

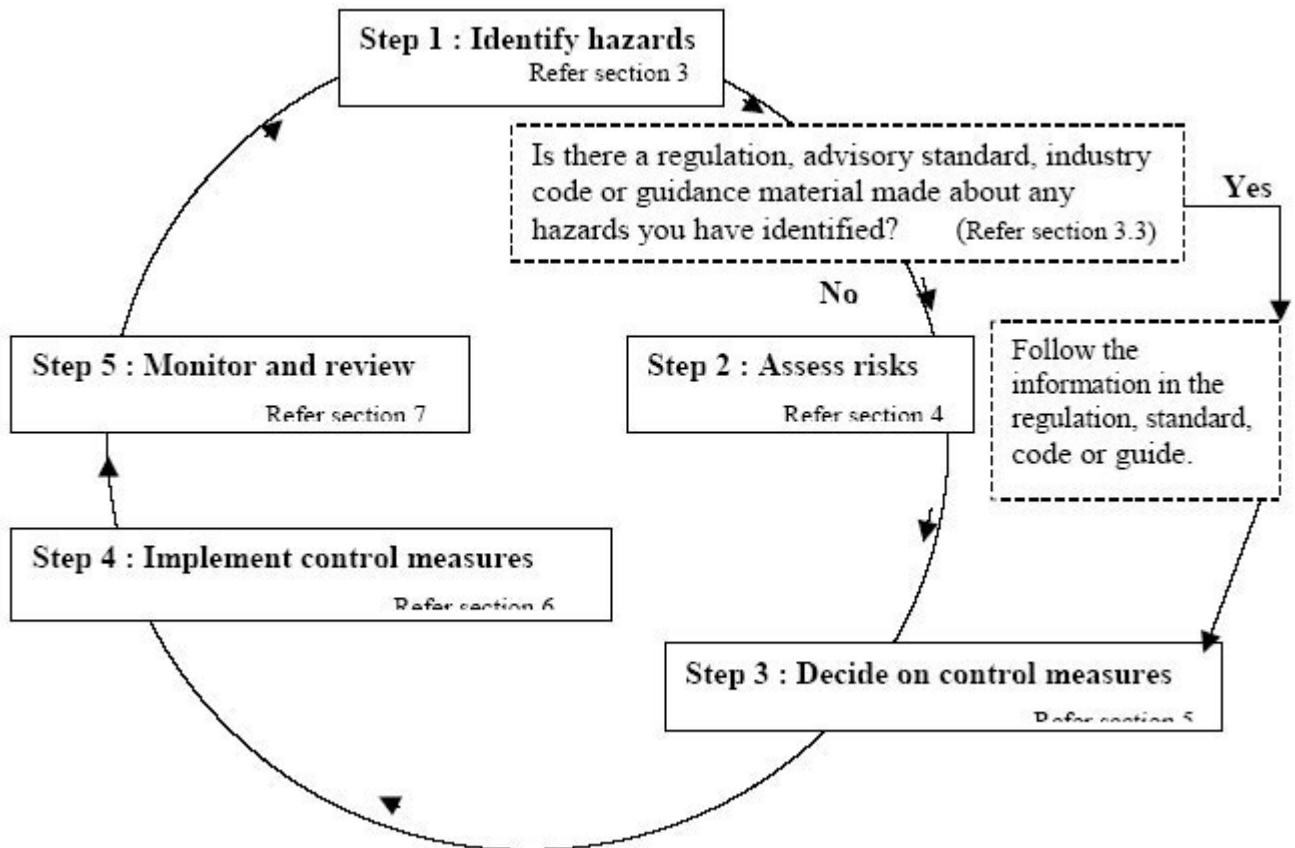
RISK MANAGEMENT

1.0 Risk Management Process

These processes are:

1. **Identify** hazards
2. **Assess** risks that may result because of the hazards
3. **Decide** on control measures to prevent or minimise the level of the risks
4. **Implement** control measures
5. **Monitor** and **review** the effectiveness of measures

This process is illustrated in Figure 1 below.



