

UK P&I CLUB



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HELLAS HIGHLIGHTS

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MANAGED
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HIGHLIGHTS

WELCOME

Καλά Χριστούγεννα και Ευτυχισμένο το Νέο Έτος

We are approaching the end of yet another year, one that has brought all of us many challenges and changes. Market conditions, particularly on the dry side, are far from easy and we can only hope that 2016 brings some more encouraging signs.

For H1 we have said goodbye to a number of colleagues this year. Nick Milner returned to London to head up Syndicate LS2. Ernie Foster retired at the end of September, having worked in the industry for 43 years. We have been joined by Mark Beare, who some of you may already have met. Mark began his career having spent six years at sea, becoming second navigational officer. After this time, he qualified as an English solicitor working for another P&I Club, before joining a London law firm. He joined us in September. We are also in the process of recruiting an experienced personal injury executive to work alongside Van and Eleni Nomikos. More news on this shortly.

I hope that you find the articles in this edition of HiLights interesting and informative. If you think there are other areas we should focus upon please do not hesitate to let me know.

At this time, I would like to wish you all the best for the festive season.

Daniel Evans

Regional Director
and Club Manager

Hilights is a periodical newsletter from the Thomas Miller Hellas Team.

It covers the latest news and events from the region as well as topical issues affecting our Members.

If you have any suggestions for future issues, please send your comments and ideas to Efcharis Rocanas at efcharis.rocanas@thomasmiller.com

CARGO WETTING DAMAGE AND THE EXERCISE OF DUE DILIGENCE

Members continue to experience high value cargo damage claims relating to ingress of water into cargo holds. UK Club risk assessor, David Nichol, examines the problem and highlights how Members can improve on-board loss prevention measures to prevent claims.

The most important element of a ship's seaworthiness is its ability to resist the ingress of sea water into internal spaces. This is quite easily achieved on tankers with their relatively high degree of subdivision and small openings in the tank deck. However, dry cargo vessels need large openings on the main deck to allow for the efficient handling of cargo during loading and discharge operations, closed by correspondingly large cargo hold hatch covers. These hatch covers need to be properly secured and sealed to prevent water ingress into the holds, both to preserve the vessel's watertight integrity and to prevent damage to water sensitive cargo.

Cargoes may be damaged by seawater ingress in a number of ways, for example, oxidation and corrosion of metal products, spoiling and mould damage to organic cargoes, caking and/or liquefaction of minerals or cargoes that require to be maintained dry or free flowing to remain safe and/or merchantable and damage to high value manufactured goods. Some cargoes may also be

dangerously reactive with water or will with the addition of water produce highly acidic chemicals which may attack the steel structure of the cargo hold.

When the Club started in depth analysis of claims more than 25 years ago, cargo wetting damage claims were very common. Over the years, progressive improvements in equipment design, vessel maintenance programmes and raised commercial expectations have had the effect of significantly reducing the frequency of this type of claim. The loss of time, money and increased insurance premiums arising from incidents of cargo wetting damage has also focused minds on improving loss prevention measures and raising awareness of both vessel and shore personnel to good practice in this area. However, the continuing occurrence of expensive cargo wetting damage claims shows that there is no room for complacency in ensuring that the required work and resources are put into proper maintenance and checking of cargo related fittings and equipment.

Although there are varying designs of cargo hold hatch covers, whether they are hinged panels, side rolling or stacking, the principles of good maintenance and preparation are broadly applicable to all types.

Cargo hold hatch cover maintenance

Cargo hold hatch covers are required to be maintained in accordance with the manufacturer's instructions and recommendations, which should be fully incorporated into the ship's planned maintenance system (PMS). The importance of this cannot be over emphasised. Failure to maintain cargo related equipment could render the vessel unseaworthy. This also extends to providing the correct patent spare parts as well as ensuring that any contractors engaged to perform repairs are properly qualified to do the work.

