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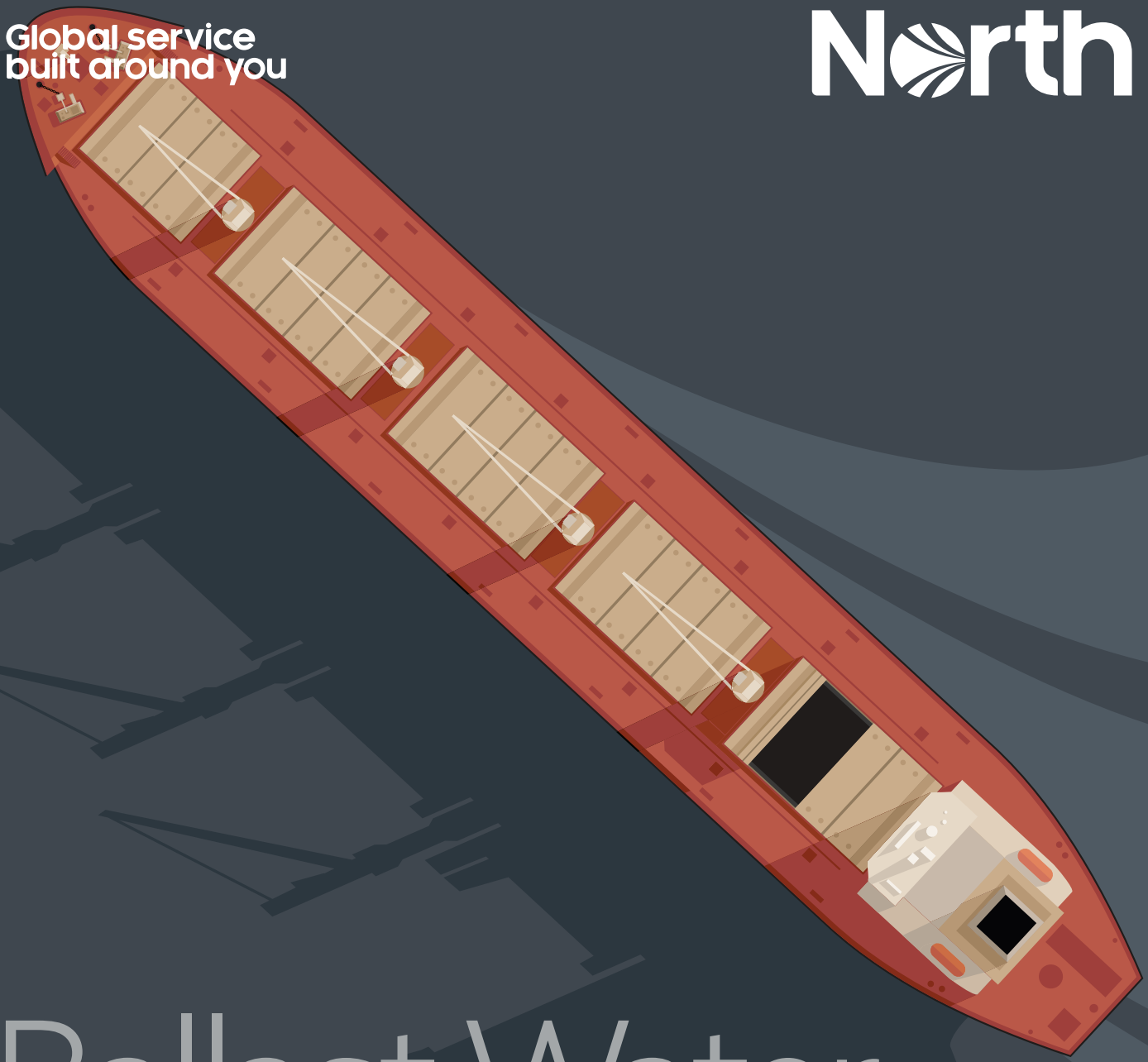

Ballast Water Management

Part 3:
Operational and commercial risks

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Successfully installing and commissioning a ballast water treatment system is not without its challenges. Some parts of the industry have raised significant concerns.

Operational experience

The classification society ABS held ballast water management workshops in 2017 and 2019 where operational experiences were shared. These highlighted significant concerns in the **operability** and **reliability** of ballast water treatment systems.

The 2019 report collated survey responses on operational experience from more than 60 shipowners covering 483 installed treatment systems on a variety of vessel types and trades.

The headline figure shows an improvement on 2017 but there remains a large proportion of systems experiencing problematic operations.

BWTS inoperable – 6% (2017: 14%)

BWTS operational problems – 59% (2017: 29%)

BWTS running but operational effectiveness is not monitored or tested – 10% (2017: 43%)

BWTS operational and effectiveness is monitored and tested – 25% (2017: 14%)

Source: American Bureau of Shipping

The report states that operational reliability of treatment systems can be affected by using unreliable or non-OEM[1] components, or if the system was not installed correctly.