2.0 The Workplace Health and Safety Risk Management Process – General Information

The way you implement this process at your workplace will depend on the type of work you do and the nature of hazards and risks at your workplace. This is a step by step process, and in practice, you may find that some steps overlap. For example, a single inspection of the workplace can allow you to identify a hazard and assess the level of associated risk at the same time.

When undertaking this process, try to be objective and practical. Consider what *actually* happens in your workplace, not only what a manual can specify *should* happen. Take advantage of existing control measures and make sure all relevant hazards are addressed.

2.1 when to Work through the Workplace Health and Safety Risk Management Process

Workplace health and safety risk management is an ongoing process. It should be undertaken at various times, including:

- Now, if you have not done it before
- When a change occurs
- After an incident (and/or 'near miss')
- At regularly scheduled times appropriate to your workplace.

2.2 Act now

If you have not worked through a process to make sure health and safety is managed at your workplace, you should do so now.

2.3 When change occurs

Whenever you make a change at the workplace, check for new hazards and risks, and then continue through the process. Any modifications made as a result of this process should be discussed with those workers affected. Some examples of workplace changes are:

- Starting a new project;
- Changing work procedures
- Adding or changing tools, equipment or machinery, their locations or the way they are used
- Obtaining information about a previously unknown design or manufacturing fault, or about a previously unidentified hazard
- Introducing new people with different skill levels
- Changing a control measure after reviewing its effectiveness

2.4 After an incident

If an incident (or near miss) occurs, review the workplace health and safety risk management process in relation to the relevant task to determine whether changes are needed and what those changes should be. Such changes should be discussed with all workers performing the task.

2.5 Regular process

You should repeat the whole workplace health and safety risk management process at regularly scheduled intervals appropriate to your workplace. The period between repeating the process will depend on the nature of the hazards and associated risks and the degree of change likely in the work activity. Generally, you should undertake the process more often if there is a high level of risk involved with your work activities compared with a low level of risk.

3.0 Five Basic Steps

There are five basic steps in the workplace health and safety risk management process.

3.1 The five steps of the risk management process are:

Step 1 - Look for the hazards

How to look for hazards - what to look for?

Step 2 - Decide who might be harmed and how

How might someone be harmed? What is the harm? How likely is this harm?

Step 3 - Decide on control measures

Is there a Regulation or Code of Practice about any hazards you have identified? What are the existing controls? Are controls as high as possible in list of control priorities? Do controls protect everyone exposed to harm? What additional controls are required?

Step 4 - Put controls in place

Developing a plan for improving controls and actually improving controls.

Step 5 - Review the controls

Are the controls working? Are there any new problems?

3.1.1 Step 1: Look for the hazards

Here you are looking for those things or processes at your workplace that could cause harm. Because workplace hazards are not always obvious, you need to allocate enough time to looking for hazards. There are a number of types of workplace hazards including:

- Work environment (such as slippery floor surfaces)
- Energy (such as electricity or heat)
- Manual tasks
- Noise
- Substances (such as chemicals)
- Plant, machinery and equipment

There are a number of ways of looking for hazards including:

- Walking through your workplace and looking for hazards in a systematic way looking at physical things and workplace activities.
- Asking workers about hazards.
- Consulting with workplace health and safety representatives and committees.
- Considering how people use equipment and materials and how they could be hurt directly and indirectly by workplace activities.
- Conducting a safety audit.
- Scientific or technical evaluation.
- Reviewing your workplace records such as sick leave and incident reports.
- Acquiring information from designers, manufacturers and suppliers.
- Talking to anyone who can help such as your industry association and suppliers of equipment and consumables.

3.1.2 Step 2 – Decide on who may be harmed and how

Look for the ways that people could be hurt or become ill and at the possible causes of injury or illness. This is also called a risk assessment.

