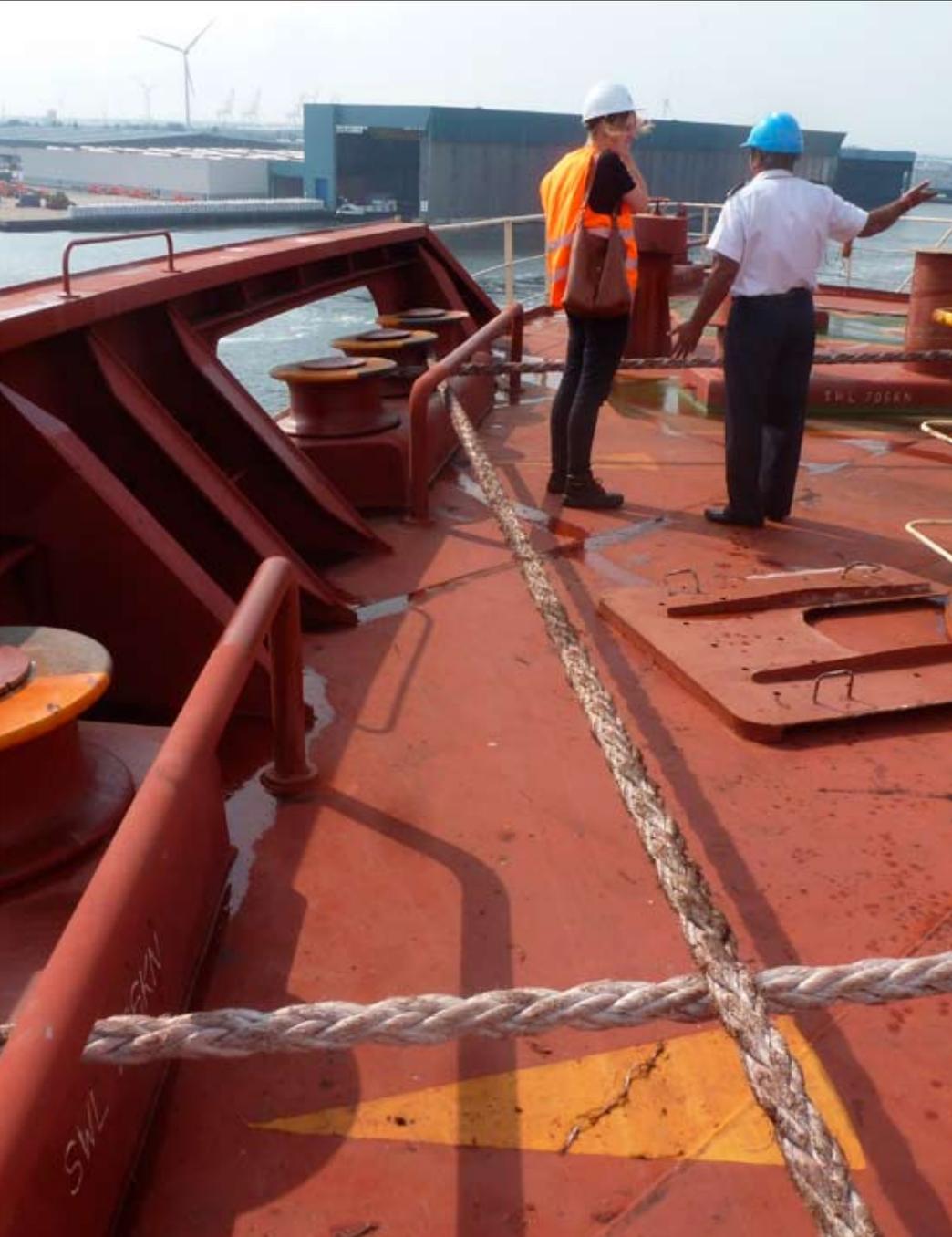


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PREVENTING ACCIDENTS DURING (UN)MOORING OPERATIONS





INTRODUCTION

Frequent and tragic accidents occur on board of ships during the mooring and unmooring operations in ports, in locks and when mooring next to other vessels.

A large part of these accidents are caused by:

- breaking of mooring lines;
- mooring lines slipping off the drum ends;
- people getting caught up in a bend of the mooring lines;
- non-functioning of the equipment, and
- personal mistakes.

The first item, breaking of the mooring lines, may have different causes such as defects in the material, weather circumstances, mistakes of the tugboats, wrong communication or excessive load/too much tension. The accidents resulting from mooring and unmooring operations are generally very serious. In 14% of the accidents the victim dies, in 23% of all cases the victim loses a leg and in 14% the victim has serious back injuries. The remainder of the accidents results in injuries to head, arms, knees and hands. Also these cases usually involve serious injuries with permanent damage to those involved.



HOW TO PREVENT THESE ACCIDENTS?

The three main factors that influence safety during mooring and un-mooring operations are:

- material
- people
- circumstances



THE LINES SHOULD BE DECLARED UNSUITABLE FOR USE IF THERE IS TOO MUCH WEAR AND TEAR AND/OR IF ONE OR MORE STRANDS ARE BROKEN.

1 MATERIAL

Knowledge of the fabric, storage, maintenance and inspection are of interest in respect of the material of the lines.