Some of the common problems noted by ABS include:

- Unstable sensors (typically total residual oxidant – TRO) that are sensitive to environmental conditions
- Frequent failures and replacing of ultraviolet lamps on UV treatment systems
- Frequent clogging of filters
- Electro-chlorination type systems experiencing difficulties operating in freshwater or low-salinity waters, therefore require adding seawater or brine solutions into the ballast feed water
- UV transmittance at low levels when operated in certain conditions

The ABS report also states that most IMO and USCG type approved BWTS are, to date, not suitable for use when gravity discharging topside tanks.

[1]*OEM - original equipment manufacturer*

Regrowth

Organisms that survive the treatment process can find themselves in an environment with an abundance of food and that is free from predators. This can lead to a surge in their population and is commonly referred to as regrowth.

Concerns on the potential for regrowth within the ballast tank have been raised by a number of parties. The biggest issue relates to those systems without secondary disinfection, where the scale of regrowth during a voyage could result in discharged ballast water failing the regulatory discharge performance standard.

The speed and intensity at which regrowth occurs is thought to be subject to a number of conditions that include:

- The concentrations and diversity of the organisms at the ballasting port
- Water conditions at the ballasting port (e.g. high level of suspended solids/colouration, low temperatures)
- Operational effectiveness of the BWTS during the ballasting
- Condition and cleanliness of the ballast tank
- The length of voyage

The type approval testing process for IMO D-2 and USCG approved treatment systems requires that samples are taken five days and one day respectively after treatment. The aim is to show that regrowth has been prevented.

But concerns remain that these holding times are too short to replicate real-world conditions.

Personal injury

Different systems present different hazards that could prove harmful to health.

Chemical handling

Some treatment systems work on the principle of chemical injection. Commonly used chemical disinfectants include sodium hypochlorite ('chlorine') and hydrogen peroxide and these require safe storage and handling to prevent chemical burns.

Electrolytic Chlorination Units

A risk of catastrophic failure exists with electrolytic chlorination units used in ballast water treatment systems. This can be triggered by over-pressurisation or internal hydrogen explosion.

A UK Health and Safety alert issued in 2016 (**http://www.hse.gov.uk/safetybulletins/electrolytic-chlorination-units.htm**) draws attention to the risks following the significant damage caused by the failure of such a unit and includes advice on what preventative measures can be taken.

A risk of catastrophic failure exists with electrolytic chlorination units used in ballast water treatment systems. This can be triggered by over-pressurisation or internal hydrogen explosion.

Part 3: Operational and commercial risks

Charterparty protection

The shipowner is likely to be responsible for compliance in the first instance. But this could have adverse implications for those in the charterparty chain.

The compliance obligation encompasses fit-out, operation, inspection, repair, replacement, certification, planning and record-keeping requirements during a vessel's trading. There is, in principle, the possibility of making some aspects of compliance the responsibility of those in a charterers' capacity if the charterparty wording agreed has that effect.

Potential adverse consequences

Many adverse consequences fall to shipowners under their compliance obligations, but real potential exists for charterers to also incur irrecoverable expenses, losses, damages, etc.

The following are some potential problem areas if the treatment system is or becomes defective or is otherwise rendered non-compliant during a charter.

- **The vessel is not considered to be seaworthy on delivery or cannot later complete a voyage causing major logistical problems.**

  The types of substantial damages that may result could include extra expenses to fix an alternative performing vessel, cargo transhipment to deliver to final destination, etc.

  Whether the problem justifies terminating may be hard to gauge as this would be largely based on technical issues and if the non-compliance makes the vessel untradeable. Relevant factors to consider may include the vessel's IOPP Certificate renewal survey date, agreed trading routes or areas, period of trading, port facilities available, etc.

  There is evidently some variance in BWM regulations around the world, e.g. the very strict (future) requirements that will apply to all port calls in California, which could be problematic.

- **A voyage cannot proceed promptly after delivery**

  This may cause other sizeable disputes for wasted expenses, fuel consumed, and who pays for other delay consequences.

  (i) For time charters:

  The vessel may be expected to be treated as off-hire if the full working of the vessel is not immediately available which can vary on the case circumstances.

  As off-hire may not cover all time, fuel and other expenses wasted resulting from a non-compliance incident then considering fault may become relevant too. The vessel otherwise may be in breach of an absolute or due diligence obligation; as a result of which, damages may be similar to, if not larger, than off-hire.

  (ii) For voyage charters:

  The vessel may be unable to commence laytime (or after it has commenced, time may not count as laytime or as demurrage) if lost due to delay through non-compliance.

