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Risk assessment and control

Continual improvement

Management review

OH&S Policy

Risk assessment

Checking and corrective action

Planning

Implementation and operation
In brief

Risk assessment and control is at the core of effective OH&S management. The process used for risk assessment and control need not be complex and should reflect the type of hazards that exist in the workplace. For instance, there are usually very few hazards in an office environment while there may be many in a chemical or engineering environment. No matter what type of workplace, there is no requirement to address every hazard. The aim should be to identify those hazards that pose a significant risk and therefore need to be addressed rather than trying to eliminate all hazards – a task that is unlikely. It is impracticable to make a workplace totally safe and also be able use it.

The identification of hazards and risk assessment are regulatory requirements throughout Europe and much of the world. Risk assessment is fundamental to the successful application of any health and safety management system. In most instances the process is based on simple principles which can be summarized as follows:

1. Classify work activities.
2. Identify hazards.
3. Identify existing risk controls.
4. Determine risk.
5. Determine acceptability.
6. Prepare risk control action plan to improve risk control as necessary.
8. Ensure risk assessment and controls are effective and up to date.

Key elements – Risk assessment and control

Risk assessment is the fundamental element required for the successful implementation of an OH&S management system. It embodies the key principle of proactive management: identifying the hazard and controlling the risk
before harm occurs and/or damage is sustained to plant, equipment or other operational conditions. The process of identifying hazards, assessing risks and implementing and reviewing risk controls should be the basis of the whole OH&S management system. It is impracticable to make the workplace free of risk but the aim should be to identify and manage all foreseeable risks. In the UK, there is a legal duty on all employers and self-employed people to assess the risks arising from the hazards that result from their work activities. The main purpose of risk assessment is to decide whether existing or planned controls are adequate. This is a proactive process, i.e. controlling risks before harm (or damage) can occur. It is not a one-off exercise, as the measures taken will need to be reviewed from time to time depending on the gravity of the risk and extent of any changes to circumstances. Whenever there is to be any organizational or operational changes a risk assessment should be carried out before the changes are implemented. To ensure that the risk assessment process works, it is essential to involve the workforce and gain commitment to this proactive approach. Risk management should be equally about identifying positive opportunities as it is about avoiding damage or injury.

Risk assessment looks at the risks to which each person is exposed, whether employee, contractor, visitor or anyone else who might suffer harm, and arrives at a judgment as to whether each risk is:

1. acceptable – very low risk where no action is necessary; or
2. low, medium risk – risks in this category should be reduced so that they are acceptable or tolerable, where this is practicable;
3. unacceptable – something needs to be done right away to reduce it (in extreme cases this may involve stopping an activity until new methods or controls can be introduced).

BS 8800, E.1.4 states the following:

The overall purpose of risk assessment and control is to understand the hazards that might arise in the course of the organization’s activities and ensure that any risks to people arising from the hazards are acceptable or tolerable. This is achieved by:
• identifying hazards and making an estimate of the associated risk levels, on the basis of existing or proposed risk controls;
• determining whether these risks are tolerable;
• determining whether further analysis is required to establish whether the risks are, or are not, tolerable, for example noise levels might need to be measured to determine the more exact risk of hearing damage;
• devising improved risk controls where these are found to be necessary.

Risk assessment can also be used to make a systematic comparison of different risk control/reduction options. It aids the organization to prioritize any resulting actions to reduce risk.

It is important that the purpose of risk assessment remains clear in the minds of everyone involved in the process in order to avoid unnecessary work, which is not only wasteful but which might even obscure risks that require urgent attention.

Good judgment, rather than a mechanistic approach, must always be used in assessing a risk. The level of risk attached to almost any action is dependent on whether the relevant controls and safeguards are in place.

Of all the elements of a successful OH&S system, the terminology and understanding is least clear for risk assessment. Similar terminology can apply to the same definition and the difference between the terms ‘hazard’ and ‘risk’ is frequently misunderstood. BS OHSAS 18001 specifically defines the key terms:

**hazard**
source, situation, or act with a potential for harm in terms of human injury or ill health, or a combination of these

**hazard identification**
process of recognizing that a hazard exists and defining its characteristics

**acceptable risk**
risk that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own OH&S policy
**risk**
combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health that can be caused by the event or exposure(s)

**risk assessment**
process of evaluating the risk(s) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable

Definitions of ‘risk controls’, ‘risk control systems’, ‘unacceptable risk’, and ‘acceptable risk’ are provided within BS 8800.

BS OHSAS 18001, 4.3.1 specifies that the methodology used shall:

a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and
b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate.

For the management of change, the organization shall identify the OH&S hazards and OH&S risks associated with changes in the organization, the OH&S management system, or its activities, prior to the introduction of such changes.

The success of any risk assessment process is based on a systematic approach being taken. Only then can effective control measures be identified.