For each hazard:

- Estimate the **likelihood** of an incident occurring at your workplace, bearing in mind existing control measures
- Estimate the **consequences** of an incident occurring at your workplace, bearing in mind existing control measures

Consequences range from:

- Extreme - death or permanent disablement
- Major - serious bodily injury or serious work caused illness
- Moderate - injury or illness requiring casualty treatment
- Mild - requiring first aid only with no lost work time

Likelihood ranges from:

- Very likely - could happen frequently
- Likely - could happen occasionally
- Unlikely - could happen, but rarely
- Very unlikely - could happen, but probably never will

Combine your likelihood and consequence estimates to rate the risk.

When we look at the likelihood and consequence there are many ways of rating risks of injury or illness. Two of the most common ways are to use a:

- **Risk priority chart,**
- **Risk assessment calculator.**

Using the ratings of each risk, develop a prioritised list of workplace risks requiring action.

You should involve workers in this assessment.

Don't forget:

- Young workers, trainees, women who are pregnant or breastfeeding who may be at heightened risk

- Cleaners, visitors, contractors, maintenance workers, contractors who may not be familiar with your workplace risks
- Members of the public or people with whom you share your workplace

3.2 Assess the Risk

- Determining likelihood
- Determining consequences
- Rate each risk
- Prioritise risks

Step 2 involves assessing the risk associated with the hazards identified in [Step 1](#). As noted earlier, risk is the likelihood that death, injury or illness might result because of the hazard. To assess risk, you need to consider both likelihood and consequences.

The desired outcome of this step is a prioritised list of risks for further action. Various methods can be used to undertake a risk assessment. One method is presented below. (Another method, using a "Risk Assessment Calculator") There are more precise (and more complex) methods available for assessing risk. You may choose any risk assessment method as long as the desired outcome (stated above) is achieved.

Risk Assessment Method

- For each of the risks:
 - Estimate the *likelihood* of an incident occurring at your workplace, bearing in mind existing control measures;
 - Estimate the *consequences* of an incident occurring at your workplace, bearing in mind existing control measures; and
 - Combine your likelihood and consequence estimates to rate the risk.
- Using the ratings of each risk, develop a prioritised list of workplace risks requiring action.

³ This method provides a rough means of ranking the risks. The risk scores derived should be interpreted with caution as the process by which they are obtained is subjective and judgemental.

Determining Likelihood

Use the following descriptive scale to nominate the likelihood of an incident occurring at your workplace.

Likelihood	
Very likely	Could happen frequently
likely	Could happen occasionally
Unlikely	Could happen, but rarely
Very Unlikely	Could happen, but probably never will

The following factors can affect the likelihood of an incident occurring:

- **How often the situation occurs.** Generally, the greater the frequency of exposure, the more likely an incident will occur. *For example, consider how many times a day a worker lifts or carries a 40 kg bag of cement;*
- **How many people are exposed.** Generally, the greater the number of people exposed, the more likely an incident will occur. *For example, consider how many workers lift or carry 40 kg bags;*
- **The skills and experience of persons exposed.** Adequate training and reasonable competence to do a task may reduce the likelihood of an incident;
- **Any special characteristics of the people involved.** *For example, right or left hand orientation may affect the likelihood of an incident;*
- **The duration of exposure.** Generally, the longer a person is exposed, the more likely an incident will occur;
- **The position of the hazard relative to workers and to other hazards.** *For example, workers working close to a noisy machine are more likely to suffer hearing loss than those working further away; certain chemicals, such as methylated spirits, may only represent a risk if they are located near a heat source;*
- **Distractions,** such as time pressures or workplace conditions which may influence careful undertaking of a task. *For example, hectic activity in a hospital emergency area when a nurse is taking a blood sample could affect the likelihood of a worker sustaining a needlestick injury;*
- **Quantities of materials or multiple exposure points involved.** *For example, an incident (such as an explosion) is more likely to occur as a result of a small amount of flammable liquid, such as petrol, in a container which allows room for expanding gases than from a full container of the liquid with no room for expanding gases; an item of plant may have a number of places with exposed moving parts that could injure a worker;*
- **Environmental conditions.** Are there conditions which can increase the likelihood of an incident occurring; *for example, water in the vicinity of an electrical hazard?;*