The following points are highlighted as requiring particular attention:

- Steel work. All structures and fittings should be kept corrosion free and well coated. Some areas can be difficult to access by the crew for maintenance, particularly the undersides of panels and cross joint areas of hatch cover panels, in which case the opportunity should be taken during scheduled repair periods to provide better and safe access for maintenance as required.
- Panel seals should be complete, pliable and without excessive deformation or grooving. Where a section of rubber is found to be deficient, the whole panel strip should preferably be replaced. Small piecemeal repairs to damaged sections should be avoided as this may create local uneven compression. It is particularly important that the manufacturers recommended sealing rubber is fitted, including shaped sections for corner pieces. The use of cheaper, inferior products which are widely available on the market have been known to result in claims.
- The steel retaining channels into which the sealing rubbers are fitted are often neglected, again due to problems of inaccessibility. Corrosion scale build up in the channels will cause deformation and displacement of seals.
- If hatch cover panels are not properly aligned with each other and/or the hatch coamings, the sealing arrangement will be compromised. As hatch covers age, wear and tear of hinges and other working parts can result in excessive tolerances, causing misalignment of panels and lack of compression between seals and compression bars. Panel hinge and pivot bearings must be periodically checked for excessive wear and pins/bushes replaced as required. This is a problem which may not be readily apparent during on-board visual inspections. Look out in particular for off-centre imprints between seals and compression surfaces and/or evidence of uneven compression. Misalignment may also occur if structural repairs to coamings and panels are not properly performed.
- Bearing pads on both coamings and corresponding panels are designed to bear the weight of the hatch covers (and any cargo which may be loaded on top) and to provide the correct spacing between panels and coamings. It is therefore important that these fittings are kept clean, corrosion free and periodically checked to ensure that the designed dimensions of the pads are maintained. Corrosion build up on the pads can cause raised clearances between panels and coamings, reducing seal compression. Alternatively, excessive wear down may cause structural damage to other hatch cover components and over compression of sealing rubbers.
- Hatch coaming face plates, compression bars and drainage channels should be clean and free of physical damage and corrosion. Hatch coaming drains at the corners of the coamings are there to remove any water that may pass through the sealing arrangement but may easily become unobstructed with scale or cargo residue. The patent non-return valves for the drains should also be routinely checked for proper function.
- Hatch cover panel securing arrangements come in a very wide range of designs. However, whether automated or manually operated, they must be complete, properly adjusted and lubricated. Excessive over tightening of manual cleats should not be done in the misguided belief that this will improve the tightness of the seal. It is more likely to result in damage to the cleat or panel fittings. Automated claw or wedge type securing arrangements are particularly susceptible to wear and tear and must be checked for any excessive clearances between the panel/coaming engaging components.

As a general rule, if any leak exceeds 10% of the OHV, the hatch covers are not considered weathertight in that location.



Checking and testing cargo hold hatch covers

Thorough checks and tests of the cargo hold hatch covers and other hold openings should be performed prior to each laden voyage. Detailed and well organised records of checks and tests may also demonstrate that due diligence was exercised to make the vessel seaworthy at the commencement of the voyage in the event of a claim. The use of vessel specific checklists including all relevant components will aid vessels' officers in carrying out this task.

There are a number of established methods for checking the weather tightness of cargo hold hatch covers. Still the most common method used on-board ship is the hose test, where a pressurised jet of water is directed around the external hatch cover joints and a check is made within the hold for any leaks. Although hose testing has the advantage of not requiring any special equipment, it is time consuming, labour intensive and will not always provide an accurate indication of the location or severity of a leak. It does however remain a useful routine check in the absence of more sophisticated methods.

A more comprehensive method of leak detection is to use ultrasonic equipment. The principle of operation is based upon the fact that ultrasound waves (beyond the range of human hearing) can be precisely measured and

are more directional than lower frequency sound, making it easier to pinpoint the source even in the presence of background noise. Although there are a number of different manufacturers, the equipment consists of an ultrasound transmitter which is placed within the hold and a hand held receiver which converts the received signal into an audible frequency and a digital display showing the strength of the signal. For each cargo hold, the operator will record an "open hatch value" ("OHV") and after all hatch covers and other accesses are closed and secured, all hatch cover joints are checked for the location and strength of any leaks. As a general rule, if any leak exceeds 10% of the OHV, the hatch covers are not considered weathertight in that location. The opportunity should also be taken to check the sealing efficiency of hold ventilators and access hatches. Whilst this equipment is a great advance on the traditional hose test, the best equipment is not cheap to purchase and maintain and operators are required to be properly trained in its use. However, this is an investment which may be favourably weighed against the potential high costs of cargo wetting damage claims.

