

Shaping Shipping for People

Working over the side

Introduction

Shipboard tasks such as mooring/unmooring, surveys, cleaning, maintenance and rigging (e.g. an accommodation ladder or pilot ladder) may require seafarers and other persons to work or access over the side of the ship. Working over the side is a high risk operation and must be treated accordingly. Unfortunately these tasks when undertaken in an unsafe manner, have resulted in serious accidents with five fatalities reported over a period of 5 years in Australian waters. This safety bulletin will focus on working over the side and safety issues associated with such tasks.

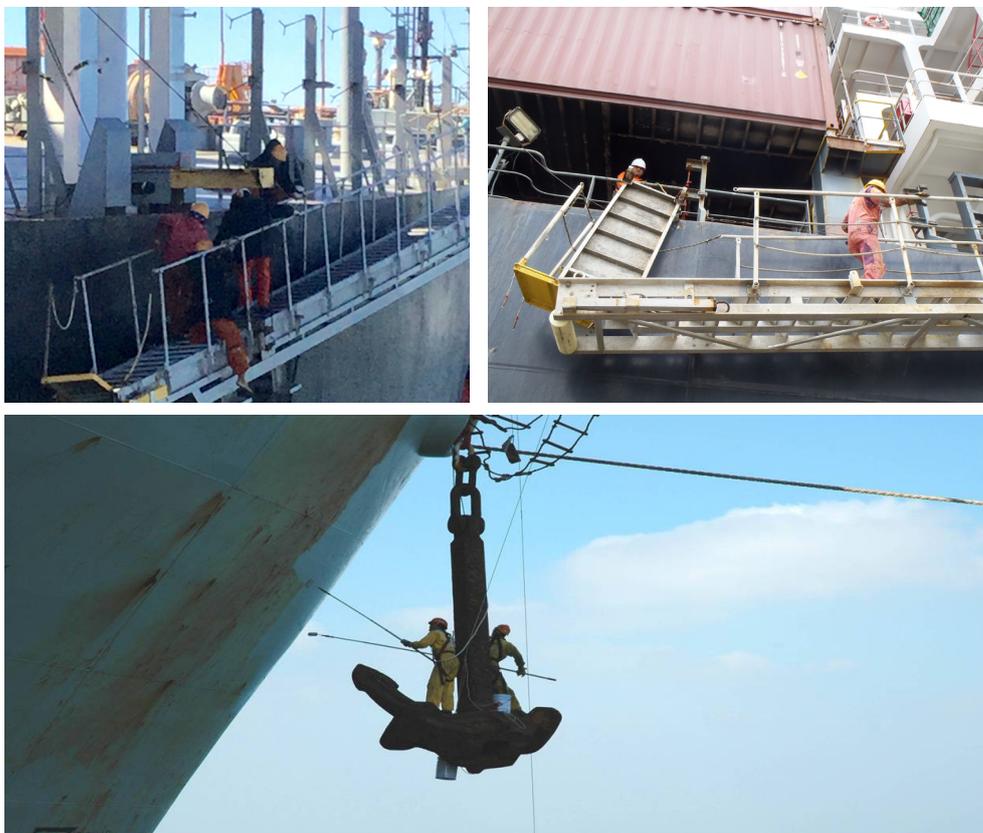


Figure 1: The hazards of working over the side (source: AMSA)

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Learning from incidents – example

The second mate on board a bulk carrier lost his life when he fell into the water from a rope ladder after experiencing difficulty holding on.

At 0455 on 10 July 2015, the second mate climbed down the rope ladder to read the ship's mid ship draught marks. However, he experienced difficulty holding on and fell into the water. Although he had donned a life-vest, it proved inadequate to save his life. The Australian Transport Safety Bureau (ATSB) investigation findings point to a number of factors that contributed to this accident:

- the rope ladder was rigged upside down which meant that the ladder steps did not provide for a flat surface to stand on and comfortably hold onto
- no fall prevention measures were put in place
- no man-overboard responses were in place (such as lifebuoy with light and line positioned near the ladder).



Figure 2. Rope ladder, as rigged at the time of the accident [1].

Climbing down a vertical rope ladder in the early hours of the morning to read draught marks would have presented difficulties for anyone. While the lack of adequate control measures for working over the side contributed to this tragedy, the risks associated with conducting the activity remain high. The terminal managers subsequently put in place a revised procedure prohibiting the reading of draught marks from rope ladders and an alternate method, using a manometer, was put in place.

