



FIFWA Forestry Safety Code

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1 INTRODUCTION

1.1 Background

The FIFWA Logging Safety Code was first published in 1997 and most recently updated in 2016. It provided practical advice on how to manage health and safety in logging operations in Western Australia. The forestry industry in Western Australia now has a much greater focus on growing timber in plantations. To recognise these changes, the title of the document has been changed to the FIFWA Forestry Safety Code (the Code). Its scope has been extended to include sections on growing, maintaining, enhancing, and protecting planted and natural forests.

In 2020, Western Australia enacted the *Work Health and Safety Act 2020* (WHS Act). The WHS Act is substantially based on the national model work health and safety laws that were developed to underpin a harmonised WHS framework in Australia. Supporting the primary legislation are the Work Health and Safety (General) Regulations 2022 (WHS Regulations) that suit Western Australia's unique conditions.

The introduction of the WHS Act and Regulations made many of the terms used in the FIFWA Logging Safety Code redundant. The content has been modified to recognise these changes by:

- ensuring that duties and duty holders are consistent with the nationally harmonised legislation
- updating the document to reflect the format of modern codes of practice.
- integrating information associated with new technology
- reflecting and addressing comments received from industry stakeholders.

The document references several relevant Australian/New Zealand Standards (**AS/NZS**), and other state and Commonwealth legislation and codes of practice. The referencing of these documents seeks to ensure the Code remains current when amendments to referenced legislation and standards occur.

1.2 Application of the Code

Under the WHS Act, the FIFWA Forestry Safety Code applies to people who have responsibilities for **workplace** health and safety in **forestry operations** in Western Australia.

A **person conducting a business or undertaking (PCBU)** has the primary duty under the WHS Act to ensure, 'so far as is reasonably practicable', that **workers** and other people are not exposed to workplace health and safety **risks** arising from the business or undertaking.

PCBUs with responsibility in the forestry industry include landowners, forest managers, **contractors**, and timber business owners who grow, maintain, harvest, and process wood products within a forest.

Other people, such as designers, officers, and workers, also have duties under the WHS Act.

As an industry code, the guidance does not have the evidentiary status of an approved Code of Practice. Nonetheless it represents the state of knowledge about forest **hazards** and ways of controlling risks.

1.3 Scope of the Code

This Code provides practical guidance for duty holders on how to manage workplace health and safety risks associated with forestry operations in Western Australia. It has been developed to support the WHS Act and Regulations and applies to all workplaces where forestry operations are carried out.

The scope remains largely the same as the previous code, but this Code introduces some new hazards (steep slope harvesting and psychosocial hazards) and operations such as silviculture and fire management. It covers all activities necessary for establishing, maintaining, harvesting, and processing forest produce in field within Western Australian forests.

The Code also includes guidance on the hazards associated with loading and unloading timber products for transport and on the general application of WHS Regulations relating to fatigue. However, the safety of transport activities outside a forest is not covered.

The Code seeks to be consistent with specific WHS regulations and approved Codes of Practice on hazards such as noise, hazardous **substances**, manual handling, and plant.

1.4 Structure and approach of the Code

The Code is structured in four parts to provide guidance to all PCBUs involved in forestry. The first sections provide general guidance about meeting key duties in the WHS Act, and later sections focus more on particular activities or hazards. The document is arranged as follows:

Part	Focus
One	<ul style="list-style-type: none"> ● Understanding responsibilities ● Consulting, cooperating, and coordinating with others ● Understanding the risk management process
Two	<ul style="list-style-type: none"> ● Planning for health and safety including site assessment and hand over, health and safety management systems and site safety plans ● Focusing on the essential critical hazards, risks, and essential risk controls that are relevant to any forestry operation including training, induction, emergency procedures, personal protective equipment (PPE), and first aid
Three	Outlining additional activity-specific hazards and risk controls related to specific operations conducted by the forestry industry
Four	Providing supporting resources including risk controls for common hazards present in most forestry operations and technical specifications for equipment, PPE, and operator competencies.

The Code highlights hazards and provides recommended risk controls that reflect the industry’s current practices. Where appropriate, it outlines the factors that a risk assessment should consider. This risk management approach underpins the Code’s advice.

Section 6 Risk management essentials for all forestry operations sets out the baseline hazards, risk factors, and risk controls. The specific operational sections (i.e. *sections 7 to 13*) then build on this foundation, referencing and reflecting the general principles, so each one can be read as a standalone section alongside *Section 6*.

The Code is underpinned by established and tested risk management processes for many forestry tasks and activities. These should be used or, where necessary, adjusted by a risk assessment that deals with changed conditions (e.g. personnel, sites, equipment, or weather).

Risk assessment remains a basic tool to be used where the circumstances vary from that described in the Code or are not covered.