**Systematic risk assessment and control**

This section addresses the fundamentals of managing risk. In order to do this it is necessary to systematically identify the hazards that are created, assess the risks and establish what controls (if any) need to be implemented to reduce the risk of harm to an acceptable level. The process needs to be systematic and consistently applied, considering all the areas, activities and processes undertaken, in order to avoid missing potential sources of harm.
All organizations differ and the risk assessment process used, whilst having the same eventual aim, will vary from organization to organization. In large, complex operations, the risk assessment may appear complex; in the office environment, the process can be simpler. They will normally be expressed in the form of a documented procedure, although BS 8800, E.1.3 states the following in relation to different risk assessment processes:

Not all of these will necessarily be documented, since there is often a case for managers and employees being trained to make a judgement before work begins or as a response to changing circumstances as to whether there are appropriate risk controls in place. This process is often referred to as dynamic risk assessment.

At the other extreme, there are some systematic documented methods which are complex, and appropriate only to the special circumstances of major hazard activities. For example, risk assessment of a chemical process plant might require complex mathematical calculations of the probabilities of events leading to major release of agents that might affect employees, contractors and others in the workplace, or the public. In many countries, sector-specific legislation specifies where this degree of complexity is required.

The process of risk assessment is based on making a judgment. This often frightens the untrained and inexperienced. The HSE in the UK provides extensive information and guidance to support organizations in their judgment process. The following approach is mainly based on that given in BS 8800 and can be seen as a stepwise, logical approach. There is no right or wrong way and the following methodology is seen as one that any organization can embrace.

1. **Classify work activities**

   List the work activities (including those covering premises, plant, people and procedures) and gather information about them, from start to finish, to include the people they cover, and how they work. The process of classifying work activities should include staff consultation where necessary, as it is often the case that a work activity is carried out differently in practice than it is in theory. It is important that the process includes not only employees...
but also contractors, visitors and anyone else who might be harmed by the activities of the organization. This does not mean that every person needs to be considered individually. If there are 50 people working in a department, all doing the same thing on identical equipment and under the same conditions, e.g. in a call centre, the hazards are very likely to be the same and one assessment can cover the whole group. Care would, however, need to be taken where, for example, the group includes a new starter who has not been fully trained or someone who has a disability that might put them at greater risk if the premises have to be evacuated.

2. Identify hazards
Identify all significant hazards relating to each work activity, e.g. trapping, slipping, exposure to noise, inhalation of toxic fumes, etc. Consider who might be harmed and how in relation to the hazard controls that are in place. For each person, or group of people, the key questions to ask are: What could go wrong that could cause injury or damage? Who might be harmed and how? There are hazards in every workplace that will apply to everyone working there as well as visitors and contractors etc., in addition to specific hazards relating to each work activity. A prompt-list of questions relating to hazards is provided on pages 118–119.

3. Identify existing risk controls
Identify the risk controls that exist (or are proposed for planned activities), in order to reduce the risk associated with each hazard. These should be based on the principles of prevention through elimination, substitution, reduction, engineering and, as a final resort, the use of personal protective equipment (PPE) (in that order). Under some conditions, e.g. emergency maintenance, it may be necessary to use a combination of engineering controls and PPE.

4. Determine the risk
Make a subjective estimate of risk associated with each hazard, assuming that planned or existing controls are in place. The assessment should consider the effectiveness of the controls and the consequences of their failure. The style of the assessment should be chosen to best suit the organization and the hazard being assessed. Some organizations use a numerical process for risk assessment; others use descriptive categories
such as ‘highly unlikely’ or ‘very probable’. Whichever method is chosen, the aim is to assess the overall risk as being acceptable, minor or serious. Provide a written record where risks are determined to be significant. Defining ‘significant’ is often difficult. As a rule of thumb, if it takes longer to record a risk assessment than to complete the overall task then the risk is probably not ‘significant’ and does not need to be recorded.

5. **Determine acceptability**
   Decide if the risk is acceptable/tolerable, i.e. that it has been reduced to the lowest level that is reasonably practicable. Judge whether planned or existing OH&S precautions and control measures are sufficient to keep the hazard under control. In order to be able to assess the acceptability of any particular risk, the organization should establish criteria to provide a basis for consistency in all its risk assessments. See BS 8800, E.3.6.

6. **Prepare a risk control action plan**
   Deal with any issues that were found by the risk assessment to require attention. Organizations should ensure that new and existing controls remain in place, are effective, are communicated and, where necessary, are recorded. It should be recognized that in some cases, further control measures may not be required.

7. **Review the adequacy of the action plan**
   Reassess risks on the basis of the revised controls and check whether risks will be acceptable. This should be done on completion of the plan and periodically during the implementation process until completion. A final review on full implementation should be carried out to ensure suitability and good fit.