- **Condition of equipment.** The use of defective equipment is more likely to cause an incident. *For example, an incident is more likely to occur when using a tractor with a cracked guard on the power take-off shaft than using a tractor without any guard at all;*
- **The effectiveness of existing control measures**
 - Do the existing control measures represent good practice?
 - Are the existing control measures minimising exposure to the risk?
 - Do workers know about the existing control measures?
 - Are the existing control measures being used/followed?
 - Are there adequate systems or procedures in place in relation to the existing control measures?
 - Is there adequate training and supervision in relation to the existing control measures?
 - Is there adequate maintenance in relation to the existing control measures?
 - How easy is it to use, or work with, the existing control measures?

Determining Consequences

Use the following descriptive scale to nominate the consequences of an incident occurring.

Consequences	
Extreme	Death or permanent disablement
Major	Serious bodily injury or serious work caused illness
Moderate	Moderate injury or illness requiring casualty treatment
Minor	Minor injury or illness requiring first aid only, no lost work time

To determine the consequences, you must make a judgement on the severity of the potential outcome. You should review any information gathered during the identification stage, including incident statistics and manufacturer's data. Also consider the following factors which can affect the consequences:

- **Potential for "chain reaction"** - where a hazard, if not eliminated, evolves and compounds into an even more dangerous situation;
- **Concentrations of substances.** *For example, a minor injury might result because of a dilute chemical, while a fatality might result from a concentrated form of the same chemical;*
- **Volumes of materials.** *For example, the potential consequences of a leak of a small amount of a particular chemical, such as ammonia, into the workplace may be relatively minor, compared with the potential consequences of the release of a large amount of the same chemical;*
- **Speeds of projectiles and moving parts;**

- **Heights.** The force with which a falling object hits a person (and hence the potential injury), will generally increase the greater the distance it falls. Similarly, a person will, in general, sustain greater injuries if falling from a greater height;
- **Position of the worker relative to the hazard.** *For example, workers working close to a noisy machine are likely to incur greater hearing damage than those working further away;*
- **Weights.** *For example, a worker will generally sustain a more severe injury from lifting material in 60kg packages than from lifting the same material packaged in 30 kg lots;*
- **Forces and energy levels.** *For example, the higher the voltage of electricity and the possibility of a high current flowing through a person, the more severe the consequences are likely to be.*

3.3. Risk Assessment Tool – Risk Priority Chart (Rate Each Risk.)

The level of risk, or 'risk score', is determined by the relationship between likelihood and consequence. This relationship can be represented using a matrix, as follows. Determine the risk score for each risk by plotting consequence and likelihood estimates on the table below.

Risk Priority Chart

LIKELIHOOD How likely could it happen?		CONSEQUENCES : How severely could it affect health and safety?			
		EXTREME - death or permanent disablement	MAJOR - serious bodily injury or serious work caused illness	MODERATE - injury or illness requiring casualty treatment	MINOR - injury or illness requiring first aid only, no lost time
VERY LIKELY - could happen frequently	1	2	3	4	
LIKELY - could happen occasionally	2	3	4	5	
UNLIKELY - could happen, but rare	3	4	5	6	
VERY UNLIKELY - could happen, probably never will	4	5	6	7	

This stage of the risk assessment gives a basis for ranking risks in terms of their priorities. It is important to note that the risk scores obtained have no absolute value. This chart provides a means of ranking the risks ONLY.