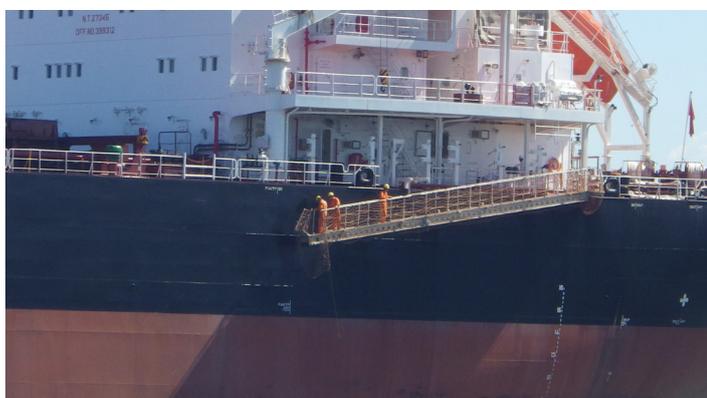


Figure 3. Hazards of working over the side (source: AMSA)

Over the side incident data

While it is critical that accident data is collected and analysed from a safety and commercial perspective, incidents and near misses are equally important indicators of latent safety issues. There is a risk that focusing only on accidents will not reveal enough information for operators and seafarers to make informed safety decisions. In comparison, incident and near miss reports often provide information that show vulnerabilities in the system that could lead to accidents. Unfortunately in our industry today, incidents which result in minor or non-injury outcomes are rarely reported, or not at all. This is clear when incidents related to working over the side were analysed. In the period between 2011 and 2015, AMSA received a total of 20 working over the side incidents but 5 fatalities had occurred (Figure 4).

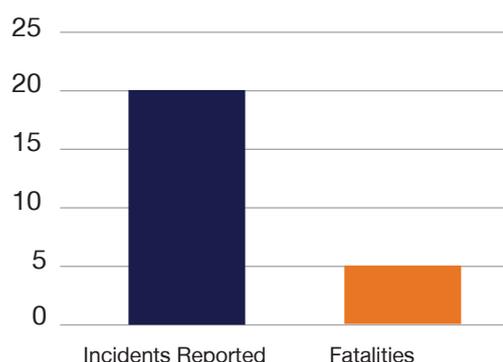


Figure 4. Number of over the side incidents and fatalities reported 2011-15 (source: AMSA)



Figure 5. Hazards of working over the side (source: AMSA)

Observations by AMSA surveyors show that unsafe practices while working over the side is an issue. Some shipboard environments are vulnerable to dangerous practices becoming accepted behaviour. This leads to a situation where risky activities are perceived as being normal. Because these dangerous practices are perceived as normal they are not reported.

Incident and near miss reports often provide information that show vulnerabilities in the system that could lead to accidents.

How acceptable is the unacceptable? Dying from a lack of safety culture

Over time, seafarers may develop informal practices and shortcuts to circumvent deficiencies in equipment design, poor procedures or policies that are incompatible with the realities of daily operations. The second mate in the earlier example [1] decided to complete a hazardous task in the early hours of the morning with inadequate safety precautions. The seafarer undertook the activity without appreciating, or at least assessing, the risks involved. The question to ask is whether he had previously carried out similar high risk tasks without any consequence. In this case, the combination of factors meant that the inadequate control measures in place did not provide for effective protection.

Poor practices and shortcuts repeated over time gradually become the norm. If seafarers are continuously exposed to these practices, they are more likely to perceive the risks as low. Additionally, if supervisors and managers have not effectively addressed the poor practices or shortcuts, these practices will often be deemed as acceptable behaviour by seafarers. This can create unsafe and poor working conditions as seafarers will not identify these practices as reportable incidents.