8. **Maintenance**
   As with the other steps in the process, this review should be documented and repeated periodically to ensure that the controls remain effective. The frequency of the review will be dependent on the risk – the higher the risk, the more frequent the review process. In most circumstances an annual review is recommended. Update and review risk assessments as necessary in order to maintain their validity.

   The following checklist identifies the main steps in a risk assessment. A tick box is provided for identifying those procedures that are already in place (1) and those which need to be introduced (2).
CHECKLIST: Risk assessment in the organization

In practice – Risk assessment and control

In terms of risk assessment and control, the six case study organizations have a very similar approach to OH&S management because all of them need to adopt a risk assessment and control system in order to be effective.

The following publications, available from the HSE, provide advice on risk assessment that is applicable to all types of organization:

- The Health and Safety at Work etc. Act 1974, Section 2(2)(b) and Section 6;
- The Management of Health and Safety at Work Regulations 1999;
- INDG163 (rev2), Five steps to risk assessment;

There are some risks that affect most organizations. Some examples of these are listed as follows.

a) The reception, clerical and office support environment:
   - office chemicals (cleaning solutions) and IT equipment emissions, e.g. from printers, photocopiers;
   - electricity and electrical equipment;
   - display screen equipment;
• fire and emergencies;
• first aid provision;
• housekeeping and tidiness;
• visiting contractors and the work they undertake;
• manual handling;
• sources of stress, e.g. workload patterns.

b) The structure (all locations, offices, workshops, yards, etc.):
• contractor management, e.g. cleaning windows, servicing heating systems, major repairs and building works;
• workplace condition monitoring and maintenance – welfare facilities;
• security of personnel;
• asbestos and other hazardous materials;
• flammable materials;
• traffic routes;
• space availability;
• lighting levels;
• storage arrangements;
• heating and temperature control (hot and cold);
• site hazards from external sources, e.g. hypodermic needles;
• biological hazards.

c) The processes:
• use of plant and equipment;
• driving;
• planned preventive maintenance and repair;
• emergency maintenance and repair;
• process emissions and body/eye contacts, e.g. dust, fumes, gases, vapours, fibres, mists, liquids, etc.;
• working at height;
• falling objects;
• control measure management;
• electricity;
• ionizing radiation;
• vibration;
• non-ionizing radiation;
• working outdoors – weather effects, e.g. sunburn;
• biological, e.g. contact with rodents, faeces.

The examples described are not exhaustive. Although these key areas will apply in full or in part to every organization, those dealing with highly specialized risks resulting from major hazards like ionizing radiation will need to include these in their risk assessment.

Compliance with specific regulations should be prioritized according to the demands of the business. In the UK, the application of The Management of Health and Safety at Work Regulations 1999, The Electricity at Work Regulations 1989 and The Workplace (Health, Safety and Welfare) Regulations 1992 will assume significant priority in each of the case study organizations, although the risks and the controls that apply have a universal application throughout the world.

**In detail – Risk assessment**

1. Classify work activities
2. Identify hazards
3. Identify existing risk controls
4. Determine risk
5. Determine tolerability
6. Prepare risk control action plan to improve risk control, as necessary
7. Review adequacy of action plan – confirm risk acceptability/tolerability
8. Ensure risk assessment and controls are effective and up to date

*The process of effective risk assessment*

Organizations should tailor the approach described here to their own needs, taking into account the nature of their work and the seriousness and complexity
of the risks that are present. The full eight-point procedure is not necessary if a preliminary study shows either that the risks are trivial or that the risk controls already in place conform to well-established legal requirements and standards, are appropriate for the task and are understood and used by those involved.

An integrated approach to OH&S risk assessment can be more effective than carrying out separate assessments for, say, health hazards, manual handling hazards, machinery hazards and so on. Not only can separate assessments lead to needless duplication but ranking risk control priorities becomes more difficult if different methods are used.

It is also possible to extend this approach to other management disciplines such as quality assurance, environment, food safety and security. This enables a more encompassing, integrated approach to be adopted for the management system and day-to-day operation of the organization and its activities.

**Who carries out the risk assessment?**

The skill levels of those assessing the risk and the depth of the programme of risk assessment should reflect the needs of the organization. An office environment is comparatively a much safer place to work than a building site and the assessment should reflect the situation accordingly. In a high risk industry, the assessment of risks is a specialist subject in its own right.

The assessment process should only be undertaken by those persons competent and trained to do so. Knowledge of the process and the risk assessment methodology is essential and a team approach can often be beneficial. Specialist expertise may be required using external resources. The contributory approach requires all of the organization’s stakeholders, staff, managers and employee representatives to agree on the most effective way forward. This allows the OH&S procedures:

- to be based on shared perceptions of hazards and risks;
- to be necessary and workable;
- to succeed in preventing harm.