NNPC NOORD NEDERLANDSCHE P&I CLUB

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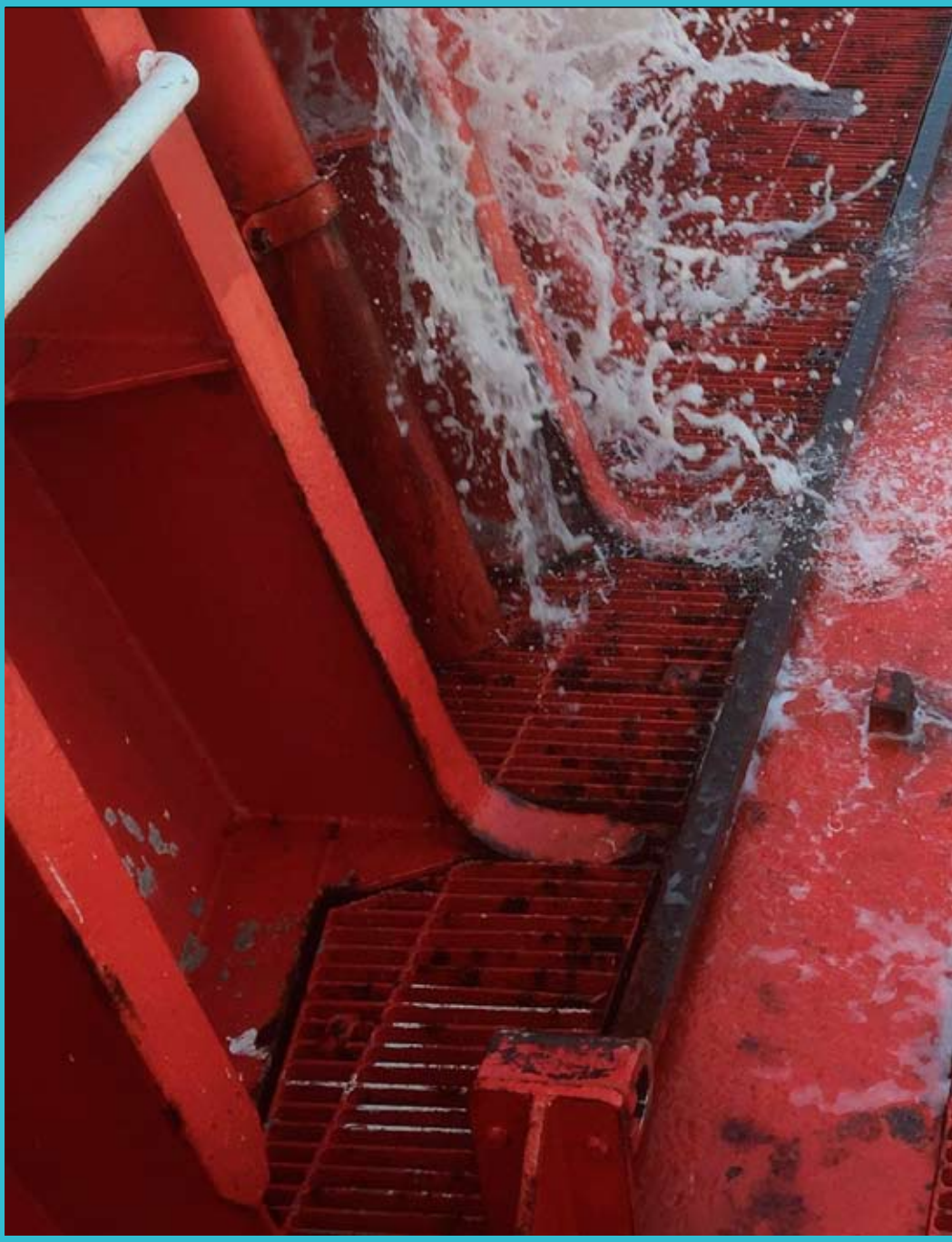
BALLAST WATER



INTRODUCTION

Recently a significant number of claims is – directly or indirectly – related to the presence of ballast water. Many of these damages could probably have been prevented with relatively simple measures, of which we give a summary. (The requirements of IMO for ballasting and deballasting are not taken into consideration in this article).

WHY BALLASTING?

It regularly occurs that in order to load the next cargo a ship first has to sail to another port. The ship sails empty with limited draft and a large trim astern due to the heavy machineries aft. Limited draft and large trim lead to:

- decreased power in propulsion because the propeller will only be partly submerged, especially during rough weather;
- no or limited steering capacity;
- considerable influence of the wind on the ship due to the limited draft and much surface above the water line,

and taking in ballast water can reduce these effects.

Besides sailing an empty vessel there are various other reasons to take ballast water, such as:

- a change of trim;
- to intervene in case of a list when loading/discharging heavy cargoes;
- to influence stability;
- to limit stress in a vessel;
- to correct weight increase of deck cargoes that can absorb moisture (sawn timber);
- to correct the consumption of fuel and fresh water during the sea voyage, or
- to act as insulation for temperature- and water sensitive cargoes.

In order to take, store and discharge ballast water the following facilities are installed in vessels: tanks, piping/ lines, valves, pumps and systems to measure water quantities in the tanks.

DAMAGES RELATED TO BALLAST WATER

As mentioned above, we have received a large number of cargo claims related to ballast water. These damages are usually serious, especially if the ballast tanks are filled with seawater. Often the cargo has been in contact with (sea)water for an extended period of time and it is not always possible to take mitigating measures immediately.

