

Shaping Shipping for People

Managing risk to safety

Introduction

Risk assessment is a well-established approach to managing risk. However, the usefulness of a risk assessment is severely limited unless risks are adequately identified and outcomes of the process are effectively implemented. This bulletin describes three events in which risk identification was found to be inadequate, or risks had been identified but control measures were not effectively implemented. The focus of this issue will be on tools and methods that can be adopted to support the risk identification and the implementation of risk controls.

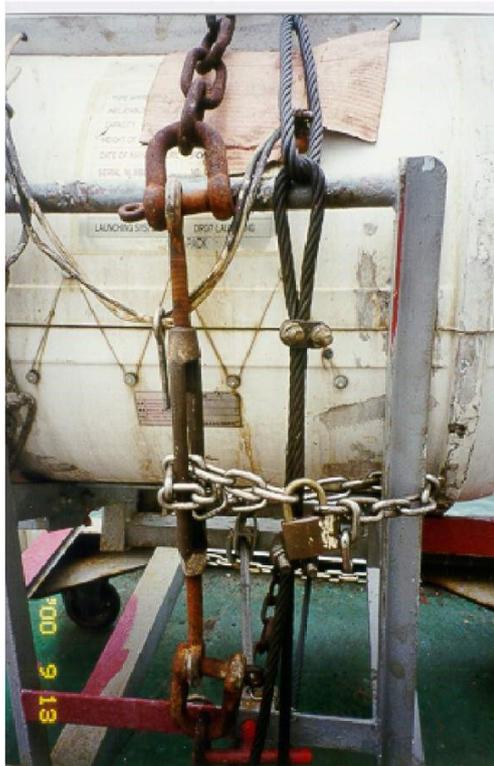


Figure 1: Risks to safety (Source: AMSA)

In this issue

Introduction	1
Event 1	2
Event 2	2
Event 3	2
What the information indicates	3
What is risk?	3
Perception of risk	3
Risk identification	4
Communication and consultation	4
Monitoring and review	4
Take-away message	4
References	4

Event 1: Lashing cargo on deck

An offshore support vessel was loading cargo from an oil rig. In the early morning, cargo transfer was stopped due to worsening weather conditions. The vessel was then moved away from the rig and two crew members began lashing the cargo on the aft deck using securing chains.

While lashing the cargo, the crew members slackened a securing chain to better secure the entire stow. Two large waves came over the vessel's aft deck, shifting the now unsecured cargo forward. One of the crew members was trapped between the moving cargo and the securing chain and was crushed against a storage skip, suffering fatal injuries.



Figure 2: The view of the aft deck from the bridge of the offshore support vessel (source: ATSB)

The accident investigation¹ identified that the vessel's procedures for cargo handling and cargo securing in adverse weather conditions were inadequate. No trigger points for suspending operations were defined and no guidance for methods of securing cargo in adverse weather were provided. In response to these findings, risk management procedures have now been implemented on board which include weather limits, with cargo securing procedures revised and clarified.

Event 2: Using electrical equipment on deck

Two crew members on a fishing vessel were unshackling fishing nets on deck. The water was choppy with some swell. One of the crew members decided to use an electric angle grinder to cut some rusted shackles. The power socket used for the grinder was not protected by a residual current device (RCD). The crew member using the grinder was not wearing any personal protective equipment and was dressed in shorts and a singlet and wore no shoes.

A wave washed over the deck and immersed the crew member with the grinder, causing him to be electrocuted. At this point the fishing vessel was 11 hours from the nearest port, and there was no defibrillator on board. The crew member could not be resuscitated.



Figure 3: The power socket used on deck of the fishing vessel (source: ABC News)

The coroner's inquest² highlighted that risks associated with the use of electrical equipment on board had previously been identified through a risk assessment. To control the risk, the company had commenced installing RCDs in their vessels. However, the power socket used for the grinder had not yet been protected by a RCD.

Event 3: Cleaning in machinery spaces

A crew member on board a general cargo vessel was cleaning the evaporator of the air-conditioning system. While stepping into the evaporator chamber, the crew member's foot slipped. In order to maintain balance, the crew member grabbed the ledge of the save-all resulting in a deep laceration of the right hand.