Cargo hold checks and tests

Leakage through cargo hold hatch covers is not the only potential source of water ingress into cargo holds. Flooding of cargo holds through cargo hold bilges and



leaks from hold boundaries or pipework is also a common cause of high value claims. It is therefore equally important that thorough periodic and pre-voyage cargo worthiness checks are made of hold structures and fittings.

Preventing corrosion and maintaining paint coatings of hold structures is the first line of defence. Tank tops, ballast tank boundaries and pipework are also susceptible to damage when grabs and bulldozers are used to load or discharge cargo and should be carefully checked after completion of discharge for significant indents and fractures. Ballast and fuel tank lids must be fully secured and tight. Although it is good practice to fit protective covers over bolted tank lids, the practice of cementing over lid recesses may lead to neglect and wastage of these fittings.

Exposed pipework should be fitted with protective guards or covers and securing clamps complete. Every opportunity should also be taken to inspect difficult to access pipework in the upper hold areas at, and between, scheduled dry-dockings. However, even well maintained pipework may become holed or fractured due to impact or vibration, and it is therefore important that thorough checks are routinely made of these fittings. Pipework which should be inspected includes ballast

and bunker tank air vent pipes, tank sounding pipes, draught gauge pipes, fire mains, scuppers and top side tank drain pipelines. Particular attention should be paid to locations of coating breakdown, corrosion and obscured sections of pipe on the blind side adjacent to bulkheads or behind pipe protective covers. Any signs of heavy scoring, deformation or indentation of the pipes or guards should be investigated to check whether the integrity of the pipe has been compromised.

The integrity of ballast tank boundaries and pipework should be verified by carrying out hydrostatic tests, whereby the tanks and pipes are completely filled and a check made for leaks. It is also good practice to confirm the wall thickness of pipework when periodic ultrasonic measurements are performed.

Pre-loading checks should also include testing the efficiency of the cargo hold bilge pumping system and confirming that the non-return valves in the system are functioning properly to prevent any back flow of water entering the holds. The non-return valves, whether located in the engine room or the bilge wells, are particularly susceptible to being obstructed by cargo residues and scale. Proper maintenance of cargo hold bilge pipelines passing through double bottom tanks will also reduce the probability of a water back flow incident.



STS CARGO TRANSFERS & VEF

Senior Claims Executives Christos Aporellis and Alec Kyrle-Pope examine whether vessels should apply their respective Vessel Experience Factor when assessing how much cargo has been transferred & received in ship to ship transfer to avoid cargo claims.

In various tanker trades, both dirty and clean, it is commonplace for vessels to load and discharge cargo via Ship-to-Ship (STS) transfer. These types of arrangements are nothing new to Owners, crews or vessel operators and whether by virtue of express charter party provisions or in accordance with best practice industry guidelines, the mechanics of such operations are often clearly defined and understood by all parties.

However, there is one aspect of STS cargo transfers is not so clear-cut; should either or both vessels apply their respective Vessel Experience Factor (VEF) when assessing how much cargo has been transferred and received between the two?

Quantity & Condition

Just as with many other segments of the shipping industry, in the oil trade, cargo claims can often be divided into two broad categories; those relating to quantity of cargo as delivered and those concerned with the condition of the cargo as received.

In the main, cargo shortage claims on outturn tend to be the greatest source of issue but many of these, if not the vast majority, can frequently be explained because of a “paper” loss rather than an actual physical disappearance of product. This is not to say that oil cargoes, particularly unrefined crude, do not change volume (due to temperature) or emit gases on route nor are they any less susceptible to factors such as “clingage” or unpumpable Remain On Board (ROB), but the point remains that most major inconsistencies arise due to errors in cargo accounting.

Whilst the carrier may be exposed to the risk of cargo loss during ⁽ⁱ⁾ loading, ⁽ⁱⁱⁱ⁾ transit, ⁽ⁱⁱⁱ⁾ discharge, and ^(iv) subsequently (OBQ/ROB losses) it would seem self-evident it is at loading and when the vessel receives her intended cargo that any margin for error remains within the carrier’s control. This is where careful measurement becomes key.