1.5 Use of the Code

The Code represents practical guidance on workplace health and safety in forestry operations. It can be used as:

- a benchmark for those with responsibilities to check their current systems of work against
- a source of information to use in any risk assessment or in the selection of risk controls
- the foundation to build a health and safety management system and safe operating procedures on
- the template to base any compliance or workplace health and safety audit on
- the standard to test or measure any alternative approaches against.

The risk management approach set out in legislation enables different operations to find solutions relevant to their scale and the level of risk they manage.

However, it should be emphasised that the hazards do not discriminate by size or scale, nor does the applicability of known and tested risk controls.

1.6 Code language, style, and symbols

The word ‘**must**’ is used where risk controls and processes are mandated in the WHS Act or WHS Regulations. Otherwise, the word ‘should’ is used where the risk controls and processes are appropriate unless it can be demonstrated an alternative achieves the same level of safety.

The exception is where evidence and industry practice show there is only one safe way to manage the risk. In this case, expressions such as ‘must’, ‘do not’ and ‘never’ are used. An example is separation distances. The rule to ‘keep two tree lengths away from falling operations’ is not mandated in regulation. However, it has long been part of codes of practice and industry standards in WA and other states.

This is an example of what can be described as the ‘state of knowledge’ about the hazard and the ways of eliminating risk. It is expressed in the WHS Act as part of what is ‘reasonably practicable’.

To guide readers, defined terms are bolded on first use.

In *sections 7 to 13*, the following symbols will guide the user to information specific to each operation. In each case, the critical hazards, common risk factors and essential risk controls are **the baseline** to eliminate or minimise risk.

Any additional activity-specific hazards, risk factors or risk controls are highlighted by the plus icons:



In *section 14* information on common hazards (e.g. noise, extreme weather, fatigue) is provided to support the development of a user's health and safety management system. Planning for operations that are likely to expose a worker to a common hazard should consider this information.



Planning for forestry operations in longer term harvest plans, annual plans, and operational plans.



Consultation, cooperation, and coordination between relevant parties, including contractors and workers, to both establish safe systems and encourage the active involvement of all.



General hazards.



Critical hazards, i.e. the hazards that create the most potential for death or injury during forestry operations.



Activity-specific hazards in addition to any critical hazards that may be present (relevant to specific operational sections).



Common hazards, a hazard that is likely to arise when undertaking an operation. The folder icon is a prompt that further information is available in *section 14*.



Risk assessment, particularly relating to planning, operational risks, and situations when operating conditions change.



Common risk factors most often associated with increased likelihood of harm and with more serious consequences; likely to apply to all forestry operations.



Activity-specific risk factors in addition to any common risk factors that may be present (relevant to specific operational sections).



Risk controls, i.e. the measures that will eliminate or reduce assessed risks so far as is reasonably practicable.



Essential risk controls, i.e. the most widely used and effective measures that will individually, or in combination, eliminate or minimise critical hazards and common risks so far as is reasonably practicable.



Activity-specific risk controls in addition to any essential risk controls that may apply (relevant to specific operational sections).

The additional risk controls are highlighted using the following types of essential risk control.



MAIN TYPES OF ESSENTIAL RISK CONTROLS



Equipment designed for the task and operated within specified limitations like slope, weather, or tree size. This includes machinery and other equipment such as chainsaws and ladders.



Safe work zones and exclusion zones to separate workers from hazards. These include physical barriers, distance, or time-based means of separation.



Safe work practices achieved through relevant training qualifications, licences, PPE, and policies that cover readiness to work (such as policies on fatigue, drugs, and alcohol).



Communication systems for site access control, for communication between machines operators and other workers, and for emergency and evacuation situations.

PART ONE

WORKPLACE HEALTH AND SAFETY FRAMEWORK

- 2 WORKPLACE HEALTH AND SAFETY RESPONSIBILITIES**
- 3 CONSULTATION, COOPERATION, AND COORDINATION**
- 4 RISK MANAGEMENT IN OVERVIEW**

2 WORKPLACE HEALTH AND SAFETY RESPONSIBILITIES

2.1 Duty holders and duties under the WHS Act

Ensuring health and safety in forestry operations requires everyone to play their part in eliminating or reducing risks so far as is reasonably practicable. These responsibilities or 'duties' (the term used in the WHS Act) are related to each person's role and level of authority.

The WHS Act sets out the different duty holders and prescribes the responsibilities they have. The WHS Regulations provide more detail on what must be done to eliminate or reduce specific hazards and risks.

It is important to understand that two or more people may hold similar duties in some circumstances and that duties are often reciprocal. For example, a business has a duty to protect the health and safety of workers, but workers also owe a duty to the business to follow procedures and not put themselves or others at risk.

Duties cannot be 'contracted out', but each party must discharge their responsibilities to the extent that they have the capacity to influence or control the matter.

A landowner, for example, has a duty to provide a timber harvesting contractor with relevant information about the site and the hazards they know or might reasonably know about. They also have a duty to satisfy themselves that the contractor is capable of safely undertaking the task.

