



## Occupational Health & Safety Risk Assessment and Management Guideline

### Introduction

This guideline has been developed to assist staff and students at the University of Queensland to identify, assess and manage Occupational Health and Safety risks. It is based on the **Risk Management Code of Practice 2007**

“Risk management is recognised as an integral part of good management practice. It is an interactive process consisting of steps, which, when undertaken in sequence, enable continual improvement in decision making. Risk management is the term applied to a logical and systematic method of establishing the context, identifying, analysing, treating, monitoring and communicating risks associated with any activity, function or process in a way that will enable organisations to minimize losses and maximize opportunities. Risk management is as much about identifying opportunities as avoiding or mitigating losses.” Australian Standard AS/NZS 4360:2004 – Risk management.

All persons in the workplace have obligations under the Workplace Health and Safety Act 1995. To help meet these obligations the Workplace Health and Safety Act, Regulations, Codes of Practice including the Risk Management Code of Practice 2007 and other codes of practice and standards have been written. These documents provide information about how to identify a variety of workplace hazards and how to manage exposure to the risks associated with these hazards.

The Occupational Health and Safety Unit at the University of Queensland provides advice to staff and students at UQ on all aspects of Occupational Health and Safety including Risk Management. Information and advice is also given in the form of Guidelines, Policies, Hazard Alerts and Risk Management Programs which can be found at [www.uq.edu.au/ohs](http://www.uq.edu.au/ohs). Specialist staff at the Occupational Health and Safety Unit and Workplace Health and Safety Officers within Schools, Faculties and Centres can assist with the risk management process. The responsibility for ensuring risk assessments are completed, however, rests with the Supervisor at the workplace and should be performed by the person/s undertaking or performing the task. Supervisors are responsible for checking the risk assessment and signifying their approval of it.

## Overview of the Risk Management Process

Risk management is an ongoing process that should be undertaken:

- **Now**, if it has not been done before
- When **any new work** is planned including laboratory/workshop/course work
- When planning or making a **significant change**
- **After an incident**
- At **regular** intervals appropriate to the nature of the workplace and the hazards present
- When legislative obligations (including regulations change)

## Record Keeping

Adequate record keeping of the risk management process will help demonstrate to the Division of Workplace Health and Safety or in litigation, that you have been actively working to ensure safety at the University of Queensland. Records must show that the process has been conducted properly including information about the hazards, associated risks and that control measures have been implemented. Information should include:

- Identify hazards based on experience in workplace, recorded data and other information
- Assess the associated risks by making an evaluation of the level of risks to the health and safety of workers, based on the consequences and likelihood of harm
- Select control measures from the hierarchy of control (e.g. eliminate, substitute, isolate or engineer out the risks, or reduce them through administrative measures or personal protective equipment) by selecting the highest order control method possible and then proceeding down the list in order
- Implement or apply the selected control measure(s) in the workplace
- Monitor the control measures to ensure that they are working correctly to control the risks and that no other risks have been introduced.

Effective risk management includes identifying all workplace hazards, then carrying out a risk assessment for each hazard and assessing the severity of each risk and using this assessment to assign the risk a priority. Those risks with the greatest severity are managed first and then those that are less serious.

## Hazards and Risks

Hazards and risks are not the same thing.

A **hazard** is something with the potential to cause harm. This can include chemical substances, plant, live electricity, work process and/or other aspects of the work environment.

**Risk** is the likelihood that illness, injury or even death might result because of the hazard.

The relationship between hazard and risk is illustrated by the examples below.

