷ This vessel was found to have been unseaworthy at the beginning of its voyage on 17 May 2011, from Xiamen, China, because its passage plan was defective at this time. The court agreed with the trial judge’s decision and held that the vessel’s owners had breached their obligations under the Hague Rules 1924, Article 3 rule 1:

1. The carrier shall be bound before and at the beginning of the voyage to exercise due diligence to:
 - a. Make the ship seaworthy
 - b. ...
 - c. Make the ... parts of the ship in which goods are carried fit and safe for their reception, carriage and preservation.

The trial judge found¹⁸ that the shipowner had failed the *prudent owner* test articulated by T Carver in *Carver’s Carriage by Sea*, and quoted with approval by Channell J in *McFadden v Blue Star Line*:¹⁹

A vessel must have that degree of fitness which an ordinary careful and prudent owner would require his vessel to have at the commencement of her voyage having regard to all the probable circumstances of it... Would a prudent owner have required that it (i.e. the defect) should be made good before sending his ship to sea, had he known of it? If he would, the ship was not seaworthy...

In terms of unseaworthiness,²⁰ the Court noted:

Given the judge’s findings as to the importance of passage planning to the safe navigation of the vessel there can be no doubt that this was an appropriate case for the judge to apply the prudent owner test of unseaworthiness.

In terms of the shipowner’s failure to exercise due diligence,²¹ the Supreme Court noted:

For all these reasons in agreement with the judge and the Court of Appeal, I would reject the owner’s novel and unsound case on due diligence. The carrier cannot escape from its responsibilities under Article III rule 1 of the Hague Rules, by delegating them to its servants or agents *qua* navigators, or *qua* managers, or *qua* engineers or *qua* ship repairers. If the task of making the vessel seaworthy had been entrusted by the carrier to those servants or agents then (if relevant) they are acting *qua* carriers and under Article III rule 1 of the Hague Rules the carrier is responsible for any causative failure by them to exercise due diligence.

¹⁶ Ibid 76 (Roskill LJ).

¹⁷ *Alize 1954 and another (Appellants) v Allianz Elementar Versicherungs AG and others* [2021] UKSC 51 (‘*Alize 1954*’).

¹⁸ [2019] 2 All ER (Comm) 679, [78] (Teare J).

¹⁹ *McFadden v Blue Star Line* [1905] 1 KB 697, 706.

²⁰ *Alize 1954* (n 17) [128].

²¹ Ibid [144].

The following extracts are from the *Conclusion* of the Supreme Court decision:²²

- (vi) Given the “essential importance” of passage planning for the “safety ... of navigation”, applying the prudent owner test, a vessel is likely to be unseaworthy if she begins her voyage without a passage plan or if she does so with a defective passage plan which endangers the safety of the vessel.
- (x) The carrier is liable for a failure to exercise due diligence by the master and deck officers of his vessel in the preparation of a passage plan for the vessel’s voyage. The fact that navigation is the responsibility of the master and involves the exercise by the master and deck officers of their specialist skill and judgment makes no difference.

The decision was that the vessel was unseaworthy at the beginning of its voyage because its passage plan was defective at that time; and the defective plan endangered the safety of the vessel. The defect was the failure to mark, on the passage plan and the working chart – as required by the *Guidelines for Voyage Planning* – the shallow water areas *outside* the dredged channel. Shortly after the *CMA CGM Libra* dropped its pilot outbound from Xiamen, the master navigated the vessel outside the dredged channel, at a speed of about 11 knots for about 3 minutes, resulting in the vessel grounding in shallow water outside the channel. The master explained that, if the shallow water areas outside the dredged channel had been marked on the working chart, he would not have left the dredged channel. The fact that the owner had provided the vessel with the wherewithal to prepare a compliant passage plan, did not absolve the shipowner from the master’s actions or from finding the vessel to have been unseaworthy at the beginning of its voyage.

If a vessel’s container stacks collapsed and the safety investigation showed that the vessel’s loading plan did not comply with the vessel’s CSM, a court could decide, in a manner similar to the *CMA CGM Libra* decision, that, given the importance of the loading plan for the safety of the containers/cargo, then, applying the prudent owner test, the vessel was likely to be unseaworthy at the beginning of its voyage, because the defective loading plan endangered the safety of the containers. The shipowner would have also breached Article 3 Rule 1 of the Hague Rules, because they had failed to exercise due diligence to make the vessel seaworthy viz making it fit and safe to carry and preserve the containers. However, there is a crucial point of difference between the defective passage plan and the defective loading plan: in the case of the *CMA CGM Libra*’s passage plan, the shipowner claimed to have no knowledge that the master had prepared a defective passage plan. However, the lack of knowledge did not act as a bar to finding the vessel unseaworthy. Had the shipowner been aware of the defective passage plan, then, as a prudent owner, they would have required the passage plan to be proper in all respects before the vessel began its voyage. With regard to the defective loading plan, the shipowner could not plead ignorance because, as mentioned earlier, shipowners have long been aware of such defective plans.