Pump up the volume

The movement of oil and its products is best understood and measured in terms of standard volume rather than weight. Assuming there is no impediment to the assessment of a standard volume (with reference to a prescribed temperature), one then has to ascertain the cargo’s actual volume, as transferred, by reference to the volume of the spaces it has been moved to and from.

Typically, this is done by ullaging the headspace in the tanks and consulting the relevant calibration tables to determine the actual volume of those tanks the cargo

now occupies, commonly referred to as the Total Observed Volume (TOV). Assuming this process is performed accurately (e.g. consistent datum points, allowances for vessel’s list and trim, repeat measurements in poor sea conditions) and once a standard volume metric has been applied, then it should become apparent how much cargo resides in the cargo spaces in question.

The movement of oil and its products is best understood and measured in terms of standard volume rather than weight.

The Vessel Experience Factor

This is where a Vessel Experience Factor comes into play.

For any given vessel a ratio can be established between the quantity of liquid bulk cargo measured onboard the vessel and the corresponding measurement reported ashore, typically, by a loading facility or terminal.

This ratio, called a Vessel Experience Factor (VEF), is an empirical data stream of shore-to-ship cargo quantity differences collated from previous voyages, and is used as a loss control tool to assess the validity of quantities derived from external sources. It is as such both a means by which to correct any calibration error and a method to verify cargo quantities established onboard the vessel compared to what has been declared ashore.

For each voyage, a Vessel Load Ratio (VLR) and Vessel Discharge Ratio (VDR) can be calculated. The VLR or VDR is the quantity received or discharged as measured on the vessel (TCV – OBQ or ROB) divided by the Bill of Lading (shore figure declared at loading) or Outturn Quantity (received on completion of discharge) respectively. The means of the qualifying VLRs or the VDRs over several voyages is called the VEF.

The calculation of an accurate VEF is however, thwarted by various factors. Just as with ullaging, errors in measurement can creep in (the true extent of any contemporary or undetected clingage or ROB for instance) but the greatest pitfall often lies in the means of comparison employed.



STS CARGO TRANSFERS & VEF (continued)

Due to the possibility of cargo residues in both shore and vessel's cargo lines, as well as the usual opacity in shore tank figures following discharge, determining an accurate VDR from a vessel's discharging operations is often a problematic affair. This is not to say it should not be attempted or used as a reference point in instances where, for example, shore facilities are unsuitable or unreliable for determining final cargo outturn figures. However, in terms of developing a historical constant, it is not impervious to error or external manipulation.

As a rule of thumb, it is preferable to collect data from vessel loadings where calibrated shore tanks and shipper's declared figures can be readily obtained and assessed side-by-side with actual volumes of cargo received and observed onboard the vessel. This method also reduces both the danger of cargo being lost or going unaccounted for in shore lines as well as any attempt at obvious fraud.

Whilst there are criteria for identifying those voyages that should qualify for data collection, there is no guarantee

that any such voyage will lead onto another. Generally, the definition of a qualifying voyage is one that meets the following criteria:

- I) Includes any voyage that is within a margin of +/- 0.0030 of the average ratio of all voyages listed.
- II) Excludes any voyages where calculated ratio suggests significant error.
- III) Excludes the maiden voyage, and any voyages prior to any structural modifications affecting vessel's cargo tank capacities.
- IV) Excludes any load or discharge data where shore measurements are unavailable.
- V) Excludes the first voyage after a dry docking. (N.B. not necessarily applicable in clean products trade.)
- VI) Excludes any voyages after the carriage of non-liquid cargoes.

But how does this apply to STS operations and should a vessel's VEF be applied in determining the quantities of cargo being transferred?

Ship-to-ship loading operations create a number of issues when it comes to accurately quantifying cargo transfers.

The first and most obvious is neither party can agree with any absolute certainty how much cargo precisely has moved between them, where both may be applying their own VEFs and will likely have a vested interest in their figures being given the greater credence. In effect it is one party's word against the other and where the STS marks the transfer of risk for the cargo under the underlying sale contract, it takes little to imagine how potentially lucrative such a battleground might prove to be. A pertinent example might be where a cargo is sold Delivered Ex Ship (DES) offshore Lome and the seller is the charterer of the mother vessel whereas the local buyer is the charterer of the daughter, and receiving, vessel.