The scores (1-7) in the risk priority chart indicate how important it is to do something about each risk, as follows:

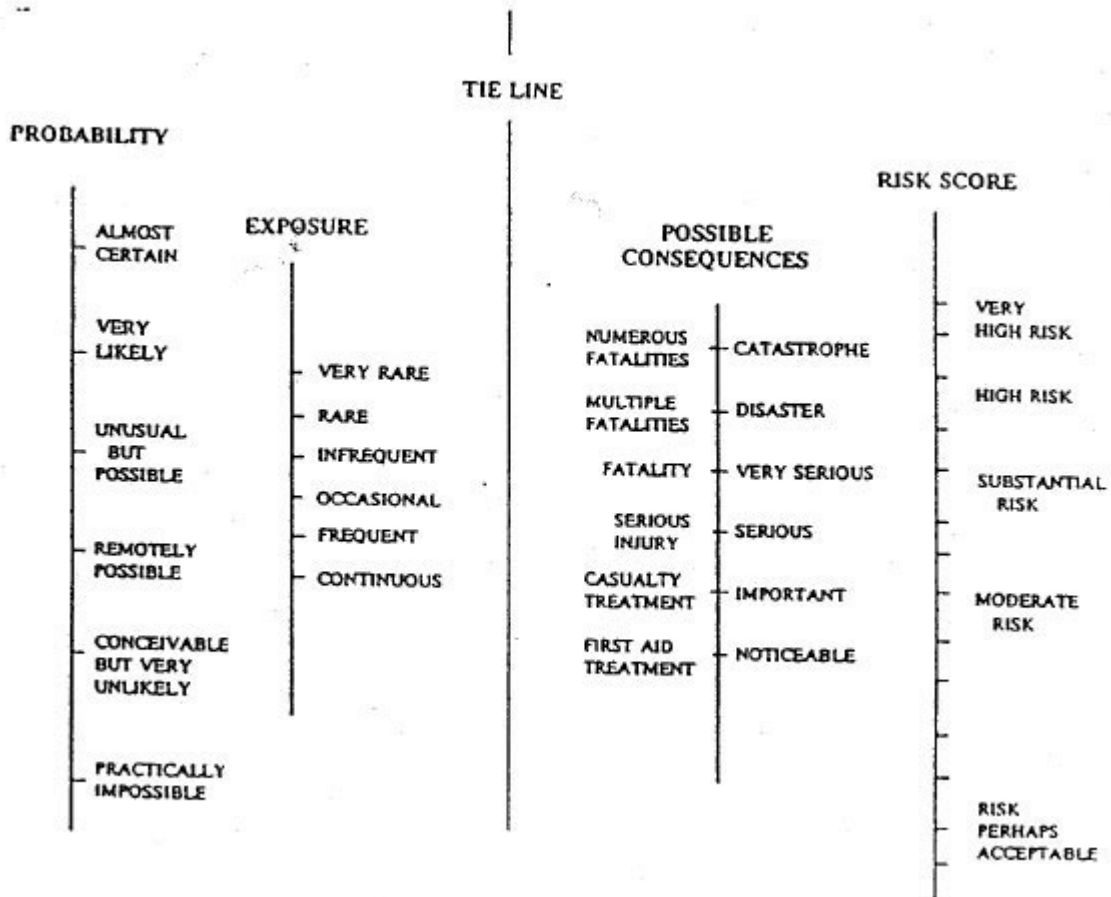
Score	Action
1, 2 or 3	do something about these risks immediately
4 or 5	do something about these risks as soon as possible
6 or 7	these risks may not need immediate attention

3.4 Risk Assessment Tools - Risk Assessment Calculator

Risk Assessment Method Using the Risk Assessment Calculator:

- a. For each risk:
 1. Estimate the **probability** of a hazard resulting in an injury or disease;
 2. Estimate the duration of **exposure** a person has; and
 3. The **possible consequences** that may result given (1) and (2) above;
 4. Use the Risk Assessment Calculator (below) to obtain a risk score.
- a. Using the risk scores for each risk, develop a prioritised list of workplace risks requiring action.

Risk Assessment Calculator



To use the Risk Assessment Calculator:

- Select the appropriate point on the probability scale;
- Draw a line, connecting the point on the probability scale with the appropriate point on the exposure scale;
- Extend the line so that it intersects with the tie line;
- From the point on the tie line, draw a line through the appropriate point on the possible consequences scale; and
- Extend the line to the risk score scale.