<b>HAZARD</b>	<b>RISK</b>
Substance: Carcinogen	The likelihood a researcher might contract cancer from the long term use of benzene being used as a solvent outside a fume cupboard
Energy: Electricity	The likelihood that a maintenance worker might be electrocuted because of exposure to a damaged electrical cord of a power tool and there is no earth leakage protection.
Manual Handling	The likelihood that a person might suffer back strain from manually lifting equipment that weighs 40kg.
Substance: infected blood	The likelihood that a worker might sustain a needlestick injury and become infected whilst taking a blood sample from a person with infected blood
Plant: circular saw bench	The likelihood that an Arts student might suffer a severe cut to the forearm while cutting timber for a project because the guard was removed

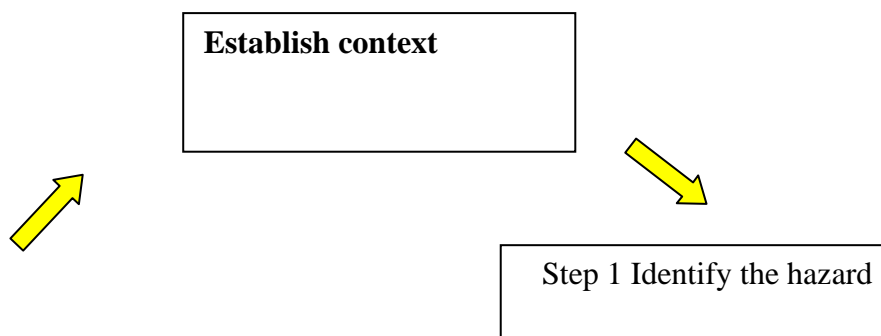
The University of Queensland Risk Management Database has been designed to assist in the Risk Assessment, Management and recording process. Use of the Risk Management Database is the preferred way of conducting and performing Risk Assessment and Management at the University of Queensland.

### Basic Steps

There are five basic steps in the risk management process.

**Firstly define** the context – identify tasks, activities, work processes and practices for assessment

1. **Identify** hazards
2. **Assess and Prioritise** risks
3. **Decide on control measures including OHS hierarchy of control**
4. **Implement control measures**
5. **Monitor and review**



**Step 5: Monitor and Review**

**Use Risk  
DataBase /  
Consult**

Is there a regulation, advisory standard, industry code or guidance material about any hazards you identified?

**Step 3: Decide on control measures (OHS hierarchy of control)**

## Risk Management Preparation - Establish the context

What is the work process? This part of the process is essentially descriptive.

Defining the context involves identifying:

- work processes, practices, activities and tasks that will be analysed in the risk management process and the steps involved
- the people involved in carrying out those work processes and in what capacity
- whether the people involved are sufficiently competent/skilled/experienced
- what items of plant or materials are used.

Consultation is essential in this process including the staff / students performing the task, Workplace Health and Safety Officers or Representatives (WHSO's or WHSR's), regarding the task and all hazards involved in the work area.

## Risk Management Step 1 - Identifying the Hazard

What is / are the hazard(s)? The hazards can be identified by observing, inspecting, investigating, communicating and consulting with staff / students in the workplace and making a record of the hazards identified.

Knowledge of the workplace hazards will assist.

- Is the risk associated with the hazard obviously a minor risk or can the hazard be fixed easily?

If you can answer yes to this question you should note this as your assessment of the risk and/or fix the hazard immediately. Record your findings or action. You then need to monitor and review your findings at a predetermined date.

If it is not a minor risk has the Division of Workplace Health and Safety produced a regulation, advisory standard, or industry code of practice for this hazard? If there is a regulation, advisory standard, industry code of practice and/or guidance material from the Division you are to refer to the advice in that document(s). There may also be UQ Occupational Health and Safety Policies or Guidelines which will assist in the risk assessment.

## Risk Management Step 2 - Assess and prioritise Risk

Analysing the risk involves determination of the:

- Consequences – outcome of an incident
- Exposure – interaction with hazard
- Probability – likelihood that consequences will occur once individual is exposed

**Process** - Use the Risk Score calculator for analysing and evaluating risk. The objective of analysing risk is to determine whether the risk is acceptable. It provides a qualitative tool that assists in prioritising risk. The Risk Score Calculator determines the level of risk by defining consequences, exposure and probability.

The risk matrix is used to assess and prioritise risks; then dealing with high priority risks first and then dealing with the least significant risks last.

## How to use the Risk Score Calculator

### Step 1 - Estimate the Probability

Estimate the likelihood that the consequences will occur once the individual is exposed to the hazard and select the most appropriate [probability category](#) from the Exposure Bar Line.