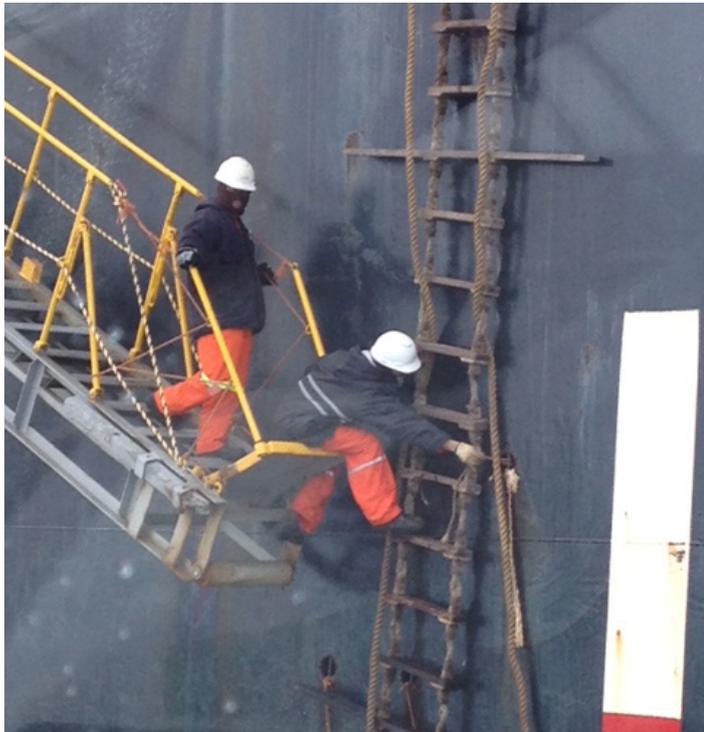


Figure 6: Hazards of working over the side (source: AMSA)

Safety culture is a key component in ensuring such practices do not occur on ships. It is about the shared beliefs and perceptions that seafarers hold regarding safety on their ship as reflected by the company.

Unfortunately, unsafe practices observed by AMSA surveyors during routine port State control inspections suggest that poor safety culture is an issue on many ships.

A good safety culture supports an effective shipboard safety management system. Such a culture can help seafarers apply safe practices at all times, both during work and recreational activities on board.

Poor safety culture is clearly demonstrated in the following example which resulted in a fatality that occurred in Australian waters.

The ATSB investigated a fatality which occurred when a recreational activity was being carried out in what would normally be considered as a work area [2].

On 6 October 2014, the bosun on a bulk carrier lost his balance and fell off the accommodation ladder into the water while fishing from the lower platform during his lunch break. The bosun was never found.

The ATSB found that the bosun, and the seaman who was with him at the time, were not wearing any flotation devices or fall prevention equipment. The bosun had seen fish below the accommodation ladder and probably saw it as a good opportunity to fish without considering the risks involved.

It is likely that the bosun's ability to stay afloat and swim may have been affected by the sea conditions, wet clothing, possible entanglement with fishing gear and lack of a lifejacket.

The ATSB investigation also identified that the ship's safety management system procedures for working over the ship's side were not effectively implemented. The ship's crew routinely did not follow all the required safety precautions when working over the side. It was also found that the crew had differing attitudes to safety during work and recreation times as the safety culture on board was not well developed.

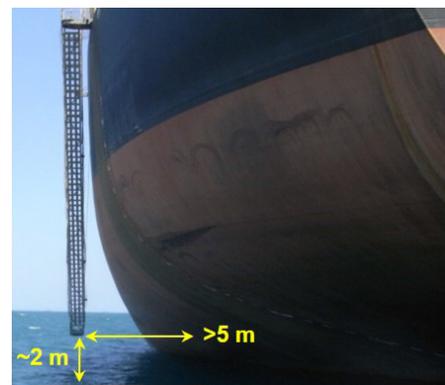
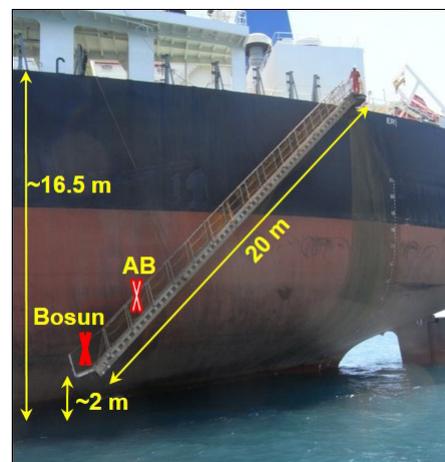


Figure 7: The accommodation ladder as rigged at the time of the accident showing approximate positions of the bosun and able seaman [2].

Controlling the risks of working over the side

Conducting a risk assessment is critical for shipboard activities involving working over the side. An effective risk assessment for working over the side must firstly be treated as working at height and must consider falling overboard.

The hierarchy of controls provides risk control options at various levels, with 'elimination of the hazard' being the most reliable and safest option.

