



Hazard / Risk Study Guide

This document is intended as a learning tool to aid professional Guides and Instructors involved in roped activities to develop sound risk management practices. A number of documents had been sourced in preparing this guide.

Definitions:

Hazard:

The term hazard is often confused with risk. While the two concepts are closely linked, there is an important difference – risk refers to *outcomes* whereas hazard relates to a *source* of risk. In addition, risk is about uncertainty and is context and circumstance dependent. Hazards, on the other hand, are either present or not. The two concepts are not interchangeable, and it can be problematic when confusion surrounds their use.

The current international standard for risk management (ISO 31000: 2009) avoids a direct definition of the term 'hazard', and instead – uses the term 'risk source'.

ISO 31000 Clause 2.16 Risk source

Defined as:

Element which alone or in combination has the intrinsic potential to give rise to risk.

AS/NZS 4360: 1995 (now superseded by ISO 31000) defined hazard as:

A source of potential harm or a situation with a potential to cause loss.

Worksafe QLD definition: *A hazard is a situation that has the potential to harm a person.*

Link: <https://www.worksafe.qld.gov.au/injury-prevention-safety/managing-risks/managing-risk>

Risk:

ISO 31000 Clause 2.1 defines risk as: *The effect of uncertainty on objectives.*

Worksafe QLD definition: *A risk is the possibility that the harm (i.e. death, an injury or an illness) might occur when exposed to a hazard.*

Link: <https://www.worksafe.qld.gov.au/injury-prevention-safety/managing-risks/managing-risk>

The ISO 31000 definition is further elaborated with the following footnotes:

1 An effect is a deviation from the expected — positive and/or negative.

2 Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).

3 Risk is often characterized by reference to potential **events** (clause 2.17) and *consequences* (clause 2.18), or a combination of these.

4 Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated *likelihood* (clause 2.19) of occurrence.

5 Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.

Risk management:

Clause 2.2 of ISO 3100 defines risk management as; 'Coordinated activities to direct and control an organization with regard to risk'.

Why should we manage risk? Two main reasons:

1. It's the law; and
2. It reduces the risk of failure and maximises the opportunity for success.

The origins of risk management can be traced to the US military in the 1960s in a document published as 'MIL-STD-882'.

NASA (a civilian space organisation) initially adopted that military standard and then adapted and further developed it to meet its own growing (and complex) needs.

Apart from the obvious answer of wanting to protect your own members, staff, friends, family, competitors/clients, and members of the public, etc, from injury or death, there are quite valid reasons why we should all look at developing a risk management process. These include:

- Protect your organisation from legal liability
- Access to insurance (and possibly reduced premiums)
- Improved reputation
- Better information for decision making
- Better asset management and maintenance

The concept of risk is linked to human presence/cognisance. In the absence of humans there would only be hazard not risk, regardless of size and consequences of extreme events on the planet. A number of work health and safety authorities attempt to quantify risk in terms of likelihood (chance/probability) and consequences (severity/outcome). In general terms, there is no such thing as zero risk.

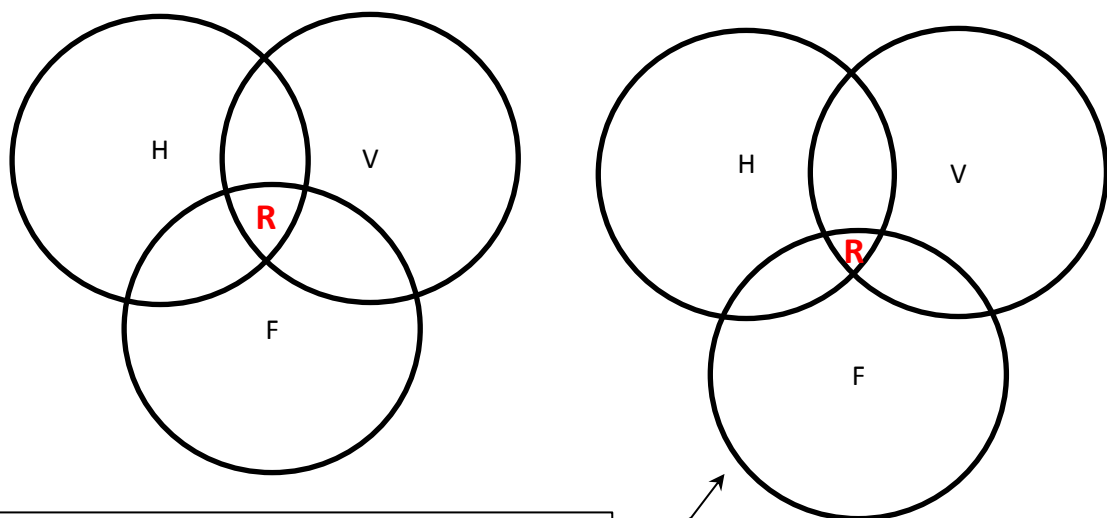
Risk may be represented by the formula: (which has no particular defined units)

$$R = H \times V \times F$$

Where H = Hazard type and category, V = degree of vulnerability and F = frequency/time/duration of exposure

Vulnerability is defined as the characteristics and circumstances that make a person, group or community susceptible to the damaging/harmful effects of a hazard. Vulnerability is an intrinsic predisposition to be affected, or to be susceptible to harm.

A graphical representation of risk: The area of the intersection between the overlapping circles provides a graphical representation of the magnitude of the risk.



Mountaineers are often quoted as saying... "Speed is your safety in the mountains". By reducing your time at high altitude (less O₂) or by timing your climbing gains during periods when certain ice cliffs (seracs) are not being melted by direct sunlight – may reduce the risk (but not completely eliminate it).

In this example, F (frequency) is reduced which has a corresponding effect on the magnitude of the risk.

How are risks ranked or prioritised?

The assessment of risk is measured in terms of 'likelihood' and 'consequences'.