## Probability

<b>Almost certain</b>	The most likely and expected result if the hazard – event takes place.
<b>Quite possible</b>	Quite possible, would not be unusual, even 50/50 chance
<b>Unusual but possible</b>	Unusual but possible sequence or coincidence
<b>Remotely possible</b>	Remotely possible coincidence
<b>Conceivable but unlikely</b>	Has never happened after many years of exposure, but is conceivably possible
<b>Practically impossible</b>	Practically impossible, has never happened before

### Step 2 - Estimate the Exposure

Estimate how often an individual interacts with a hazard and select the most appropriate [exposure category](#) from the Exposure Bar Line.

## Exposure

<b>Very Rare</b>	Not known to have occurred
<b>Rare</b>	Occurs rarely, but has been known to occur
<b>Infrequent</b>	Occurs between once per month and once per year
<b>Frequent</b>	Occurs approximately once per day
<b>Continuous</b>	Occurs many times per day

### Step 3 - Identify the Consequences

Identify the most likely outcome of a potential accident, including injuries, property damage and/or environmental damage and select the most appropriate [consequence category](#) from the Consequences Bar Line.

## Consequences

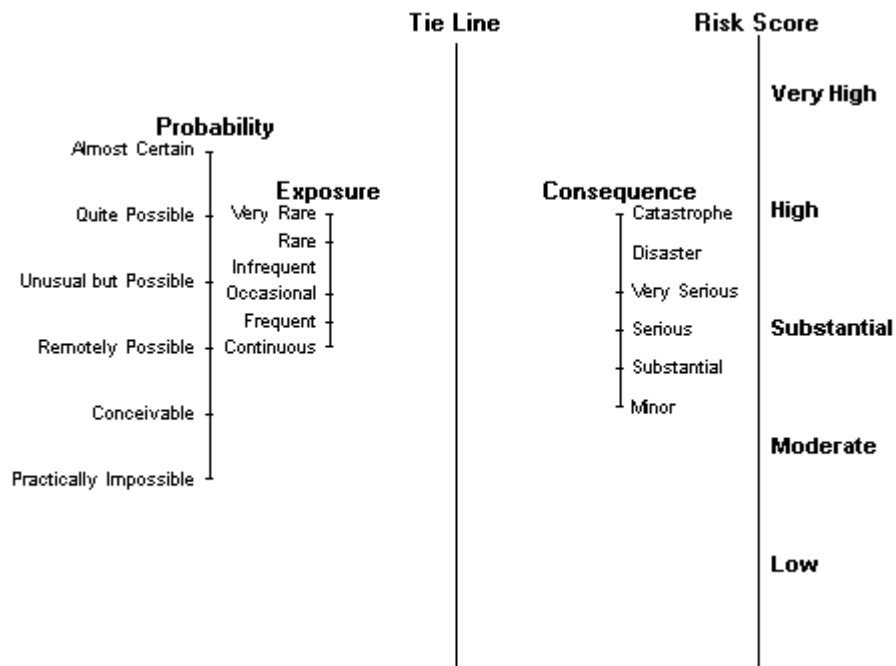
Category	Human injury	Financial cost	Work	Environment
<b>Catastrophe</b>	Numerous fatalities	Extensive financial loss (greater than \$5m)	Major disruption to operations	Extensive environmental damage
<b>Disaster</b>	Multiple fatalities	Significant financial loss (\$1-5m)	Major disruption to operations	Major environmental damage
<b>Very serious</b>	Fatality	Significant financial loss (\$500,000 to \$1m)	Significant production disruption	Significant environmental damage
<b>Serious</b>	Serious injury (permanent disability, amputation)	Substantial financial loss (\$50,000 to \$500,000)	Notable production disruption	Serious environmental damage
<b>Substantial</b>	Disabling injury requires medical treatment	Notable financial loss (\$5000 to \$50,000)	Slight production disruption	Minor environmental damage
<b>Minor</b>	First aid treatment – minor cuts, bruises or bumps	Negligible financial loss (up to \$5000)	No effect on work	Negligible environmental damage

### Step 4 - Determine the Risk

Select or mark the values for consequence, exposure and probability on the appropriate bar lines of the Risk Score Calculator.