The first step in the workplace health and safety risk management process is to identify workplace hazards. This means looking for those things at your workplace that have the potential to cause harm. The desired outcome of this step is a list of all the hazards at your workplace.

Workplace hazards are not always obvious. Some hazards can result in long-term health effects rather than in an immediate injury. For example, exposure to loud noise over a long period can result in gradual hearing loss.

3.5 Prioritise Risks

Prioritise risks based on their risk score.

Remember, the risk scores are useful for comparison purposes **ONLY**. When risk scores for all risks in the workplace are compared, the resulting ranking will be a guide to the order in which the risks should be addressed.

3.4 Step 3 – Decide on control measures

You need to answer the following questions:

- Are there legislated things that I must do in relation to the specific hazard?
- Is there a Code of Practice relating to the specific hazard?
- What are existing controls?
- Are controls as high as possible in list of control priorities?
- Do controls protect everyone exposed to harm?
- What additional controls are required?

If there is a *Workplace Health and Safety Regulation 1997* about any hazards you have identified then you must control the risks associated with those risks in the way specified in the appropriate Regulation.

If there is a Code of Practice about any of the hazards you have identified then you must do what the code of practice says or adopt and follow another way that gives the same level of protection against the risks.

List of control priorities

Control measures should be implemented in the following order:

1. Get rid of the harm or prevent the risk
2. If this is not possible:
 - Replace with something less harmful
 - Separate people from the harm
 - Change work processes or the physical work environment, for example, by redesigning work, plant, equipment, components or premises
 - Apply administrative arrangements, for example, limit entry or time spent in a hazardous area
 - Use personal protective equipment

3.5 Step 4 – Put control measures in place

You need to develop a plan for improving controls. This needs to include time frames and responsibilities. It may involve a staged approach to improving controls. Maintenance of controls also needs to be included at this stage.

It is important to ensure that work procedures are changed or developed and implemented to include new or changed controls. Plans for new or changed controls need to be communicated throughout your organisation. [Training](#), instruction and supervision should be provided.

Then controls need to be put in place. It is important that supervision is effective particularly when any changes are being made. The degree of supervision needs to be in keeping with the seriousness of the risk that you have previously assessed.

3.6 Step 5 – Review the controls

Finally the controls that you have put in place need to be reviewed and changed as necessary. This can be done by using processes already described earlier in this document.

3.7 Sample Forms

You may wish to use the following sample forms to record details of the risk management process you have undertaken.

The forms are provided as SAMPLES ONLY. You may wish to modify these forms to meet your workplace's requirements. You may find it useful to enlarge the forms to allow for more writing space.

Form Types

FORM 1 : RISK MANAGEMENT

FORM 2 : HAZARD AND ASSOCIATED RISK REGISTER

FORM 3 : HAZARD IDENTIFICATION

FORM 4 : RISK ASSESSMENT (See above 'Assess the Risk' section for this form)

FORM 5 : RISK CONTROL

FORM 6 : RISK CONTROL IMPLEMENTATION PLAN

FORM 7 : RISK CONTROL REVIEW SCHEDULE

FORM 1 : RISK MANAGEMENT
 Fill in one form for each hazard identified at the workplace.

Form completed by: _____ (sign) _____ (print) Date form completed: / /						Reference No:
HAZARD IDENTIFICATION						
Hazard: Associated Risk: Specific circumstances relating to the risk: Persons at risk: Is the risk: <i>(circle one)</i>						
<ul style="list-style-type: none"> • Minor → attend to straight away • Issue with a regulation/standard/ code/guide → refer to relevant regulation, standard, code or guide • Other → continue 						
RISK ASSESSMENT						
Existing control measures (if any):						
Likelihood : <i>(tick box)</i> very likely <input type="checkbox"/> likely <input type="checkbox"/> unlikely <input type="checkbox"/> very unlikely <input type="checkbox"/>						
Consequences: <i>(tick box)</i> extreme <input type="checkbox"/> major <input type="checkbox"/> moderate <input type="checkbox"/> minor <input type="checkbox"/>						
Risk rating <i>(Refer to Risk Priority Chart below)</i> :						
RISK CONTROL						
Possible control options:						
Preferred control options (and why):						
IMPLEMENTATION PLAN						
Control Option	Associated activities	Resources required	Person(s) responsible	Proposed implementation date	Sign off & date	Scheduled review date
REVIEW						
Are control measures in place ?						
<ul style="list-style-type: none"> • Yes • No, Comment: 						
Are controls minimising the risk?						
<ul style="list-style-type: none"> • Yes • No, Comment: 						
Are there any new problems with the risk?						
<ul style="list-style-type: none"> • No • Yes, Comment: 						