Risk is therefore stated as; the *likelihood* and *consequences* of an existing hazard to materialise and develop into an incident/accident.

Likelihood = chance of occurrence (probability)

Consequences = the severity (how bad)

An example:

It is possible to consider that the *likelihood* of an earth quake occurring while climbing Mt Everest is remote (or rare). However, if an earth quake did occur while climbing through the 'Khumbu ice-fall' the *consequences* would be catastrophic.

There is a similar situation at Mt Cook (Aoraki) in New Zealand – on a popular trade route known as the 'Linda'. While climbing up the 'Linda' route, climbers must pass underneath a section of ice cliffs known as the 'gun barrels'. The likelihood of the gun barrels collapsing at the exact moment while climbers are underneath could be considered remote/rare – and indeed, given the popularity of this 'trade route' – this is probably the thought process running through most people's mind.

However, if the gun barrels do collapse, the consequences would be disastrous. When climbing up to the summit, climbers typically pass underneath the 'Gun barrels' during the *night* – so there is no direct sunlight melting the ice cliffs. However on the way back down, climbers must pass underneath the 'Gun barrels' again – but this time it is during the *day*. Luckily, it is downhill...and so climbers can try to 'glissade' or run past this section. Also, New Zealand lies on a fault-line – and earth quakes are common. All of these factors must be considered by climbers when determining the level of risk posed by using the Linda route.

STEPS TO MANAGING RISK

1. Identify hazards
2. Assess risk
3. Control the risks
4. Reviewing risk controls

The risk management process should not be undertaken by a single individual. A collaborative effort by a team is more likely to develop a successful risk management plan. However, team members must be careful to avoid 'group think'.

Groupthink is a psychological phenomenon that occurs within a group of people in which the desire for harmony or conformity in the group results in an irrational or dysfunctional decision-making outcome. Group members try to minimize conflict and reach a consensus decision without critical evaluation of alternative viewpoints by actively suppressing dissenting viewpoints, and by isolating themselves from outside influences

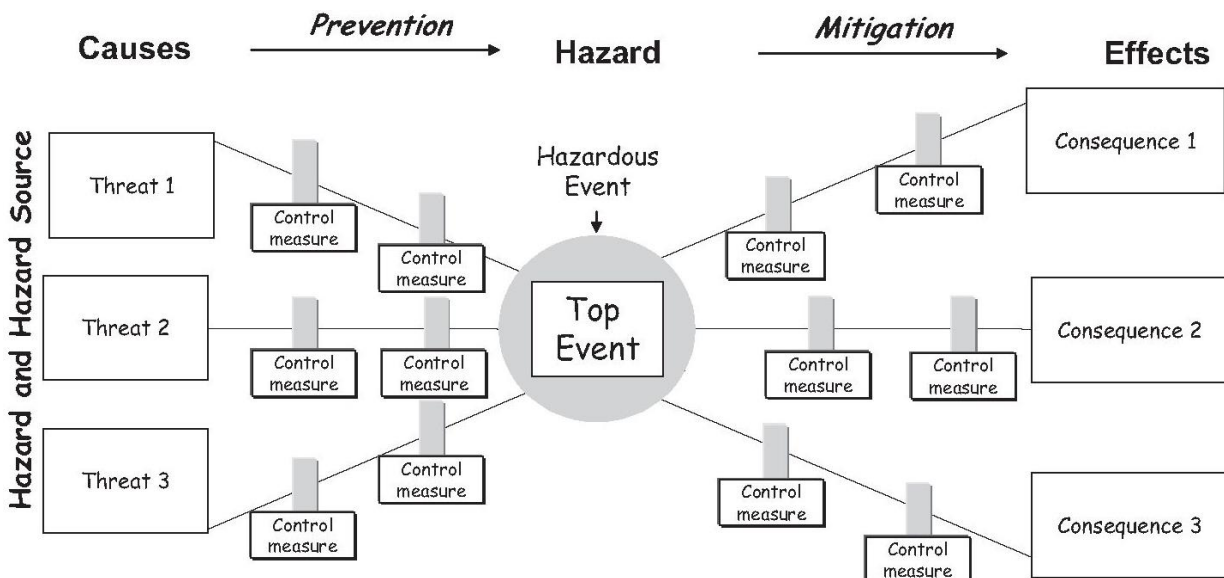
CHARTING RISKS IN A GRAPHICAL REPRESENTATION

Complex data can be more easily understood by humans when it is presented in a graphical (visual) way. Many attempts have been made to develop diagrams and/or charts to quantify risks. These attempts have been met with varying levels of success – because people tend to direct (ie channel) their mind only to the classification scheme referred to in the charts with potential to miss (or not consider) other possible threats and control measures.

Two popular approaches at graphically representing risks include:

1. Bow tie; and
2. Matrix.

Bow tie chart:



Risk matrix chart:

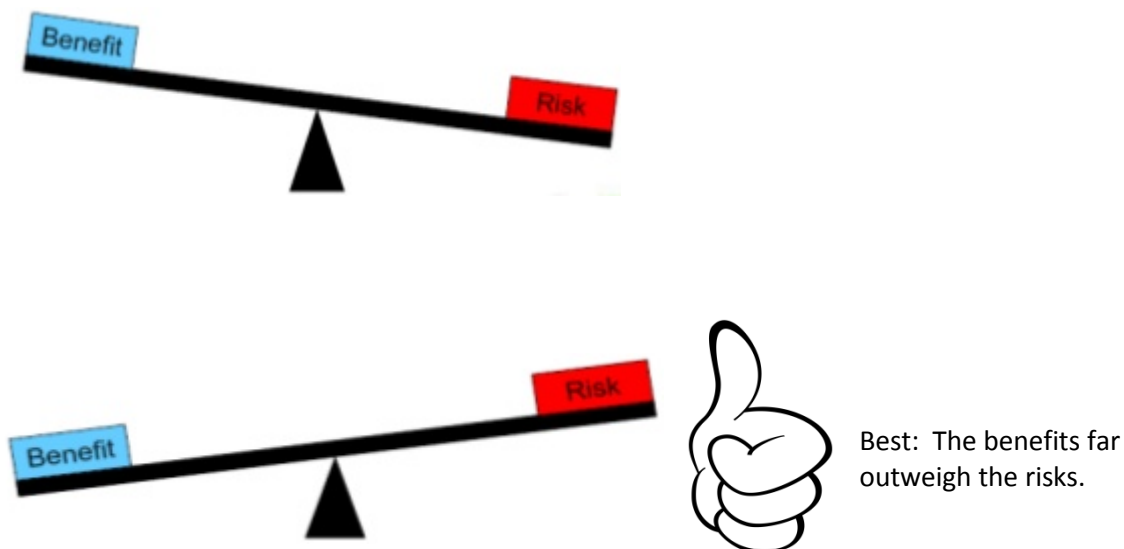
RISK MATRIX - ADAPTED FROM ISO 31000:2009									
E - Extreme Risk - Detailed action plan required to manage risk before progressing H - High Risk - Needs immediate senior management attention M - Medium Risk - Specify management responsibility L - Low Risk - Manage by routine procedures				CONSEQUENCE					
				People	Injuries or ailments not requiring medical treatment	Minor injuries or First Aid treatment	Serious injury causing hospitalisation or multiple medical treatment cases	life threatening injury or multiple serious injuries causing hospitalisation	Death or multiple life threatening injuries
LIKELIHOOD	Probability			insignificant	Minor	Moderate	Major	Catastrophic	
	Historical			1	2	3	4	5	
	>1 in 10	Is expected to occur in most circumstances	5	Almost Certain	M	H	H	E	E
	1 in 10 - 100	Will probably occur	4	Likely	M	M	H	H	E
	1 in 100 - 1000	Might occur at some time in the future	3	Possible	L	M	M	H	E
	1 in 1000 - 10 000	Could occur but doubtful	2	Unlikely	L	M	M	H	H
1 in 10 000 - 100 000	May occur but only in exceptional circumstances	1	Rare	L	L	M	M	H	

Real versus perceived risk

In roping activities of an outdoor recreation context, risk actually forms part of the attraction. If there was no risk, most people would not undertake the activity! For example, K2 (the second highest mountain in the world) is widely regarded as very difficult and dangerous to climb – and this makes it attractive to climbers. If there was a chairlift to the top, most (if not all) climbers would find somewhere else to climb (and K2 would no longer be considered a worthy goal). To say that you have climbed to the summit of K2 puts you in an elite club and gives you prestige/recognition. Recognition (and potential reward) that could be attained from reaching the summit and getting back down alive provides a strong motivational incentive.

In contrast, industrial roping activities have a completely different focus. Risk is not a dominant part of the activity – in fact; every effort is made to reduce risk. Significant time and effort goes into documenting risk management plans (in some jurisdictions, this is known as a 'Safe Work Method Statement' - SWMS).

In outdoor recreation, managing risk can be likened to a balancing act:



The perception of risk can be heavily dependent on the human factor. A certain level of risk in our lives is accepted as necessary to achieve certain benefits. For example, driving an automobile is a **voluntary risk** most people take daily, knowing that accidents can and do occur (eg the road death toll in Australia in 2015 exceeded 1200). Drivers accept the risk because of their perceived skill level and ability to control the risk-creating situation of driving on a public road.

When individuals are exposed to **involuntary risk** (a risk over which they have no control), they make risk aversion their primary goal. Under these circumstances, individuals require the probability of risk to be much lower – as much as 1000 times smaller than for the same situation under their perceived control. A notable example is flying in a commercial aircraft where individual passengers have no control and are totally reliant upon the skill of the pilot. The flying public demand the highest achievable levels of safety in commercial aviation.

LEGISLATION

Extract from... Work Health and Safety Act 2011 (Australia)

s17 Management of risks

A duty imposed on a person to ensure health and safety requires the person—

- (a) to eliminate risks to health and safety, so far as is **reasonably practicable**; and
- (b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.

Extract from... Work Health and Safety Regulation 2011 (Australia)

s36 Hierarchy of control measures

(1) This section applies if it is not reasonably practicable for a duty holder to eliminate risks to health and safety.

(2) A duty holder, in minimising risks to health and safety must implement risk control measures under this section.

(3) The duty holder must minimise risks, so far as is reasonably practicable, by doing one or more of the following—

- (a) **substituting** (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk;
- (b) **isolating** the hazard from any person exposed to it;
- (c) implementing **engineering** controls.

(4) If a risk then remains, the duty holder must minimise the remaining risk, so far as is *reasonably practicable*, by implementing **administrative** controls.

