Steamship Mutual

Safe Loading and Carriage of Containers
(on vessels other than purpose-built container ships)

Introduction

The Club has recently received a number of enquiries concerning the carriage of containers on vessels not primarily designed to carry containers on deck and/or inside cargo holds, such as bulk carriers and general cargo vessels. The Club is aware of at least one instance where carriage of containers in this manner on a bulk carrier has resulted in a container stack collapse within the hold, necessitating a return to port in order to restow the containers.

This note is intended to provide guidance concerning the risks presented by such operations and to draw attention to the need to ensure that a ship is suitable for the safe loading, carriage and discharge of the cargo and is equipped with the appropriate means of securing such cargo. The note identifies some of the primary information gathering and reporting necessary for considering such activities, along with other considerations of due diligence and risk assessment to mitigate and minimise the potential risks.

It should also be noted that the carriage of containerised cargoes on vessels that are not specifically designed for that purpose may well constitute a material change of risk within the meaning of Rule 6 v. It is therefore important that the Managers are notified in advance of such operations being undertaken in order to reduce the potential for Club cover to be prejudiced.

Background

As highlighted in Risk Alert RA 74 – Containerised Cargo – Stowage and Securing, container stack collapse and the consequential collateral damages to people, environment and property are not uncommon, even in vessels specifically designed to carry containers.

For vessels not designed, strengthened, and equipped for the safe carriage of containers, the challenges can be greater, with consideration in regard to retrofitting and/or modifications being required to meet the requirements for safe carriage of containerised cargo.

Guidance and Reporting requirements

Members should evaluate if the vessel and stowage locations intended for the carriage of containerised cargo have the required structural strength and can be adequately adapted for safe carriage of the cargo.

Below are some key aspects for consideration when conducting the primary and any subsequent assessments to ascertain vessel suitability for the carriage of proposed containerised cargo

Primary information

1. Class approved stowage and securing plan / Cargo Securing Manual (CSM) incorporating detailed guidance/plans for locations of stowage, types of approved securing equipment to be utilised and the manner of securing.

2. Flag verification of compliance with Navigation Bridge Visibility / SOLAS Ch. V Reg. 22, Vertical and Horizontal sectors of navigational lights (COLREG 72, Annex I/9 and Annex I/10)

3. Verify that carriage, stowage and securing of containers is in compliance with the appropriate sections of the “Code of Safe Practice for Cargo Stowage and Securing” (CSS code) such as Annex I (Safe stowage and securing of containers on deck of ships which are not specially designed and fitted for the purpose of carrying containers) Where ships are not specifically designed and fitted for the carriage of containers on deck, the bills of lading for such cargoes should be appropriately claused to reflect the requirements of proviso (x) to Rule 25 viii.

4. Details of cargo plan including location, types (Reefer, Dangerous goods, etc) and number of containers intended to load. Confirm stowage locations approved and suitable for the type of cargo container intended. For example:
    a. Verify stowage and segregation as per Document of Compliance for Carriage of Dangerous Goods certificate (SOLAS Ch. II-2 Reg. 19)
    b. Confirm Power supply arrangements for reefer containers.

5. Verify adequate inventory of certified and inspected cargo securing gear of appropriate MSL available in good condition

6. Lashing equipment and fittings appropriate to the intended use, with safe access for regular tensioning throughout intended voyage.

7. Where dunnage is utilised:
    a. Suitable to prevent sliding and movement of containers.
    b. Suitable for load distribution / spreading.
    c. Appropriate dimensions, to avoid susceptibility to compression with potential resultant slackening of lashings.

8. If temporary fittings are proposed to be installed/welded, ascertain details of their strength in relation to stowage and securing arrangements.

9. Consideration for Class approved welders to undertake welding work

10. Is the Loading computer approved and suitable to undertake the stability and lashing (securing) calculations for the cargo intended? If no, are class approved arrangements in place to verify the stability and lashing (securing) calculations.

11. Consider engaging an independent Marine Warranty Surveyor (MWS) for verifying and advising on acceptability of the stowage and securing plan and implementation of actual cargo loading and sea fastening/ securing.

Additional considerations:

In addition to the above, Members should also consider the points below and have appropriate measures in place.

1. Actual implementation of the stowage and securing plan (not limited to the below aspects)
    a. weight distribution (avoid heavy over light)
    b. stack height and stack weight permissible
    c. use of stackers, twistlocks or similar devices, in addition to the lashings, for the intermediate tiers (prevent movement/sliding of boxes in intermediate and top tiers)
    d. use of base-locks or similar devices (to prevent movement/sliding of boxes of the bottom tier)
    e. use of bridge fittings or similar measures
    f. height of the stack and clearance from hatch cover/tween deck pontoon to:
        i. Avoid contact damage when opening closing hatch covers/tween deck pontoons
        ii. Avoid contact damage due cargo movement in adverse environmental conditions

g. correct number and application of lashings per lashing ring/pad eyes or similar to prevent overloading of lashing components

2. Weather and routeing to avoid adverse environmental conditions

3. Freeboard and exposure of deck cargo to seas on deck and other environmental conditions such as wind and ice accretion

4. Effects of vessels metacentric height (GM) and vessels motions on securing of the cargo and hatch covers/tween deck pontoons,

5. Effects of ship's motions on containers themselves (such as lift-off, racking stresses)

6. Safe access to cargo:
    a. for monitoring and managing securing arrangements during loading and discharging, including fitting of twistlocks
    b. can the discharge port accommodate and handle container discharge from a non-dedicated container carrying vessel
    c. during voyage to check and adjust lashings etc with consideration to route, weather etc
    d. for atmosphere check, illumination, ventilation of the under deck spaces.

7. Care of cargo and any specialised requirements such as for reefers, OOG (out of gauge) cargo, dangerous goods cargo among others

8. Structural strength - maximum load, maximum tier weight and point loads on the hatch cover, decks, tank-top etc

9. Provision for dovetail sockets or other similar cargo securing arrangements?

There should be compliance with applicable international and local regulations, laws, and industry best practices. Members may also need to carry out appropriate risk assessments, implement procedures, and conduct staff training where necessary.

Suggested references

- Safety of Life at Sea (SOLAS) Convention
- International Convention for Safe Containers (CSC)
- Code of Practice for the Packing of Cargo Transport Units (CTU Code)

On SIMSL website:

- Containerised Cargo; Claims Prevention Guidelines
- Containerised Cargo - Stowage and Securing
- An Investigation of Head-Sea Parametric Rolling and its Influence on Container Lashing Systems (William N. France, Marc Levadou, Thomas W. Treakle, J. Randolph Paulling, R. Keith Michel, and Colin Moore - SNAME Annual Meeting 2001 Presentation)
- Sea Venture - Issue 2 - Cargo Securing Manuals

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