Further complications might also arise where, at least on the part of the mother vessel, a part discharge is being performed. In such a scenario the discharging vessel's VEF cannot be relied upon or trusted as the VEF is only relevant in the context of full cargo transfers.

The impact of weather and sea conditions also impedes transparent measurement. This is particularly true where the influence of such factors has a greater bearing on one vessel more than the other. Consider a fully laden Suezmax discharging a cargo parcel to a 11,000 DWT product tanker. Here, where one cargo is less static than the other, practical solutions need to be identified and agreed between the parties to cater for any disparity.

Furthermore, where a vessel consistently loads via STS, in circumstances where no definitive shore-type calibrated figure is ever available, how or even if these loadings should be recorded or qualify for data entry into any VEF assessment is yet another concern.

What is the solution?

Developed properly, with emphasis on calibration and measurement procedures, a VEF can certainly provide a factor for enhancement of accuracy of volume determinations onboard vessels and as such be the first line of defence in protecting a carrier from spurious paper shortage claims.

In the context of STS transfers, as a receiving vessel from a larger mother vessel or FPSO, and despite the obvious difficulties set out above, it would make sense to apply such a correction method wherever possible. This is particularly true in the Clean Petroleum Products (CPP) trades where issues such as clingage are uncommon and older data therefore more consistent.

Recognising and understanding the flaws in how the discharging or lightering vessel might be applying their own VEF is also of valuable assistance and a means by which another vessel might challenge or more clearly examine the figures being presented to her.

How and where vessels engaged in consistent loading activities via STS collect reliable data is an issue open to debate.

What is clear however, is that where possible and within reason, a vessel should always consult her VEF to verify what others are telling her.

ⁱ Onboard quantity (OBQ): the material present in vessel's cargo tanks, void spaces and pipelines immediately before the vessel is loaded. On-board quantity may include any combination of water, oil, slops, oil residue, oil/water emulsions and sediment.

Remaining on board (ROB): the material, remaining in a vessel's cargo tank, void spaces and pipelines after the cargo is discharged. Remaining on board may include any combination of water, oil, slops, oil residue, oil/water emulsions and sediment.

ⁱⁱ Necessary to calculate vessel's Total Calculated Volume (TCV)

ⁱⁱⁱ Vessel Load Ratio (VLR): The total calculated volume (TCV) by the vessel measurement upon sailing, less OBQ, divided by the TCV by shore measurement at loading:

$$\text{VLR} = \frac{\text{TCV on sailing} - \text{OBQ}}{\text{TCV received from shore at loading}}$$

Vessel Discharge Ratio (VDR): The total calculated volume (TCV) by the vessel measurement on arrival, less ROB, divided by the TCV by shore measurement at discharge:

$$\text{VDR} = \frac{\text{TCV on arrival} - \text{ROB}}{\text{TCV received from shore at discharge}}$$

^{iv} Total Calculated Volume (TCV): The total quantity of all petroleum liquids and sediment and water (S & W), corrected by the appropriate quantity correction factor for the observed temperature and gravity, relative density, or density to a standard temperature such as 60°F or 15°C)

FEATURE

BAUXITE LIQUEFACTION



The Bahamas Maritime authority, BMA has released the final report on the Bulk Jupiter casualty. The vessel was lost at sea at the beginning of the year, in what was assumed to be a liquefaction-related incident. Regrettably, all but one of the crew passed away with the vessel. Members may have already seen the alert on the loss which was released by the Club, as well as the detailed bulletin on the dangers of washed and sieved bauxite ore. **The full report**, which highlights some of the concerns raised by the International Group Clubs and other parties in matters related to liquefaction, **can be found on the BMA website**. The aim of this article is to summarise some of the BMA's report.

Moisture Content:

The cargo loaded on the 'Bulk Jupiter' had a moisture content that was, in the view of the BMA, reportedly well in excess of the IMSBC mandated 10%.