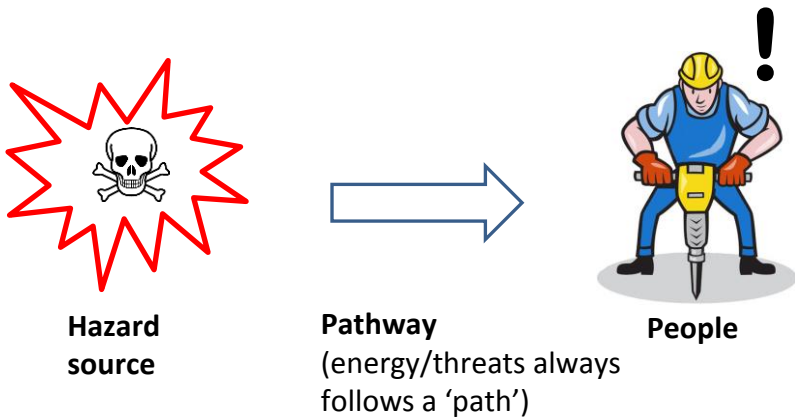
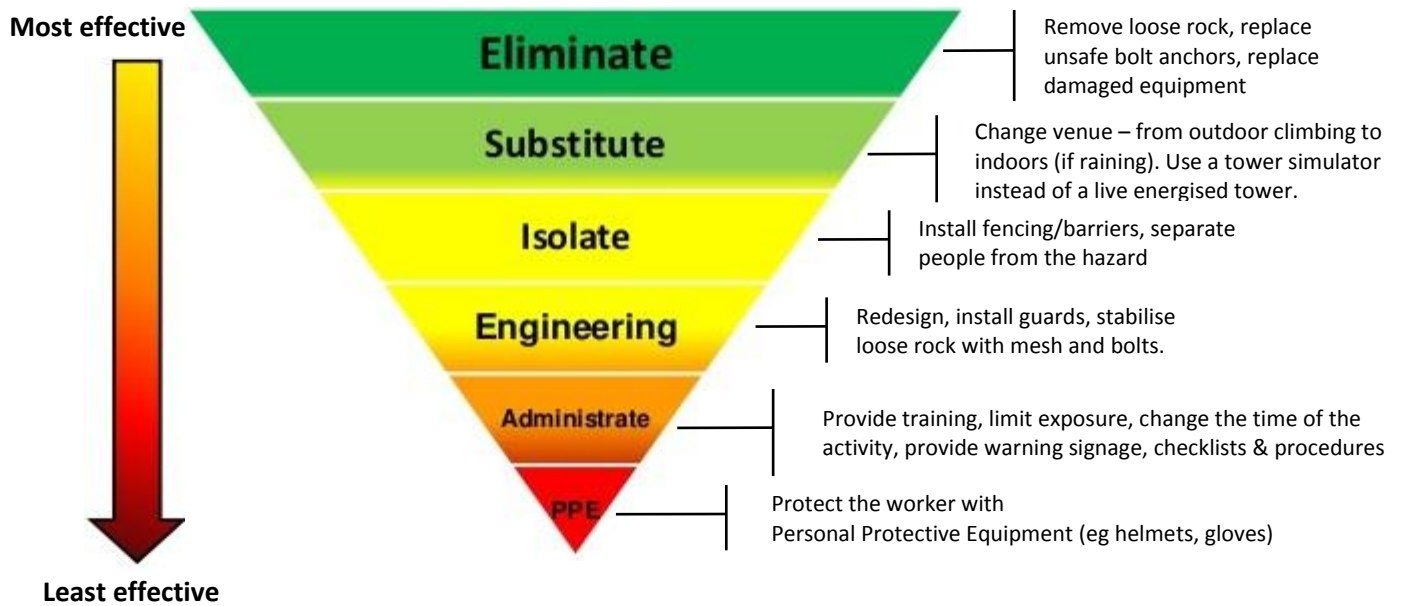
(5) If a risk then remains, the duty holder must minimise the remaining risk, so far as is *reasonably practicable*, by ensuring the provision and use of suitable **personal protective equipment**.

In the case of roping activities at height – PPE is commonly used as a ‘control measure’. This is because the hazard source typically cannot be removed. If your chosen activity is climbing K2, removing (eliminating) that mountain would not be possible (and even if you could remove K2 – many people would be very upset). You could try to ‘substitute’ K2 with a lesser peak, but that would not be as valuable a goal and perhaps not provide sufficient personal reward.

Looking at the ‘Hierarchy’ in this thought experiment demonstrates why **PPE** is the logical ‘control measure’ for people who climb mountains. However, no amount of PPE will save you if you are caught in a massive avalanche!

For professional Guides who take clients up big mountains – that mountain become their ‘workplace’.

Hierarchy of control diagram (refer section 36 of most WHS Regulations in Australia)



If possible (or 'practicable') to do so, always try to eliminate the hazard at its source.

For example, if there is loose rock, try to *remove it* because a helmet (which is a type of PPE) will not save you if a massive rock falls on your head!

If the hazard can't be eliminated, then look at the 'pathway' the energy/threat will take. Try 'substituting the hazard with something less dangerous. If that can't be done, try to separate people from the hazard source (eg fences, barricades, etc). Sometimes 'engineering' controls such as mesh, bolting and cabling can be used to stabilise loose rock in-situ. Note that the last resort is issuing PPE to people/workers.

Summary: The most effective way to control a hazard is to **eliminate** it! The last line of defence is always '**PPE**'.

Examples of Court decisions that examine key WHS (OHS) meanings.

Parliament 'enacts' the laws but it is the job of the Courts to interpret and apply those laws. The Courts that hold the greatest authority include the High Court and each of the Supreme Courts exercising their **appellate jurisdiction**. For example, each State has its own Supreme Court of Appeal – and this is as high as you can go in a particular State. The only Court that can overrule a Supreme Court of Appeal is the High Court of Australia.

Courts in other jurisdictions can be 'persuasive' - and so may be important.

The following terms have particularly important meanings in Work Health & Safety Legislation:

Due diligence

Per **Staunton J** in: (Note: 'J' means Justice)

WorkCover Authority (New South Wales) (Inspector Mansell) v. Daly Smith Corporation (Aust) Pty Ltd and Smith [2004] NSWIRComm 349 at 131;

"...is not done by merely hoping others would or could do what they were told, but also ensuring they have the skills to execute the job they are required to do and then ensuring compliance with that in accordance with the safe standards established. Compliance requires a process of review and auditing, both formal and random, in order to ensure that the safe standards established are in fact being adhered to and under ongoing review".

Per **Gibbs CJ** in: (Note: 'CJ' means Chief Justice)

Turner v. The State of South Australia (1982) 42 ALR (unreported)

Where it is possible to guard against a foreseeable risk, which, though perhaps not great, nevertheless cannot be called remote or fanciful, by adopting a means, which involves little difficulty or expense, the failure to adopt such means will in general be negligent.