If you have the electronic version of the Risk Score Calculator then it will automatically draw the line and determine the [risk level](#).

If using the manual version, draw a line from *probability* through *exposure* to the tie-line. Mark this point. Draw a line from the marked point on the tie-line through *consequence* to the Risk Score line to determine the risk level.



Using the risk calculator

The following table is used to determine the priority of treatment of risks.

Score	Action
High or very high	Do something about these risks immediately
Substantial or moderate	Do something about these risks as soon as possible
Risks perhaps acceptable	These risks may not need immediate attention

## Risk Management - Step 3 Decide on measures to control the risk by:

Using the **Hierarchy of Control Measures**

- **Eliminate** the hazard is the first choice  
The ideal solution is to get rid of the hazard completely. This is the most effective control measure and should always be considered first.  
If the hazard cannot be eliminated completely there are a number of control options that can be used to prevent or minimise exposure to the risk:
- **Substituting** a less hazardous material, process or equipment
- **Redesigning** the equipment or work process,
- **Isolating** the hazard through engineering – separating the worker from the hazard.
- **Administrative** controls involve minimising exposure to a risk through the use of procedures or instruction. This could involve limiting the exposure time to a particular hazard such as noise or radiation.
- **Personal Protective Equipment (PPE)** is used as a last resort when exposure to risk is not or cannot be minimised by other means. **PPE** is worn by people as a final barrier between themselves and the hazard. This measure does not control the hazard at the source but relies on behaviour modification for its success. The success of this control is dependent on the correct PPE being chosen, worn correctly, used correctly and maintained in good condition.

**Administration and the use of personal protective equipment are the lowest priority on the list of controls. These controls should NOT be relied on as the primary means of risk control until the options higher in the control priorities have been exhausted. These controls require management, enforcement, and commitment, together with behavioural modification.**

In many cases, it will be necessary to use more than one control measure to manage exposure to risk. For example, to minimise exposure to a risk involving a chemical you could decide to replace the chemical with a less toxic one, implement safer work procedures and use a fume cupboard.

Some control measure that are lower control priorities may need to be put in place until a permanent solution can be achieved. For example, you may decide the best way to manage exposure to a risk is to purchase a safer type of machinery with better guarding. In the mean time it will be necessary to minimise exposure to the risk by increasing supervision, changing work procedures and erecting a temporary barrier.

Whatever control measures are being chosen, the “hierarchy of control measures” must be taken into account. Consider those at the top of the list, from elimination, and work down to personal protective equipment as the least desirable choice.

#### **Step 4: Implement the Appropriate Control Measures**

The control measures should adequately control the risks; not create other risks and allow students and staff to do their work without undue discomfort or distress. There will be a need to develop work procedures in relation to the new control measures, which may involve clearly defining responsibilities of management, supervisors and workers.

You must inform all relevant persons about the control measures being implemented; in particular, the reasons for the changes.

You should provide adequate supervision to verify that the new control measures are being implemented and used correctly.

Any maintenance in relation to the control measures is an important part of the process. Work procedures should detail maintenance requirements and verification of the maintenance to ensure the ongoing effectiveness of the control measures.

### **Risk Management - Step 5 - Monitor and Review the Risk**

The final step in the process is to monitor and review the effectiveness of measures. **Set dates to review and record those dates.**

Monitor;

- Chosen control measure have been implemented, as planned
- Control measures are working and are adequate
- Did the implementation of the control measures create other hazards?
- Review:
- Has anything changed over time since the process was implemented?
- Is the control of risks still adequate?
- Was the risk management process conducted effectively?

## **References:**

1. Risk Management Code of Practice 2007: Department of Employment, and Industrial Relations
2. Australian Standard AS/NZS 4360:2004 – Risk management.
3. Workplace Health and Safety Act 1995.
4. Workplace Health and Safety Regulations 2008.