Shipowners’ possible defence of industry practice

An ambitious shipowner may raise the defence of *industry practice* in terms of (i) the loading plan being prepared by shore planners for the majority, if not all, shipowners; and (ii) the existing container securing system failing to comply with the earlier-mentioned IMO Code. Courts have been known to disregard industry practices holding that they – the courts – are the ultimate arbiters of what is required by the law. In the US case *The TJ HOOPER*,²³ the court was required to consider whether the owner of tugs towing coal-laden barges, should have provided radio receiving sets to the tugs’ masters that would have provided early warning of a storm, enabling them to seek shelter and prevent the eventual sinking of both barges. The tug owner followed *industry practice* that did not require owners to supply radio sets to their tugs; and the law did not mandate such supply. Justice Learned Hand, delivered judgement for his two fellow judges and rejected this industry practice:²⁴

They can have at hand protection against dangers of which they can learn in no other way. Is it then a final answer that the business had not yet generally adopted receiving sets? There are, no doubt, cases where courts seem to make the general practice of the calling the standard of proper diligence; we have indeed given some currency to the notion ourselves. ... Indeed in most cases reasonable prudence is in fact common prudence; but strictly it is never its measure; a whole calling may have unduly lagged in the adoption of new and available devices. It never may set its own tests, however persuasive be its

²² Ibid [145].

²³ *The TJ HOOPER* 60 F. 2d 737 (1932).

²⁴ Ibid.

usages. Courts must in the end say what is required; there are precautions so imperative that even their universal disregard will not excuse their omission.

The High Court of Australia, in *Rogers v Whitaker*,²⁵ considered whether the ophthalmologist, Dr Rogers, before operating on Mrs Whitaker's right eye, ought to have informed her that she could develop sympathetic ophthalmia in her good left eye post operation that could result in the loss of sight in that left eye; and obtained her informed consent to the operation. He did not so inform her and, post-operation, she lost her sight in her previously good left eye. Dr Rogers relied upon the *Bolam* principle as his defence in not so advising her:²⁶

The Bolam principle may be formulated as a rule that a doctor is not negligent if he acts in accordance with a practice accepted at the time as proper by a responsible body of medical opinion even though other doctors adopt a different practice. In short, the law imposes the duty of care: but the standard of care is a matter of medical judgment.

Put simply, the principle is: if a doctor follows a practice that is accepted as proper by a responsible body of medical opinion, then, even if the practice results in injury to a patient, the doctor cannot be considered to have been negligent. The Court referred with approval to the decision of King CJ, regarding a woman who became pregnant after a failed tubal ligation in *F v R*.²⁷

The ultimate question, however, is not whether the defendant's conduct accords with the practices of his profession or some part of it, but whether it conforms to the standard of reasonable care demanded by the law. That is a question for the court and the duty of deciding it cannot be delegated to any profession or group in the community.

In rejecting Dr Rogers' defence that his failure to advise Mrs Whitaker was consistent with the standard practice of a majority of his profession, the Court relied upon King CJ's remarks in *F v R* viz that it was for the court to decide whether the conduct conformed to the standard of reasonable care demanded by the law; such standard was not the duty of a profession or group in the community.

Cost-benefit analysis to rectify the two known defects

The most effective manner in which to understand the cost-benefit of rectifying the two defects is by treating the costs associated with collapsed containers as two discrete components: first, the cost of, inter alia, cargo; replacement containers; discharge and reload operations; extended port stays; intermediate ports and transshipment; delayed schedules; restoration of coastal works and tourist beaches. These costs would run into the hundreds of millions of dollars. Secondly, the cost associated with container retrieval from Australian coastal waters. AMSA was reimbursed about A\$18M (US\$13M – *YM Efficiency*) and about A\$22M (US\$16M – *APL England*). Using the lower US\$13M cost as a guide, a reasonable person would agree that the rectification cost would be a fraction of US\$13M. But here's the conundrum: on the one hand, shipowners willingly incur costs in the hundreds of millions of dollars, arising from container stack collapses since 2006; but on the other hand, in their *Grounds for Application to Intervene* in the matter of the *CMA CGM Libra*,²⁸ the International Group of P&I Clubs (who represent major shipowners), noted that, since the Admiralty Court decision relating to the vessel in March 2019, claims received by shipowners concerning passage planning were estimated at US\$116M:

26. These are matters of real financial importance. It is estimated that the total value of claims concerning passage planning that have been received by member clubs since the decision of the Admiralty Court in this case is in excess of US\$116 million.

Conclusion

Shipowners are operating their vessels with the two known defects, despite the costs associated with container stack collapses running in the hundreds of millions of dollars. Their willingness to accept such costs does not sit well with their concerns about the claims associated with passage planning, because those claims are a one-off and modest in value. The lack of action by shipowners to eliminate the defects in question, does little to debunk the notion that shipowners treat the cost of container collapses as inherent in operating container vessels.

²⁵ *Rogers v Whitaker* (1992) 175 CLR 479.

²⁶ *Ibid* [7].

²⁷ *F v R* (1983) 33 SASR 189, 194.

²⁸ Document provided by Jai Sharma, Head of Cargo Casualty, Clyde & Co LLC, UK.