



Guidance for Risk Assessment

Introduction

The Club has identified a number of recent losses where there may have been an inadequacy in Risk Assessment of a particular task.

Wherever there is a risk eventually something will go wrong. When it does go wrong it is the purpose of the management of an organisation to respond in a way that minimises the consequences. A thorough investigation follows and efforts are made to identify the contributing factors and to take action to reduce the likelihood of the same event occurring in the future. This Risk Alert explains the principles of risk assessment in relation to occupational health and safety and provides some supplementary guidance on how the assessment and control of risks may be approached.

These principles include the avoidance of risks, and the evaluation of unavoidable risks and the taking of action to reduce them.

Employers are required under ISM Clause 1.2.2 to ensure the health and safety of workers and other persons so far as

possible, by the application of certain principles, including the evaluation of unavoidable risks and the taking of action to reduce them. Employers are to make an assessment of the risks to health and safety of workers arising in the normal course of their activities or duties, for the purpose of identifying:

- (a) Groups of workers at particular risk in the performance of their duties.
- (b) The measures to be taken to comply with the employer's obligations.

The assessment should extend to those others on board ship who may be affected by the acts or omissions of the employer. Employers must review the assessment when there is reason to believe that it is no longer valid, and make any necessary changes.

A hazard is a source of potential harm or damage or a situation with potential for harm or damage.

There is no definition of risk that is universally accepted although it used to be associated with good and bad outcomes of single events. Nowadays when

we see the word 'risk' the interpretation is often 'danger'.

A risk has two elements:

"The likelihood that a hazard may occur".

"The consequences of the hazardous event".

Risk Assessment is the management (or control) of that risk and is a process where decisions are taken that accept a known risk and implement actions to reduce the consequences or the likelihood of occurrence. A 'risk assessment' is intended to be a careful examination of what could cause harm, so that decisions can be made as to whether enough precautions have been taken or whether more should be done to prevent that harm.

Existing safety measures may already provide a high level of safety for workers. For example, well-established procedures, inspections by safety officers and the use of 'permits to work' which control safety conditions, will contribute to the identification of hazards and measures for safe working.



The aim is to minimise accidents and ill health on board ship.

Principles of Risk Assessment

The process may be considered to consist of four activities:

- a) Hazard identification
- b) Risk Assessment
- c) Risk Control
- d) Performance monitoring

Hazard Identification

It follows that the first step is to identify the hazard and this is probably the most difficult part of any Risk Assessment as it means that all hazards must be identified and in a systematic way. This process should be carried out by, or with the assistance of people who have detailed knowledge, understanding and experience of the activity in question. Wherever possible it should be based upon observation of the activity in realistic simulated conditions.

There are too many hazards associated with shipping to mention them all but some examples are the possibility of flammable or toxic liquid or gas being present, slips and falls by people, strains of joints, asphyxiation, drowning, spillage, mixing of incompatible products, shallow water, etc.

Asking these three questions should help to identify where there is a hazard:

“Is there a source of harm?”

“Who (or what) could be harmed?”

“How could harm occur?”

Hazards that clearly possess negligible potential for harm should not be documented or given further consideration, provided that appropriate control measures remain in place.

Having identified all of the hazards, the consequence of that hazard or hazards and the severity of the potential incident are estimated.

Risk Assessment

Risk Assessment provides an estimation of the risk but cannot be a precise measure since risk is all about uncertainty. The term covers a range of activities; for example, a detailed statistical analysis of the risks involved in the very smallest details of an activity, normally conducted by specialised people and often referred to as a ‘Full Safety Case’. At the other end of the range are less formal assessments conducted by people familiar with an operation who will consider what could go wrong and what should be done to prevent it.

A risk is a function of two elements:

“The chance that a danger will result in damage or personal injury”.

“The nature, severity and extent of that damage or injury”.

A simple table may be created and numerical values may be added as in the example below;

See Fig.1

Trivial is established by multiplying the Likelihood value of 1 (Highly Unlikely) with the Consequence value of (1) (Slightly Harmful)

Intolerable is established by multiplying the Likelihood value of 3 (Likely) with the Consequence value of (3) (Extremely Harmful)

The detail should be in proportion to the level of risk involved and need not include cost and benefit for every activity or operation. In many cases there will be a pre-existing generic Risk Assessment or simply adopting compliance with an appropriate code of practice or industry guidance but documented evidence that some form of assessment is required for ISM auditing



requirements and for, in the unfortunate event of an event or incident, potential challenges at a later date.

The assessment of risks must be 'suitable and sufficient'. The process need not be overcomplicated. This means that the amount of effort that is put into an assessment should depend on the level of risks identified and whether those risks are already controlled by satisfactory precautions or procedures to ensure that they are 'as low as reasonably practicable' (ALARP). Shipping tends to rely on their own staff's professional judgment, experience and knowledge and in the above example all Substantial or Intolerable risk levels would typically be referred to shore based management.

Risk Control

The most effective way of reducing risk is to eliminate the hazard completely, however in many cases this will be impossible and risk controls will need to be used.

Once all of the hazards and risks have been identified and assessed the process of controlling those risks can begin. This is normally done by the implementation of procedures and/or equipment that will reduce either the likelihood or

consequences of the hazard, or both.

Risk control can happen at different levels throughout an organisation or company, normally dependent upon the perceived level of risk or the organisation previous exposure to that risk.

The assessment should then establish whether a hazard is significant and whether it is already covered by satisfactory precautions to control the risk, such as permits to work, restricted access, use of warning signs or personal protective equipment, including consideration of the likelihood of the failure of those precautions which are in place.

Controls should be chosen taking into account the following, which are in order of effectiveness:

1. Elimination of the hazard
2. Substitution by something less hazardous and risky;
3. Enclosure of the hazard to eliminates or controls the risk;
4. Guarding/Segregation of people;
5. Safe system of work that reduces the risk;

6. Written procedures, known and understood by those affected;
7. Review the blend of technical and procedural control;
8. Adequate supervision;
9. Identification of training needs;
10. Information/Instruction;
11. Personal Protective Equipment (last resort) no control by other means.

In addition to emergency and evacuation plans, it may be necessary to provide emergency equipment relevant to the specific hazards.

Performance Monitoring

An important part of Risk Assessment is performance monitoring including an evaluation of whether the controls are put in place and are being used correctly.

Performance monitoring should also include an evaluation on whether the perceived risk was sufficiently reduced.

Any action plan should be reviewed before implementation, typically by asking:

- (a) Will the revised controls lead to tolerable risk levels?



- (b) Are new hazards created?
- (c) What do people affected think about the need for, and practicality of, the revised preventive measures?
- (d) Will the revised controls be used in practice, and not ignored in the face of, for example, pressures to get the job done?

Conclusion

Risk Assessment and control is a continual process. Hence, written risk assessments should be subject to periodic formal reviews to confirm the validity of the assessment and whether the risk controls are still effective and adequate.

This Risk Alert is to offer guidance and assistance to members and their staff and

should be supplemented by further reading including the MCA publication Code of Safe Working Practice for merchant Seamen.

This publication is available on line at;

<http://www.dft.gov.uk/mca/coswp2010.pdf>

Fig 1

Likelihood	Consequences		
	Slightly Harmful (1)	Harmful (2)	Extremely Harmful (3)
Highly Unlikely 1	Trivial 1	Tolerable 2	Moderate 3
Unlikely 2	Tolerable 2	Moderate 4	Substantial 6
Likely 3	Moderate 3	Substantial 6	Intolerable 9

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