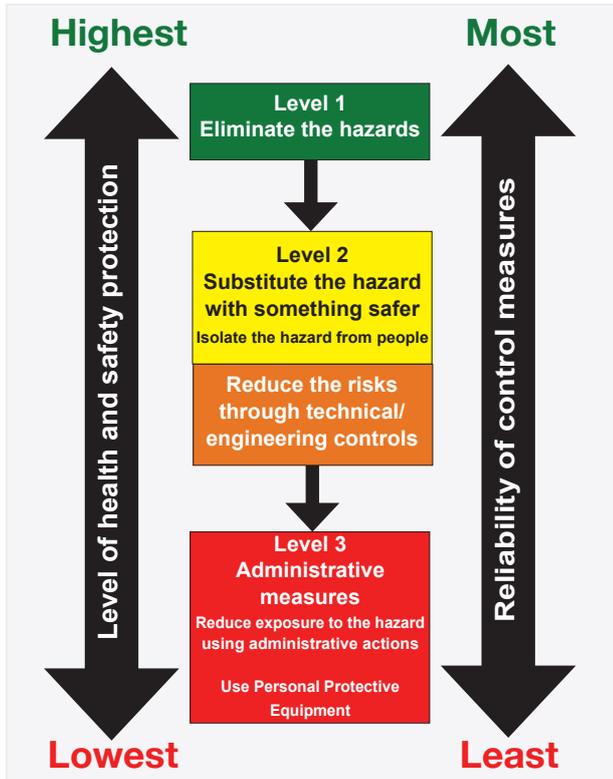


Figure 8: Hierarchy of Controls diagram (Adapted from [3])

The hierarchy of controls should be used to eliminate high risk tasks whenever practicable. The following should be considered:

Level 1: Elimination

- use of drones or remote cameras for inspection over the side
- use of water gauges (manometer) for calculating draughts on the outboard side.

Level 2: Substitution

- use of a boat instead of ladder for over the side tasks.

Level 3: Administrative measures

- implement effective procedures for working over the side. The procedures should incorporate the same rigour and control measures as for providing safe access to the ship. The International Maritime Organization (IMO) Circular MSC.1/Circ.1331 provides requirements on this, in particular ensuring:
 - adequate lighting
 - safe access location away from working hazards
 - lifebuoy equipped with a self-activating light and a separate lifeline available for immediate use.

- use of appropriate Personal Protective Equipment (PPE) including fall prevention equipment and inflatable life-vest
- when using personnel baskets, they should be fitted with a secondary means of securing to the crane and people inside should be wearing harnesses which are attached to life lines
- conduct regular man overboard and recovery drills and rectify identified deficiencies
- do not work alone. Keep the master and/or supervisor informed and ensure the task is actively monitored at all times from the vessel
- ensure equipment and PPE are appropriately maintained and suitable for the task at hand.

Take-away message

Working over the side is a high risk activity. The hazards associated with working over the side are similar to those for working at height so the same types of control measures should be applied. Attitudes are important, both while on duty and off duty and reporting of near misses is crucial to ensure that risks are identified and effective safety controls are put in place.

An effective safety culture promotes the understanding to all shipboard crew that the goals of the company will be achieved through accepted safety procedures, practices and behaviours [1, 4]. This in effect leads to seafarers being committed, not just because of rules and regulations but through individual choice, to safe actions and behaviours at all times.

References

1. Australian Transport Safety Bureau (2016). Man overboard fatality from Hyundai Dangjin. Port Walcott, Western Australia 10 July 2015. MO-2015-004.
2. Australian Transport Safety Bureau (2016). Recent ATSB investigation: 314-MO-2014-011 man overboard fatality from Cape Splendor 6 October 2014. MO-2015-011.
3. How to Manage Work Health and Safety Risks Code of Practice, December 2011, Safe Work Australia p.13. <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/manage-whs-risks-cop>
4. Zohar, D. (2010). Thirty years of safety climate research: Reflections and future directions. Accident Analysis and Prevention, 42, 1517-1522. (p1518).

Useful Resources

2005 Marine Safety Flash (2016) Man-overboard, A14-05 <http://marinesafeaustralia.ifap.asn.au/index.php/2014-2/>

Australian Transport Safety Bureau (2016). Safety Culture – Safety Advisory Notice. http://www.atsb.gov.au/publications/investigation_reports/2014/mair/314-mo-2014-011/si-02/