The most prevailing causes of damage are:

1 During ballasting/deballasting operations water flows through the combined ballast/bilge lines to the bilges, flows into the holds and comes into contact with the cargo.

2 Ballast water enters the hold(s) through leaking ballast tanks and/or leaking manhole covers.

3 Ballast water enters the hold(s) as a consequence of damage to the tanks caused by the stevedores during loading/discharging operations.

4 Filling the ballast tanks with relatively cold outboard water results in the formation of condensation.

1 WATER IN DE HOLDS THROUGH THE BILGES

Generally at least 3 valves are fitted in the bilge lines between each bilge in the hold and the outboard (harbour) water. A non-return valve in or close to the bilge itself, a section valve of the bilge and a main valve after the pump and/or between the ballast and bilge lines. In almost all vessels the ballast and bilge lines are combined and placed in the engine room.

All bilge valves should always be closed, unless used for pumping and/or testing.

The bilge system is actively used after washing the holds. The washing water is pumped out of the holds through the bilges and bilge lines and all bilge valves are open. In practice often the bilge valves are not closed after pumping. This may be caused by the fact that the washing of the holds and all loading/discharging operations are carried out by deck officers and the pumping and opening and closing of valves is carried out by personnel in the engine room. Possibly the non-return valves in the bilges are trusted to be tight but these valves cannot

fully be trusted and are no guarantee that water will not enter the holds.

We recommend a fixed procedure for the opening, testing and closing of the valves of the bilge system with a clear division of responsibilities between deck personnel and engine room personnel including a check point at the end of the operations, to make sure that thanks to this procedure the closing (and being closed) of the bilge valves is done in a controlled manner.

2 BALLAST WATER IN THE HOLDS THROUGH LEAKING BALLAST TANKS EN OR MANHOLE COVERS

The possibility exists that a ballast tank has a leak without same being noticed. Examples are cracks between the tanks and the holds, leaking rubbers of manhole covers and/or old – unnoticed – stevedore damages. Also shifting cargo can damage the plating of ballast tanks during periods of bad weather. Also bilge lines that are running through ballast tanks can be damaged, corroded and/or holed, allowing ballast water to enter the holds through these lines and possibly non functioning valves.
Through these unnoticed damages ballast water can enter the hold(s) during the ballast operations. In order to prevent damage to the cargo in these cases we advise to always keep the water level in the ballast tanks below the lowest cargo level in case ballast tanks are adjacent to cargo holds and to keep the ballast tanks above tanktop level empty.
Practically this means that tanks should be filled up to tanktop level only. If and when it is necessary to fill the ballast tanks to higher levels the ballast tanks and bilge wells should be sounded at least once and preferably twice per day.
When the holds are empty, fill the ballast tanks regularly to check the tanks on leakages.

3 WATER IN THE HOLDS DUE TO DAMAGES CAUSED BY STEVEDORES DURING LOADING/ DISCHARGING OPERATIONS

Stevedores use relatively big and heavy grabs to load and discharge bulk cargoes, the movements of which are difficult to control, especially in the case of floating cranes. This frequently results in damages to ballast tanks. The same occurs if bulldozers are used during the discharge operations to collect cargo. Due to the heavy weight, the enormous forces and the sharp edges of their blades it frequently occurs that ballast tanks are holed. When ballast tanks are (partly) filled, large quantities of water may enter the cargo holds.

We would advice to keep the ballast tanks adjacent to the cargo holds empty during the discharging operations. Generally, there should be sufficient time to take ballast at the end of the discharging operations. If ballasting is

required before the end of discharging, in connection with stress, air draft, trim or list, first ballast up to the tank-top level under the cargo holds and in the tanks that are not adjacent to the cargo holds such as fore- and aft peak tanks. If the ballasted quantity is not sufficient, continue with ballasting in ballast tanks next to the cargo hold where the cargo is already discharged. If the fore part of the hold is discharged, the ballast tanks adjacent to this part of the hold can be ballasted as well. Ballast the other tanks only if this cannot be avoided but always keep an eye on the risks and never ballast out of habit.

4 CONDENSATION DAMAGE DUE TO BALLAST WATER

If the cargo hold is filled with relatively warm cargo and the ballast tanks are filled with relatively cold water condensation will occur on the steel plating of the tanktop and the side plating of the tanks. Condensation can cause serious damage to the cargo. The general advice is not to ballast cold outside water whilst (relatively warm and) moisture – sensitive cargo is still present in the hold. If it is known in advance that ballast water has to be taken in during discharging due to airdraft or stress or other matters, try to ballast during the voyage with relative warm water up to tanktop level. If this is not possible, take ballast water in tanks outside the cargo zones.

Based on the above mentioned we have tried to make clear that ballast water and cargo are a dangerous combination. Preferably no ballast water should be taken in whilst cargo is still on board. If nevertheless ballast water has to be taken in, ballast in tanks not adjacent to cargo holds. Even so, if ballast tanks next to the cargo hold have to be filled, keep the ballast water level below the cargo level.

Ballast with a reason and be conscious.

With this publication we hope to reduce the number of cargo claims related to ballast water. Please contact the NNPC staff in case there are any questions.

NNPC NOORD NEDERLANDSCHE P&I CLUB

NNPC
Rijksstraatweg 361
9752 CH Haren (Gr.)

www.nnpc.nl
info@nnpc.nl

Design
In Ontwerp, Assen