Per **Justice David M. Paciocco** at 44:

R. v. Thomas Fuller and Sons Ltd., 2012 ONCJ 731 (Ontario court of justice - Canada)

"Due diligence is in law the converse of negligence". The inquiry is into what a reasonable person would have done and whether the accused person met such standard, with the onus on the accused person to prove such reasonable care on the balance of probabilities. If the accused person proves they were not negligent in this sense, they avoid conviction."

Reasonably Foreseeable

Per **Mason J**: (Stephen J; Aickin J both in agreement)

Wyong Shire Council v. Shirt [1980] HCA 12 or Wyong shire Council v. Shirt (1980) 146 CLR 40

...when we speak of a risk of injury as being "foreseeable" we are not making any statement as to the probability or improbability of its occurrence, save that we are implicitly asserting that the risk is not one that is far-fetched or fanciful. Although it is true to say that in many cases the greater the degree of probability of the occurrence of the risk the more readily it will be perceived to be a risk, it certainly does not follow that a risk which is unlikely to occur is not foreseeable.

Reasonably Foreseeable

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Per Mason J: (Stephen J; Aickin J both in agreement)

Wyong Shire Council v. Shirt [1980] HCA 12 or Wyong shire Council v. Shirt (1980) 146 CLR 40

In deciding whether there has been a breach of the duty of care the tribunal of fact must first ask itself whether a reasonable man in the defendant's position would have foreseen that his conduct involved a risk of injury to the plaintiff or to a class of persons including the plaintiff. If the answer be in the affirmative, it is then for the tribunal of fact to determine what a reasonable man would do by way of response to the risk. The perception of the reasonable man's response calls for a consideration of the magnitude of the risk and the degree of the probability of its occurrence, along with the expense, difficulty and inconvenience of taking alleviating action and any other conflicting responsibilities which the defendant may have. It is only when these matters are balanced out that the tribunal of fact can confidently assert what is the standard of response to be ascribed to the reasonable man placed in the defendant's position.

Reasonably Practicable

Joint judgements from FRENCH CJ, GUMMOW, HAYNE, AND CRENNAN JJ

Baiada Poultry Pty Ltd v the Queen [2012] HCA 14

at para 15:

The words "so far as is reasonably practicable" direct attention to the extent of the duty. The words "reasonably practicable" indicate that the duty does not require an employer to take every possible step that could be taken. The steps that are to be taken in performance of the duty are those that are reasonably practicable for the employer to take to achieve the identified end of providing and maintaining a safe working environment. Bare demonstration that a step could have been taken and that, if taken, it might have had some effect on the safety of a working environment does not, without more, demonstrate that an employer has broken the duty imposed by s21(1).

And at para 38:

...demonstration that some step could have been taken does not, without more, demonstrate that to fail to take that step was a breach of the obligation so far as was reasonably practicable to provide and maintain a safe working environment.

Worksafe Australia definition:

There are two elements to what is 'reasonably practicable'. A duty-holder must first consider what can be done - that is, what is possible in the circumstances for ensuring health and safety. They must then consider whether it is reasonable, in the circumstances to do all that is possible. This means that what can be done should be done unless it is reasonable in the circumstances for the duty-holder to do something less.

Obvious risk

The courts have defined risks as being obvious in circumstances where:

"... both the condition and the risk are... apparent to, and would be recognised by, a reasonable person in the position of the plaintiff exercising ordinary perception, intelligence, and judgment."

(Cited in Wyong Shire Council v Vairy [2004] NSWCA 247 at 161).

WHS ACT QLD (2011) requirements to report an 'incident'.
(workplace health & safety laws are harmonised in the majority of Australian States)

s35 What is a notifiable incident

In this Act, notifiable incident means—

- (a) the death of a person; or
- (b) a serious injury or illness of a person; or
- (c) a *dangerous incident*

s37 What is a dangerous incident

In this part, a *dangerous incident* means an incident in relation to a workplace that exposes a worker or any other person to a serious risk to a person's health or safety emanating from an immediate or imminent exposure to—

- (a) an uncontrolled escape, spillage or leakage of a substance; or
 - (b) an uncontrolled implosion, explosion or fire; or
 - (c) an uncontrolled escape of gas or steam; or
 - (d) an uncontrolled escape of a pressurised substance; or
 - (e) electric shock; or
 - (f) the fall or release from a height of any plant, substance or thing; or
 - (g) the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised for use under a regulation; or
 - (h) the collapse or partial collapse of a structure; or
 - (i) the collapse or failure of an excavation or of any shoring supporting an excavation; or
 - (j) the inrush of water, mud or gas in workings, in an underground excavation or tunnel; or
 - (k) the interruption of the main system of ventilation in an underground excavation or tunnel;
- or
- (l) any other event prescribed under a regulation; but does not include an incident of a prescribed kind.

A method for documenting a risk assessment.

First: Develop an activity plan

The activity plan should break the activity into a series of sequential steps – from start to finish.

Second: Once the activity plan has been documented, it will now be possible to identify hazards and assess risk in a *systematic* way.

The activity plan will identify – in sequential order – each of the steps of the planned activity.

Here is a brief example (not exhaustive in content and scope)...

	STEP / PROCEDURE	Key performance indicators	Timings
1	Check and pack all equipment required for the activity	<input type="checkbox"/> for group size of ... <input type="checkbox"/> all gear checked and serviceable <input type="checkbox"/> faulty gear is isolated from use <input type="checkbox"/> ...	Complete day prior
2	Arrive on site and check conditions	<input type="checkbox"/> check for presence of other users in area <input type="checkbox"/> intended site is available for use <input type="checkbox"/> hazards identified	In advance of booked start time
3	Setup activity	<input type="checkbox"/> setup in accordance with company protocols <input type="checkbox"/> sufficient no. of ropes deployed	Before clients arrive
4	Meet and greet clients	<input type="checkbox"/> friendly and courteous <input type="checkbox"/> professional conduct	At booked time
5	Safety briefing	<input type="checkbox"/> important information is conveyed	Completed in 5 minutes
6	Fit and check PPE	<input type="checkbox"/> all clients fitted with harnesses and helmets <input type="checkbox"/> checked and confirmed	Completed in 10 minutes
7	Commence activities	<input type="checkbox"/> maintain safety <input type="checkbox"/> social atmosphere <input type="checkbox"/> ensure everyone is satisfied	
8	Conclude activities	<input type="checkbox"/> thank clients for their participation <input type="checkbox"/> ask if the activity met client expectations <input type="checkbox"/> pack up / de-rig <input type="checkbox"/> account for all gear	

Add as many steps as needed...