In December 2014, the Kuantan region marked a new monthly highest rainfall record for December (with readings of 1806.0 mm. The Kuantan region is open air strip-mining. There are reportedly no means of covering the cargo, whether in the stockpiles, during transportation or on the jetty. It is a common problem around the South East Asian region with Group A cargoes such as nickel ore, being mined and stored without any protection from rain.

The BMA report commented that the cargo declaration supplied by the shipper was also dated six days before the date of loading. There was an additional delay of about a week during the loading due to rain, which would have further soaked the stockpiles, thus making the shipper's declaration irrelevant. Even though the tests were carried out by the exporters, and allegedly revealed that the cargo loaded on the vessel had a moisture content of about 21% (as against the declared 10% by the shippers), the results were supplied too late to be of any use to the Master or the Owners in determining the suitability of the cargo.

Shipper's declaration:

The BMA report casts doubt on the accuracy of the moisture content declared by the Shipper's; the declared moisture content was exactly the limit in the IMSBC code (10%).

The report records the experience of two other vessels, which loaded bauxite around the same time as the Bulk

Jupiter; both vessels were supplied identical cargo declarations relating to the moisture content.

One had to discharge her cargo back after the moisture content exceeded safe limits. The other vessel, which departed the port a day after the Bulk Jupiter, suffered liquefaction in at least one of its holds and had to divert to a safe port. The comparisons of the analyses of the cargoes on the other vessels showed the declarations by the shippers were not accurate.

The BMA report stated, "... it can therefore be determined that the declaration forms are considered generic and provide no useful information on the actual cargo as loaded."

Shippers' declarations are an issue of concern for the Club. Shippers are required under the IMSBC code to provide accurate cargo declarations to the Carriers, and it is this declaration that the Master and Members rely on to ensure the safety of the crew and the vessel. When the figures on the cargo declaration are not trustworthy, Masters and Members are then put in the difficult position to have to make tough commercial decisions, often relying on imprecise moisture content tests, such as performing a "Can Test" or a "Squeeze/drop test".



BAUXITE LIQUEFACTION (continued)

Crew Safety:

The BMA report also notes that the crew might not have been properly made aware about Can tests and the dangers of liquefaction of cargoes generally designated as group C cargoes. Although the Master raised concerns regarding the wetness of the cargo, there is no indication that an independent competent surveyor was requested for or appointed to assist the master to ascertain the suitability of the cargo.

The report also focussed on the very limited time available to the crew to abandon the vessel. The time estimated in the report from when the Master sounded the general alarm, and the sinking of the vessel is anticipated to be less than 20 minutes.

Liquefaction, a longstanding and on-going concern:

Liquefaction of cargo, especially that of nickel ore is of great concern. Members may recollect a recent bulletin which highlighted a liquefaction incident occurring on a vessel entered with the Club. The said vessel loaded nickel ore from the Philippine Island of Surigao. Bulk carriers have been facing the issue of Liquefaction for a

long time with the loss of some vessels being attributed to liquefaction of Iron Ore exported from India. However, strong government measures seem to have reduced the dangers substantially in that sector (though some concerns persist.)

In recent times, the majority of Liquefaction incidents relate to Nickel ore cargoes exported from Indonesia and the Philippines. Due to this, all Clubs within the International Group have released circulars requiring Members to notify the Managers of any intention to load the Nickel ore cargo along with the various details of the loading.

Following the January 2014 ban on ore exports from Indonesia, the incidents from Indonesia have reduced, however the dangers of export from Philippines remain. The situation in the Surigao region is difficult for crew because the ore there has a very high in Clay content. Because of this, the traditional “rule-of-thumb” tests that the crew typically carry out - such as the “Can test” or the “Squeeze/Grasp and drop test” can give misleading results.

The UK Club has published (Circular 10/15) to remind Members of the risks of the carriage of this cargo and the obligation to inform the Managers of the loading. This allows Managers to arrange for a suitable surveyor to attend the loading and protect the Members interests. In case there are any doubts on the notification procedure or obligations, a FAQ is also available.

More information on Liquefaction incidents can be found on the dedicated Loss Prevention Resource page.

^{iv} 1049 - 07/15 - Alert - Nickel Ore, Surigao - Philippines

^{iv} See Iron Ore Fines - Aide Memoire

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