An investigation found that risks were not identified and as a result control measures were not implemented – slippery surface had not been cleaned or covered and gloves were not worn. Following a risk assessment, controls have since been implemented, including placing perforated non-skid mats or gratings inside the evaporator chamber. A removable staging module was also put in place to cover piping below the entrance for easier and safer access, and warning notices placed at the entrance as a reminder to all crew.

What the information indicates

These events highlight issues with the management of risk on board vessels. In some cases, risk assessments are inadequate, in other cases appropriate risk controls are not effectively implemented and put into practice.

AMSA's port and flag State control inspection data for the period 2014–2016 indicates that there is room for improvement in the category “risk evaluation, training and instruction to seafarers”. The data shows an increasing trend over the last 3 years in the number of deficiencies identified in this category.

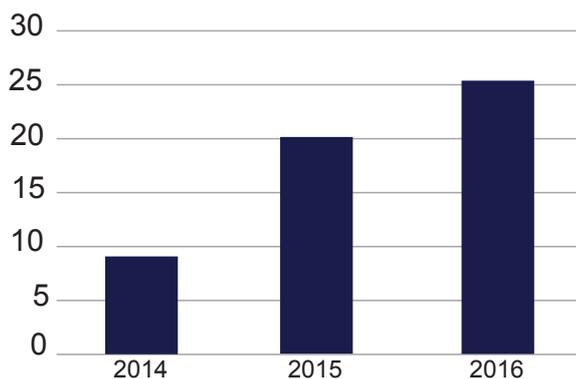


Figure 4: Number of deficiencies in the category “risk evaluation, training and instruction to seafarers” for 2014 – 2016 period (source: AMSA)

What is risk?

Risk can be defined in many different ways. Most definitions of risk involve the notion of negative outcomes - that something unwanted will happen. Commonly, a risk is considered to be high if either the consequence is severe, if the likelihood is high, or both together. Similarly, a risk is considered to be low if the consequence is minor, if the likelihood is low, or both. Figure 5 shows an example of a tool which can be used when assessing risk.

Likelihood	Almost certain	Medium	High	Extreme	Extreme	Extreme
	Likely	Medium	High	High	Extreme	Extreme
	Possible	Low	Medium	High	Extreme	Extreme
	Unlikely	Low	Low	Medium	High	Extreme
	Rare	Low	Low	Medium	Medium	High
		Insignificant	Minor	Moderate	Major	Catastrophic
		Consequence				

Figure 5. A risk rating matrix can be useful when assessing risk

Guidance on the risk management process is provided by AMSA³ and Standards Australia^{4, 5}.

Perception of risk

Different people perceive risk differently. The way people perceive risk is influenced by many factors such as their values, needs, assumptions, and concerns. It is also influenced by how much they know about the risk and how much they fear a particular risk.

Furthermore, our perception of risk is shaped by the situations we find ourselves in. If we feel that we are in control of the situation, we often feel that the risk is low. But if we feel that we have limited ability to influence the situation, we feel that the risk is high. Similarly, if we are frequently exposed to a risk we may perceive it differently from how we would if we were rarely exposed to it.

It is important to recognise these differences, as people make judgements and decisions about risk based on their perceptions of risk. This in turn may influence their behaviour when facing a risk.

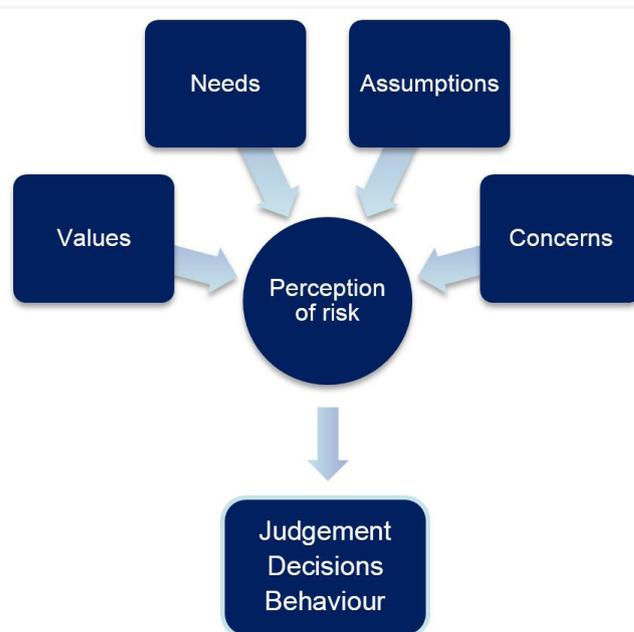


Figure 6: Perception of risk are influenced for example by our values, needs, assumptions, and concerns. Our perception form a basis for judgement, decisions, and behaviour