With the activity now complete, it will be possible to examine each step and identify the hazards and associated risks

It may be helpful to think of hazards in terms of their category type:

The danger (or threat) from a hazard always follows a 'path'.

Hazard category

Examples

<u>Hazard category</u>	<u>Examples</u>	
Energy	Gravitational	Radiation / Radiological
	Mechanical	Acoustic
	Electrical	Thermal
	Chemical	Pressure / stored gas
Environmental	Weather events	Hydrological / Water
	Ice cliffs (seracs)	Crevasses (may be hidden)
	Loose / unstable rock	Snow build up / snow pack
	Sharp edges	High altitude
	Wild animals	Earth quake
Biomechanical	Tools and equipment Manual handling	
Psychosocial	Occupational stress Time pressure Change Conflict	

CONTEXT:
 natural surfaces (eg cliffs)
 cave environments
 rock climbing
 abseiling
 mountaineering

HAZARD



Loose rock

Risks are linked to individual hazards. Risks can be harmful to:

- People
- Equipment
- Environment

RISKS

PEOPLE

EQUIPMENT

ENVIRONMENT



Climber being struck and injured by falling rock

Rock hitting and cutting ropes

Rock hitting and damaging features on existing routes

Belay person being struck and injured by falling rock

Rock hitting and damaging vegetation below route

Other people person being struck and injured by falling rock

NOTE: List is not exhaustive (examples only)

HAZARD



Risks are linked to individual hazards. Risks can be harmful to:

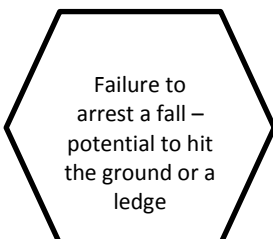
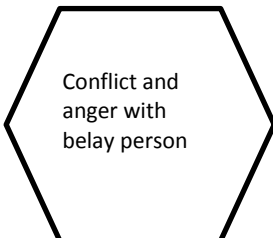
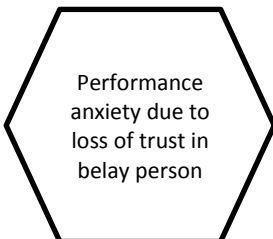
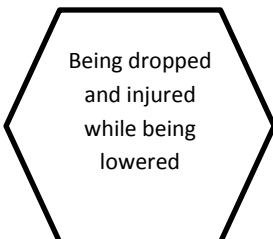
- People
- Equipment
- Environment

CONTEXT:

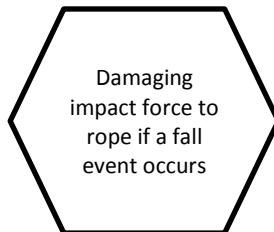
- [] may be indoor or outdoor
- [] climbing
- [] challenge ropes courses
- [] rescue operations

RISKS

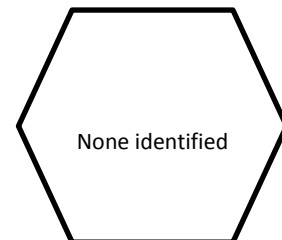
PEOPLE



EQUIPMENT



ENVIRONMENT



NOTE: List is not exhaustive (examples only)

HAZARD



CONTEXT:

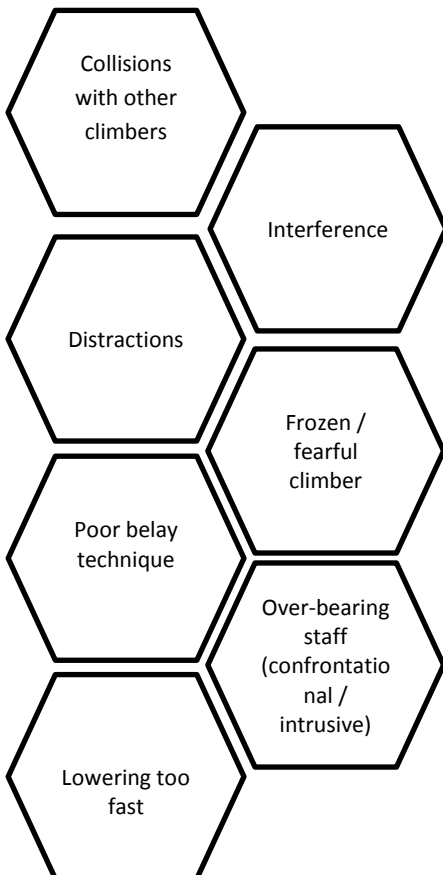
- [] artificial (indoor) surfaces
- [] indoor climbing gyms
- [] top rope climbing
- [] lead climbing

Risks are linked to individual hazards. Risks can be harmful to:

