

'Paper' shortages: causes and preventive measures



Akshat Arora
Marine Surveyor
+65 6506 2809
akshat.arora@ctplc.com

The occurrence of in-transit cargo losses is not uncommon. In the case of cargo shipped in bulk, the cargo shortage could be either 'real/actual' or what is widely referred to in the trade as a 'paper' shortage. This article looks at ways to minimise the latter.

Actual loss versus a paper shortage

Common causes of a **real or actual** loss of cargo include the following:

- Inherent vice of the cargo, for example, reduction in weight of the cargo during carriage due to condensation, evaporation or shrinkage.
- External factors, for example, leakages from grabs, windage¹, sweepings², admixture³ or theft.

A '**paper**' shortage, on the other hand, arises from inaccuracies in measurements, differing methods of measurement and/or miscalculations in the quantity of cargo. This article explains how a paper shortage might occur and suggests preventive measures to avoid such occurrences.

The following hypothetical case study is illustrative.

Case study

The *Clash*, a bulker, is fixed for a voyage to carry a cargo of fertiliser in bulk from China to India. According to the draught survey at the load port, and the bill of lading issued, total cargo loaded is 78,400mt.

The results of the joint discharge survey, which is undertaken by the Master, receivers and port-appointed surveyors, are as follows:

- The amount of cargo discharged according to the ship's final draught survey is 78,420mt.
- The amount of cargo discharged according to shore-side figures is 78,065mt.
- There is, therefore, an apparent cargo shortage of 335mt. (equivalent to 0.4%) if you look at the shore-side figures.

The *Clash* subsequently receives a cargo shortage claim in the amount of \$100,000 from cargo interests. In its defence, ship's interests contend that the claim is a paper shortage, as opposed to an actual/real shortage. The following points are raised in negotiations with cargo interests.

Analysis

Measurement errors in draught surveys

The ship's interests contend that the draught readings taken at the load and discharge ports, which formed the basis for calculating the quantity of cargo loaded and discharged, are accurate and were recorded in accordance with standard operating procedures.

1 Windage is the amount of dust-like particles (chaff) that is blown out of the cargo during loading or discharging.

2 Sweeping is the cargo collected after the cargo operations. It should be delivered to receivers over the weighing system.

3 Admixture is mixing of different cargoes or different grades of the same cargo due to inadequate separation between them.

Accordingly, they maintain that the draught survey results should be relied upon to show that there is, in fact, no cargo shortage.

It is significant that, in this example, a misreading of draught by about 4cm could potentially result in a miscalculation of total quantity of cargo on board by about 300mt.

With this in mind, it is vital that draught surveys are done according to best practice to ensure accurate readings:

- During the draught survey, the ship should remain as upright as possible when readings are taken at six different locations along the ship; her trim⁴ should not exceed her maximum⁵; and the water density should be accurately measured by means of a certified hydrometer. Allowances also ought to be made for hogging and sagging.
- We recommend that the draught survey report accurately records the prevailing conditions of sea and swell, which could impact upon the readings.

- Ideally, where the discharge port is notorious for spurious cargo shortage claims, we further recommend that the member carries out joint draught surveys with charterers and shippers/ receivers at both ends (load and discharge) with full supervision of the crew.

- In the case of the discharge surveys, the surveyor representing the owner/member should be in attendance before the hatches are opened.