Risk identification

The aim of risk identification is to generate a comprehensive list of risks. This is important, as a risk that is not identified at this stage will not be included in the risk management process. It is also important to ensure that people with different experience and expertise are involved in identifying risks. In this way, differing perceptions can help in getting a richer understanding of risks.



Figure 7: Working at heights is considered a high risk. Using a safety harness is one way of controlling this risk. People used to working at heights may perceive the risk very differently from those who are not (Source: AMSA)

Communication and consultation

When a risk to safety has been identified, it needs to be controlled. One or more ways of controlling the risk are selected and implemented.

Both the identification and implementation of risk controls are most likely to be successful when different perceptions are recognised and taken into consideration. It is important that personnel on board are consulted and that their views together with other knowledge of risk are taken into account in the risk management process.

People's individual perceptions may influence⁶:

- willingness to consider new information
- confidence or trust in such information
- the relative importance given to information

Effective communication and consultation will ensure everyone involved understands the basis on which decisions are made and the reasons why particular actions are requested. Such communication and consultation further provides an opportunity for people to raise issues, for example regarding conflicting goals and competing tasks.

Communication and consultation can be a useful way of ensuring that risks are identified, and risk controls are effectively implemented.

Monitoring and review

Ineffective or failed risk controls can pose a significant risk – particularly if they go undetected. If people believe a risk has been effectively controlled when in fact it has not, they may expose themselves to unnecessary and involuntary risk. It is essential to regularly monitor and review the risk controls. Monitoring and reviewing can take place both on a periodic basis and as the need arises; such as when the operational conditions change. This helps in ensuring that risk controls are effective, relevant, and are updated in light of new information. New information can for example be based on lessons learnt from near-misses.

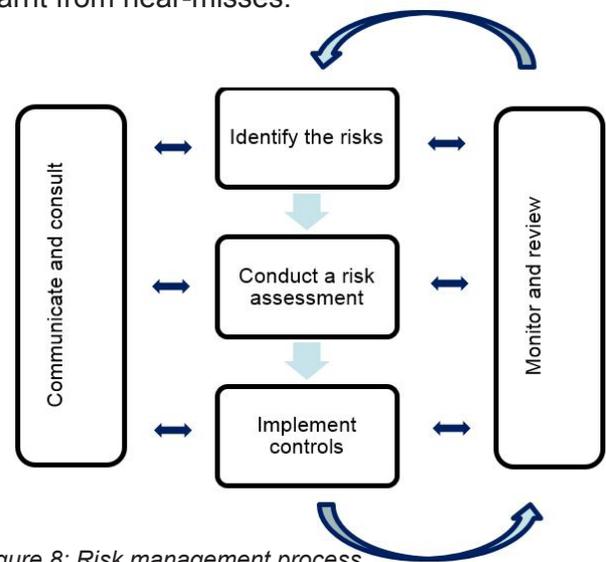


Figure 8: Risk management process

Take-away message

The identification of risks and the implementation of risk controls are most likely to be successful when people's perceptions are recognised and taken into consideration. Effective communication and consultation with everyone involved can improve the risk management process, a process that needs to be regularly monitored and reviewed.

References

- ¹ Australian Transport Safety Bureau (2016). Investigation number: 322-MO-2015-005
- ² Coroners Court Darwin (2016). NTLC 009. File no: D210/2013
- ³ Australian Maritime Safety Authority (2015). Risk Management in the National System – A Practical Guide.
- ⁴ Standards Australia (2009). AS/NZS ISO 31000:2009 Risk management – Principles and guidelines
- ⁵ Standards Australia (2013). SA/SNZ HB 89:2013 Risk management – Guidelines on risk assessment techniques
- ⁶ Standards Australia (2010). HB 327:2010 Communicating and consulting about risk.