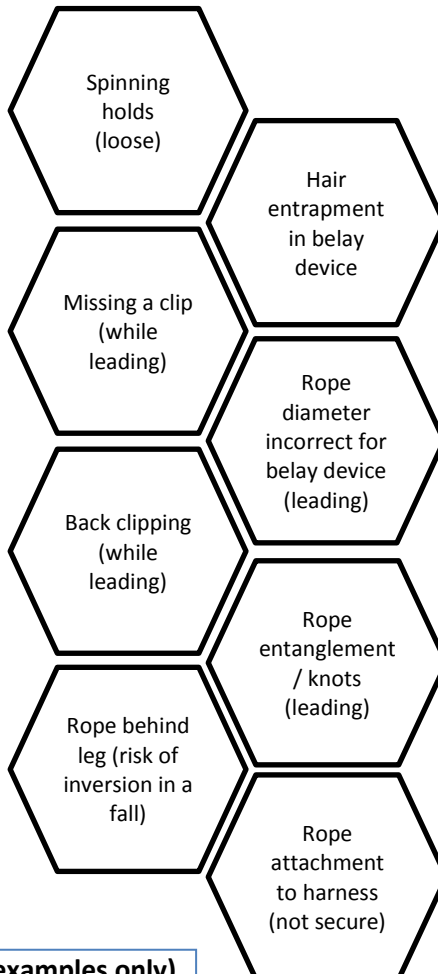
- People
- Equipment
- Environment

RISKS

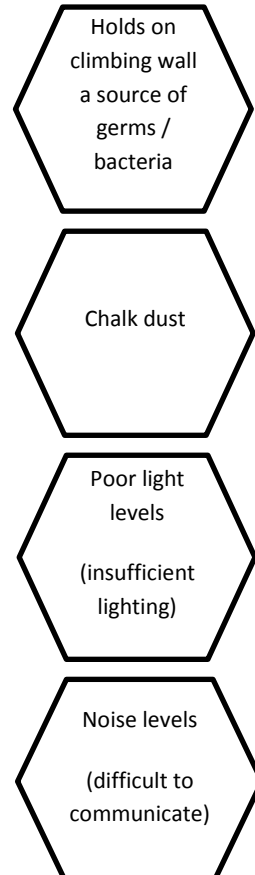
PEOPLE



EQUIPMENT



ENVIRONMENT



NOTE: List is not exhaustive (examples only)

SAFE WORK METHOD STATEMENT (ACTIVITY PLAN)



COMPANY	
ABN	
SITE ADDRESS	
PROJECT LEADER	
PROJECT	
JOB	
DATE / TIME	

RELEVANT LEGISLATION	<input type="checkbox"/> QLD WHS ACT 2011 <input type="checkbox"/> QLD WHS REGULATION 2011
RELEVANT AUSTRALIAN STANDARDS	AS 1891.4 AS 4488
RELEVANT CODES OF PRACTICE (and reference documents)	PACI protocols http://www.paci.com.au/teachers.php (at #7 in table)
PLANS / DRAWINGS	Refer to photos

PERSON IN CONTROL OF ACTIVITY	<p>Only one staff member is designated as the person in control:</p> <input type="checkbox"/> The following staff member is appointed as the person who has overall responsibility for installation and monitoring of rope access system: Name: _____
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STAFF WHS OBLIGATIONS	<p>Staff involved in the conduct of the activity must:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Received a site induction <input type="checkbox"/> Be fit and healthy for work at height <input type="checkbox"/> Comply with this Safe work method statement (SWMS) <input type="checkbox"/> Comply with relevant WHS ACT and REGULATION for their State/Territory
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COMPETENCY OF STAFF	<p>Staff skill requirements for planned activities:</p> <ul style="list-style-type: none"> <input type="checkbox"/> be competent in vertical rescue <input type="checkbox"/> be competent in using PPE relevant to operating at height <input type="checkbox"/> be competent in using a personal adjustable lanyard (PAL) <input type="checkbox"/> be able to setup and deploy ropes and equipment required to enable effective rescue intervention in the event of mishap <input type="checkbox"/> be able to check own PPE to ensure fitness for use <input type="checkbox"/> be able to coordinate work efforts with other staff <input type="checkbox"/> be able to operate lowering /belay systems <input type="checkbox"/> be able to operate M.A. haulage systems <input type="checkbox"/> be able to maintain housekeeping to avoid rope entanglements and trip/snag hazards (ie rope management) <input type="checkbox"/> be able to perform ABCDE safety checks consistently and diligently to confirm immediate readiness of PPE <input type="checkbox"/> be able to recognise and intervene in off-nominal circumstances to prevent loss of control and/or injuries
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<p>STAFF PPE & REQUIREMENTS</p> <p>For each staff member working near exposed edges at height</p> <p>Note: All staff equipment must be human-rated and conform to relevant standards</p>	<p>Standby rescue personnel must have the following PPE & equipment:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Harness <input type="checkbox"/> Helmet <input type="checkbox"/> PAL (personal adjustable lanyard) <input type="checkbox"/> Gloves (carried and available) <input type="checkbox"/> Suitable clothing for local climatic conditions <input type="checkbox"/> Locking carabiners (Qty – sufficient for activity) <input type="checkbox"/> Abseil ropes – EN1891 or equivalent kernmantel rope <p><u>Eye protection:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Sun glasses (sun protection) suited for outdoor environment <p><u>Footwear:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Sturdy closed footwear <p><u>Clothing:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Clothing appropriate to the local conditions and site rules
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<p>RESCUE REQUIREMENTS</p>	<p>Staff must have the capability to respond and immediately intervene to the following emergencies: (Prevention measures are required)</p> <p>Competency in vertical rescue techniques applicable and relevant to the planned work activities.</p> <ul style="list-style-type: none"> <input type="checkbox"/> unconsciousness <input type="checkbox"/> incapacitation <input type="checkbox"/> physical injuries which prevent self-rescue
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FIRST AID	<p>While on site, a first aid kit is available.</p> <p>Any injuries are assessed – and decision made to contact appropriate emergency services (eg ambulance)</p> <p>Coordinate with other staff who may be on site.</p>
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COMMUNICATIONS	<p>000 is the standard number to alert and activate emergency response in Australia</p>
	<p>Radio channel (if applicable): _____</p> <p>Frequency band: UHF / VHF / HF</p>
	<p>Mobile/Cell phone coverage in the activity site</p> <p><input type="checkbox"/> Strong signal coverage at site – all carriers</p> <p><input type="checkbox"/> Only the following carrier has signal coverage at the activity site:</p> <p><input type="checkbox"/> TELSTRA <input type="checkbox"/> OPTUS <input type="checkbox"/> VODAPHONE</p> <p><input type="checkbox"/> NO MOBILE/CELL PHONE SERVICE AT ACTIVITY SITE (Satellite phones only)</p>
SITE LOCATION	<p>GPS</p> <p>LAT:</p> <p>LONG:</p> <p>Nearest Town/Locality: _____</p>