KNOWLEDGE OF THE FABRIC

Lines can be made of different material such as natural fibres and synthetic fibres like HMPE, Aramide, Polyester, Polyolefine, Polyamide en Polypropylene (as steel wires are not/hardly used on vessels insured with NNPC these are not taken into consideration).

The various materials are distinguished by strength, elasticity, melting point, flexibility, weight and price. It is important that the officers and crew involved in the mooring and unmooring operations know what material the lines are made of and are familiar with the properties of the lines. Especially the flexibility and breaking strength of the lines are of major importance. The breaking strength of new lines should be known, as well as the estimated breaking strength of used lines and the breaking strength of lines compared to the strength of the brakes of the winches and fixed objects such as boulders and rollers.

STORAGE

When not in use, lines should be stored underdeck and/or protected and free of the steel decks as much as possible to avoid the influence of UV radiation, seawater, grease and other contaminants.

INSPECTION

Lines should be inspected regularly, paying attention to wear and tear, thermal damage, breakage and influence of UV, chemicals and dirt. These factors have a big influence on their strength. The lines should be declared unsuitable for use if there is too much wear and tear and/or if one or more strands are broken.

MAINTENANCE

All rotating parts of the mooring equipment should be free running and the grease nipples should be clearly marked so they are not missed during greasing rounds.

The surfaces of rollers, boulders and heads of winches should be clean and in good condition. The rotating parts should be inspected regularly to prevent that these parts crack or tear away from their foundations. Stoppers have to be of a good quality. SWL of boulders and fairleads has to be known and marked, especially if tugboats are used with their (too) strong lines.

USAGE

Depending on the local circumstances several head and spring lines will be

set out on the fore- and aft ship upon mooring. It must be ensured that the lines are made of the same material, have an equal level of wear and tear, are equally tight and if possible have a similar length. Especially short breast mooring lines can pose a danger as they have a limited elasticity and may break easily.

2 PEOPLE

The crew members that are involved in the mooring/unmooring should be qualified, have knowledge of procedures, communication and no-go areas and have the proper clothing. New crew members should be familiarised with the safety procedures with regard to mooring and unmooring. Crew members who are not directly involved in the mooring / unmooring operations should not be present at the mooring stations during mooring and unmooring. Crew members have to wear safety clothing such as safety shoes, helmets and properly fitting working gloves.

Clear arrangements about the communication between the bridge and the mooring stations forward and aft have to be made in advance. Such arrangements have to be repeated in order to avoid miscommunication. Arrangements also have to be made between the people working on mooring stations forward and aft regarding actions that have to be carried out. In practice these are hand signals because



the noise of bow thruster and winches makes normal communication impossible.

It is also important linesmen, crew of tugboats, stevedores and/or passers-by are warned for the dangerous zones of the lines that are used for mooring/unmooring. Especially the passers-by are usually unaware of the dangers of lines under tension.

3 CIRCUMSTANCES

It is important that prior to mooring/unmooring the crew is made fully aware of the berth of the vessel, the way of berthing, the number of lines and the location of the lines.

Other important matters are the use of tugboats, current, (offshore) wind force and/or the use of anchors and/or extra

mooring lines that have to be taken out of the boatswain store.

Make sure that the mooring stations are clean and tidied up, that only one action is carried out at the same time and that the officer in charge keeps a good overview of the situation. Take care of each other and warn a crew member if he is standing in the snap-back zone or in a bend of a line.

Make sure that all operations are carried out safely and discuss the matters that went well and the ones that nearly went wrong after the mooring/unmooring operations.

Discuss these matters with all crew members involved in mooring and unmooring. These evaluations / discussions can be used for the near-miss reporting.

All height differences and all turning parts should be clearly marked, a

relatively cheap and easy measure. On the mooring stations there are many objects, uneven heights and dangerous zones that can cause dangerous situations when mooring/unmooring. These markings can contribute to avoiding dangerous situations such as falling and limbs getting stuck. Applying non-slip paint on the mooring decks avoids slipping and falling of crewmembers when they are taking part in the mooring operations. Furthermore the operating directions of the winches, both on the lever and the winch ends, have to be clearly marked.

Marking snap-back zones on the decks is an issue under discussion. We are of the opinion that marking these snap-back zones should only be applied if and when ships always berth at the same locations and lines are put out in the same way. The snap-back zones indicate dangerous areas by the change of colour on the decks. The officer in charge can see if a person is standing in a dangerous area immediately.

However, if the lines are not always put out in the same way, or rather in a different way, the snap-back zones may give a false feeling of security as then these zones can be dangerous.

It speaks for itself that mooring and unmooring are dynamic operations during which it is expected that all persons involved are alert, used to act adequately to changes and are

conscious of the prevailing situation. With a small crew, relatively small ships and small and clear mooring decks, it seems unnecessary to take the extra measures mentioned earlier. Also there are no laws that dictate these measures.

However, external surveyors and authorities will pay more and more attention to the marking of height differences, greasing of nipples and rotating parts, not because it is an obligation by law but because it is considered good seamanship and it helps prevent accidents.

INFORMATION

For further information and advice how to apply these markings you can contact NNPC.

Also on the internet information can be found regarding this subject. We refer – amongst others – to the following sites:

www.seahealth.dk/publications
www.nauticalpaltform.org/legislationdocuments



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