  The laytime and demurrage scheme may be insufficient to compensate for the consequences of delay and so considering fault may become relevant too. The vessel may otherwise be in breach of an absolute or due diligence obligation e.g. to prosecute the voyage with despatch.

  These issues become more complex for those who trade by time charter-in and voyage charter-out. An example of this would be where the time charter-in is for a longer period so may not be terminable but the voyage charter-out as agreed cannot be performed.

Charterparty protection (cont.)

- **Reduction in vessel's ballasting performance**

  There is a risk of reduction in a vessel's ballasting capacity following the retrofit of a ballast water treatment system. This drop in performance could be due to the system being a poor match for the throughput of the vessel's ballast pumps or additional pipework and filters introducing pressure drops in the system.

  The vessel description and warranties in charterparties (existing, ongoing ones and future ones) would be relevant to which party bears the consequences from this reduction in performance. If any suboptimal consequences are identified within descriptions or warranties, then this may be for charterers' account but if not, then this may be for owners' account.

- **Vessel unable to meet increased power demands**

  There is also the possibility of a vessel being unable to meet the greater power demands of a treatment system. Electro-chlorination and UV systems require significant levels of power. For existing vessels, this demand would not have been factored in at the design stage. It is therefore important to assess whether the vessel has the electrical capacity to power the cargo gear at the same time as the treatment plant.

  If the vessel's power generation capacity prevents the operation of all of its cargo handling equipment when the treatment plant is in-line, this can result in delays to the cargo operations and lead to disputes.

  Even if the power plant can meet the new increased demand, this may result in an increased fuel consumption.

  If a vessel's performance is impacted following the retrofit of a ballast water treatment system, it is therefore recommended that the vessel's description (and any associated performance warranties) is amended accordingly.

  If the charterparty remains unamended, a shipowner may be exposed to a charterer's allegations of breach of warranty if delays are experienced as a result of the longer time needed for ballasting and deballasting.

The shipowner is likely to be responsible for compliance in the first instance. But this could have adverse implications for those in the charterparty chain.

Protective Clauses

Many of the issues that could arise are addressed through charterparty wordings already in use.

However, this may not be entirely clear or obvious and gaps could well exist. In 2012, INTERTANKO produced two new charterparty clauses dealing with ballast water management. The clauses for time and voyage charters seek to balance the rights and obligations of owners and charterers.

Please note that these clauses are subject to review and may be amended from time to time. Please check the Intertanko website for the latest version.

INTERTANKO Ballast Water Management Clause for Voyage Charters

1. Owners shall maintain a ballast water management plan in accordance with the vessel's flag state requirements and carry out ballast water operations in accordance with such plan.

2. If Owners fail to comply with the obligations in 1, Owners shall bear any additional costs, expenses and penalties. Any time lost shall not count as laytime or time on demurrage.

3. If Owners have complied with the obligations in 1, but additional ballast water operations are required, then:

   a. the validity of the Notice of Readiness shall not be affected,

   b. any time lost due to such additional ballast water operations shall count as laytime or time on demurrage, and

   c. any additional costs, expenses and penalties shall be for Charterers' account.

INTERTANKO Ballast Water Management Clause for Time Charters

1. Owners shall maintain a ballast water management plan in accordance with the vessel's flag state requirements, and carry out ballast water operations in accordance with such plan.

2. If Owners fail to comply with the obligations in 1, Owners shall bear any additional costs, expenses and penalties and the vessel shall be off hire for any time lost.

If Owners have complied with the obligations in 1, but additional ballast water operations are required, then the vessel shall remain on hire and any additional costs, expenses and penalties shall be for Charterers' account.

Wording to deal with transitional requirements for existing and new charters may also be desirable as many vessels need to fit or to adapt their systems in coming years.

Please note that these clauses are subject to review and may be amended from time to time.

Impact on P&I cover

The developments under the BWM Convention and the US BWM Regulations are followed closely by North and the International Group of P&I Clubs.

At this current time there is no requirement for the Club Rules to be amended. Claims in relation to ballast water discharge will be dealt with in accordance with the existing framework for fines and compensation for damage.

Liabilities (including fines for inadvertently introducing untreated ballast into the environment) arising from the escape or discharge overboard of untreated ballast water through a "faulty" approved system or other environmental liabilities related to ballast are capable of cover, subject always to the Rules and any terms and conditions of cover.

Cover for other fines relating to a breach of BWM requirements would only be available on a discretionary basis.

The International Group Clubs have issued circulars in relation to BWM issues. North has issued circulars which both can be accessed from **www.nepia.com/latest/circulars**

- International Convention for the Control and Management of Ships' Ballast Water and Sediments and US Ballast Water Management Regulations
- International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 and US Ballast Water Management (BWM) Regulations

If Members have any enquiries in relation to claims they should direct these to their usual points of contact at the Club.

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