CONTACT PERSON FOR ACTIVITY	<p>Name: _____</p> <p>Mobile: _____</p>
	<p>Company details:</p>

SEQUENCE OF ACTIVITY

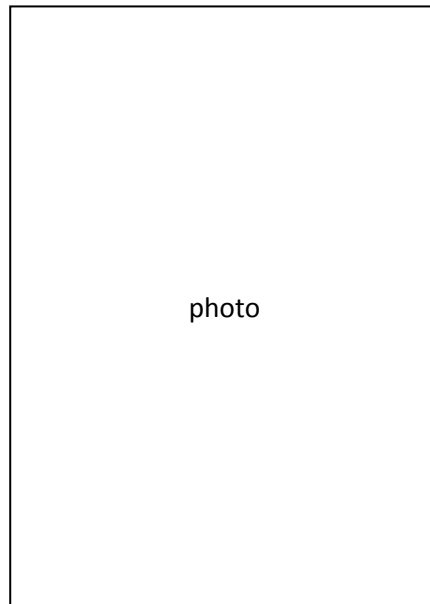
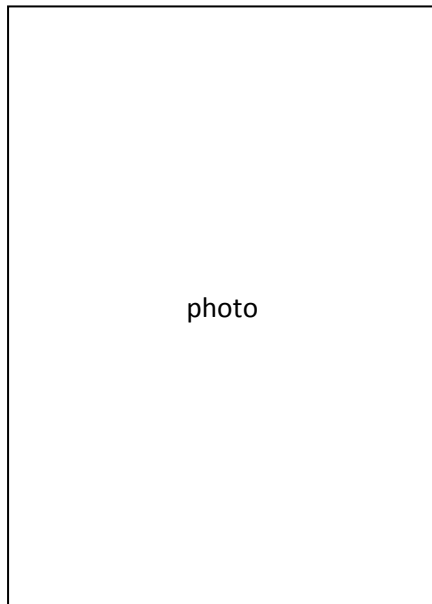
Note: Refer to *risk assessment* for details of hazards, risks and control measures.

	PROCEDURE	Key performance indicators	Timings
1	Check and pack all equipment required for the activity	<input type="checkbox"/> Sufficient PPE + Equipment for staff and the participants <input type="checkbox"/> Conforming to EN/AS and/or ISO standards <input type="checkbox"/> Rescue gear checked and verified <input type="checkbox"/> Site inductions completed	Completed day prior
2			
3			
4			
5			
6			
7			
8			
9			
10			

PHOTOS

Photos are an excellent way of conveying complex information about the site and the nature of the hazards.

Procedures can also be more clearly understood with photos.



Staff acknowledgement and confirmation:

Name of senior Guide in charge : _____

I hereby acknowledge that I have read and understood the SWMS procedures for setting up and conducting the planned activities. I agree to implement these procedures in their entirety and without modification. I understand this agreement constitutes a legally binding contract.

Signature of senior Guide: _____

Date: _____

.....

This Activity Plan was prepared by: _____

Date last reviewed: _____

Contact details:

Mobile _____

Email: _____

RISK ASSESSMENT (example)

With the activity plan completed, it will now be possible to develop a risk assessment.

A typical written risk assessment takes the following general form:

Step	Hazards	Risks	Control measures	Likelihood	Consequences	Action level
1	1.1			<input type="checkbox"/> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare / remote	<input type="checkbox"/> Insignificant <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Major <input type="checkbox"/> Catastrophic	<input type="checkbox"/> Monitor <input type="checkbox"/> Urgent changes <input type="checkbox"/> Stop (do not proceed)
	1.2			<input type="checkbox"/> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare / remote	<input type="checkbox"/> Insignificant <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Major <input type="checkbox"/> Catastrophic	<input type="checkbox"/> Monitor <input type="checkbox"/> Urgent changes <input type="checkbox"/> Stop (do not proceed)
	1.3			<input type="checkbox"/> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare / remote	<input type="checkbox"/> Insignificant <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Major <input type="checkbox"/> Catastrophic	<input type="checkbox"/> Monitor <input type="checkbox"/> Urgent changes <input type="checkbox"/> Stop (do not proceed)
2	2.1			<input type="checkbox"/> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare / remote	<input type="checkbox"/> Insignificant <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Major <input type="checkbox"/> Catastrophic	<input type="checkbox"/> Monitor <input type="checkbox"/> Urgent changes <input type="checkbox"/> Stop (do not proceed)
	2.2			<input type="checkbox"/> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare / remote	<input type="checkbox"/> Insignificant <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Major <input type="checkbox"/> Catastrophic	<input type="checkbox"/> Monitor <input type="checkbox"/> Urgent changes <input type="checkbox"/> Stop (do not proceed)
	2.3			<input type="checkbox"/> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare / remote	<input type="checkbox"/> Insignificant <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Major <input type="checkbox"/> Catastrophic	<input type="checkbox"/> Monitor <input type="checkbox"/> Urgent changes <input type="checkbox"/> Stop (do not proceed)

...Add as many steps as there are in your activity plan.

Control measure is what you intend to do about the hazards and risks you have identified. Control measure must be effective.

The factors of 'likelihood' and 'consequences' are a *qualitative* judgement.

Action-level is the end result decision – if you accept the risks and decide to continue the planned activity, the 'monitor' check box would be ticked.

On the other hand, you might be unwilling to accept the risks because no matter what control measures you put in place – the risk of injury/mishap is still too high (not justifiable). In such a case, you would check the 'stop – do not proceed' box.