Different cargo calculation methods at load and discharge ports

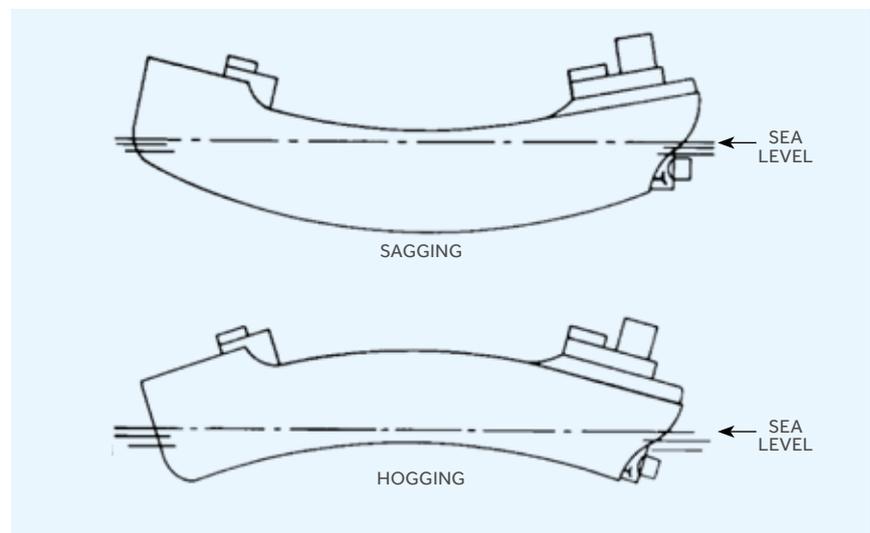
A second possible cause for the apparent difference in cargo volume is the fact that, whilst the ship relies upon the draught surveys to calculate the cargo loaded and discharged, cargo interests rely upon the readings of the weighbridges⁶ at the discharge port to derive the landed cargo figures.

Occasionally, the shippers and/or customs authorities insist that the bill of lading and mate's receipt be issued based on the shore figures (rather than the ship's figures). This is to be resisted

4 Trim is the difference between the ship's forward and aft draughts.

5 As provided in the ship's stability book and ballast sounding tables

6 Other shore-based methods of calculating quantity of cargo loaded or discharged include silo scales and belt scales





and, ideally, the terms of carriage (applicable charterparty) should provide that the method of cargo measurement at the load and discharge ports be the same, in order to remove any potential variances caused by different methods of measurement.

In this case, the owners challenge the cargo interests to provide the shore scales calibration certificates, which would evidence the shore scale's accuracy. Additionally, the meticulous draught readings serve as vital evidence to resist the shortage claims.

Incorrect value of 'constant' applied

A ship's 'constant' is the difference between her designed lightship displacement⁷ and her actual displacement when empty. The constant varies over the life of the ship. Some causes that lead to a change in ship's constant include accumulation of sludge or mud inside the tanks and changes in her lightship displacement following repairs or modifications to her hull. In calculating the amount of cargo loaded, the constant is taken into account.

If an inaccurate constant is applied to the calculations, the amount of cargo calculated will also be inaccurate. Preventive measures to ensure that the correct constant is applied include measuring the initial draught survey at the load port when the ship is empty or comparing it with the readings from the previous three to five voyages to ensure that the correct constant figure is applied for the duration of the ship's stay in port.

In this case study, the owner had to concede liability because there were substantial inaccuracies in the value of the constant applied, which is unusual. Accordingly, the inaccuracy of the constant calculation affected the reliability of the ship's draught surveys and, ultimately, her calculation of the cargo discharged.

In the final analysis, the shipper's shore scales were considered to be more reliable and the cargo interests succeeded on the shortage claims.

Preventive measures

To avoid cargo claims for paper shortages, we recommend the following preventive measures:

- i) Determine and ensure that the ship's correct constant is applied in calculating the cargo loaded and discharged.
- ii) Ensure accurate readings are taken of the ship's draught at both load and discharge ports, and retain complete records of the procedure followed during the surveys.
- iii) If necessary, appoint an independent surveyor of repute at both ends to conduct the draught surveys.
- iv) Unless agreed otherwise, ensure that the hatches are sealed in the presence of the surveyor prior to leaving the load port. The seal must be kept intact during the voyage and should be opened at discharge port only after the joint draught survey.
- v) If the carrier has sufficient bargaining strength, it may consider clausing the bill of lading with 'weight and quantity unknown' or 'said to contain' which could (depending on the local law of the bill) reduce the *prima facie* evidential value as to the statement of quantity on the bill of lading and may thereby afford some further protection to the carrier in some jurisdictions.
- vi) The carrier may also consider including an express customary trade allowance clause in the charterparty and the bills of lading to allow for cargo deviation of +/- 0.5%. Again, whether this is possible will ultimately depend upon the carrier's bargaining strength in the given market/trade.

⁷ Lightship displacement is the weight of the ship excluding cargo, fuel, water, ballast, stores, passengers, crew, but with water in boilers to steaming level