Risk Priority Chart (full chart in standard)

Likelihood	Consequences			
	Extreme	Major	Moderate	Minor
very likely	1	2	3	4
likely	2	3	4	5
unlikely	3	4	5	6
very unlikely	4	5	6	7

FORM 2 : HAZARD AND ASSOCIATED RISK REGISTER

Fill in one form for each workplace.

Form completed by: _____ (sign) Date form completed: / / _____ (print)							
Reference No	Hazard	Associated Risk	Risk rating	Control measures	Control measure Implemented?		Review Date
					Yes	No	
Comments: 							

FORM 3 : HAZARD IDENTIFICATION

Fill in one form for each workplace grouping.

(refer section 3 of advisory standard)

Workplace grouping: Form completed by: (sign)					Date form completed: / /
..... (print)					
Task/Activity	Hazard (& ref No.)	Associated risk * (& ref No.)	Specific circumstances relating to the risk	Persons at risk	Is the risk: (circle one) ** • minor • regulation / standard / code / guide • other
	(H1)	(R1)			
Comments:					

* Note : There may be more than one risk associated with each hazard.

** Refer to standard for detail of required action.

Form 5 : Risk Control

Fill in one form for each risk.

(Refer section 5 of advisory standard)

Workplace grouping:		Form completed by:		Date form completed: / /
Risk Ref No	Risk rating (from Form 4)	Possible control option(s)	Preferred control option(s) & Why	
Comments:				

Form 6 : Risk Control Implementation Plan

Fill in one form for each risk.

(Refer section 6 of advisory standard)

Workplace grouping:					Completed by:				
Task/Activity:					(sign)				
Hazard:				
Associated Risk:					Hazard Ref No:				
Risk rating (from Form 4) :					Risk Ref No:				
PROPOSED IMPLEMENTATION PLAN									
Preferred Control Option(S)	Proposed activities	Resources required	Person(s) responsible	Proposed implementation date	If delay		Implementation completed		Scheduled review date
					Reason	New deadline	Signature	Date	
1.									
2.									
3.									
4.									
Additional Comments:									

Form 7 : Risk Control Review Schedule

Fill in one form for each risk.

(Refer section 7 of advisory standard)

Workplace grouping:			Hazard:			Hazard Ref No:				
Task/Activity:			Associated risk:			Risk rating :		Risk Ref No:		
Control Measure(s)	Associated activities	Scheduled review date	Current date	Comment (if necessary)	Are measures in place? <i>(If NO, go back to step 4)</i>		Are controls minimising exposure to the risk? <i>(If NO, go back to step 3)</i>		Are there any new problems? <i>(If YES, go back to step 3)</i>	
					Yes	Date control implemented	No, Comment	Yes	No, Comment	No
Comments:										

4.0 Understanding Hazards and Risks

A **hazard** is something with the potential to cause harm. **Risk** is the likelihood that the harm will occur from exposure to the hazard. For example:

- The hazard is electricity. The risk is the likelihood that a worker might be electrocuted because of exposure to electrical wires that is inadequately insulated.
- The hazard is a 40kg bag. The risk is the likelihood that a worker might suffer back strain from manually lifting 40kg bags.
- The hazard is carbon monoxide. The risk is the likelihood that a worker might suffer carbon dioxide poisoning because they are using a petrol operated pump in a well.