The contractor must then carry out the task by taking this information into account and applying their own safe operating procedures.

2.2 Person conducting a business or undertaking

Under the WHS Act, a person conducting a business or undertaking (PCBU) has one primary duty. This is to ensure, 'so far as is reasonably practicable', that workers and other people are not exposed to workplace health and safety risks arising from the business or undertaking.

An undertaking is the activity conducted by the business, such as building access **roads**, harvesting timber, or planting seedlings.

A PCBU in the forest industry includes:

- landowners who grow or harvest timber on their own property, even if it is for their own use
- landowners and forest managers who engage contractors to harvest or transport forest products
- contractors and business owners who establish or maintain forests, harvest or transport forest products, or process **logs** within a forest.

A PCBU's duty includes managing risks by providing:

- a safe work environment
- safe plant
- safe systems of work
- adequate facilities
- **health monitoring.**

Providing information, training, and instruction or supervision to manage risks is an important part of a PCBU discharging their duty of care.

Another important duty is the duty to consult, cooperate, and coordinate with others where there are overlapping duties. This includes consultation with:

- workers or their representatives (e.g. a health and safety representative)
- other PCBUs
- other landowners.

2.3 Other duty holders

Other duty holders under the WHS Act include:

- **Designers, manufacturers, suppliers, and importers of plant, substances, or structures** – They must ensure, so far as is reasonably practicable, the plant or structure is without risks to health and safety. Harvesters, skidders, and chainsaws are examples of plant. Noise and vibration are common risks that can be addressed at the design stage. These 'upstream' duty holders have a responsibility to the equipment's end user that the plant is designed and manufactured to operate safely within its specifications.

- **Officers, such as company directors** – They have a duty to exercise due diligence to ensure the business or undertaking complies with the WHS Act and Regulations.
Due diligence means taking an active role in resourcing, monitoring, and maintaining the business’s systems for eliminating or reducing workplace health and safety risks.
- **Workers and other people at the workplace** – They must:
 - take reasonable care for their own health and safety
 - cooperate with reasonable policies, procedures, and instructions
 - not adversely affect other people’s health and safety.

Worker responsibilities include wearing required personal protective equipment (PPE), observing **exclusion zones**, and advising on any matter that may impair their ability to work safely.

Workers have the right to stop or refuse unsafe work (see Section 84 of the WHS Act) as long as they notify the PCBU and remain available for work. The health and safety representative may direct workers to cease work because of unsafe work (see Section 85 of the WHS Act), but this must be done through consultation and issue resolution processes.

The term ‘other people’ includes **visitors**, volunteers, and unauthorised persons in a prescribed work area.

2.4 Meaning of ‘reasonably practicable’

The PCBU’s duties are not absolute but are qualified by the term ‘so far as is reasonably practicable’. This qualifier is applied to the responsibility to eliminate or reduce risks. To establish what is reasonably practicable, the WHS Act lists five variables the PCBU must consider:

1. *the likelihood of the hazard or the risk concerned occurring*
Estimating likelihood can be based on what is known about a risk (e.g. how often particular risks result in injury). It must also be based on the actual circumstances of the workplace and the way work is done.
2. *the degree of harm that might result from the hazard or the risk*
Accounting for the degree of harm means looking at what injuries or incidents could result from the hazard, how many people might be affected, and how widespread the effects could be.
3. *what the person concerned knows, or ought reasonably to know, about the hazard or risk, and about the ways of eliminating or minimising the risk*
Accounting for what a person knows or ought reasonably to know is sometimes referred to as the state of knowledge about a hazard or risk and ways of controlling it. This Code is an important part of the state of knowledge for forestry work.
4. *the availability and suitability of ways to eliminate or minimise the risk*
Identifying the availability of ways to eliminate or minimise a risk means finding risk controls that can be bought or applied in the workplace. Risk controls are suitable if they are feasible to apply in the workplace and have been shown to be effective in similar circumstances.
5. *after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.*
Only after all the other factors have been considered does cost get taken into account. Risk controls should be implemented unless the cost is so disproportionate to the benefit (in terms of reducing the level of the risk) that it would be clearly unreasonable to require the expenditure.

For more information on the concept of ‘reasonably practicable’, refer to the WorkSafe Western Australia *interpretive guideline How to determine what is reasonably practicable to meet a health and safety duty*.

2.5 WHS Regulations

While the WHS Act outlines general duties, the *Work Health and Safety (General) Regulations 2022* provide more details about how to manage hazards and risks.

Responsibilities for identifying hazards, assessing risks, and controlling risks are outlined in the WHS Regulations. The regulations cover specific measures for hazards such as noise, manual handling, isolated workers, **hazardous chemicals**, confined spaces, driving commercial vehicles, falls, construction work, and plant. There are also details for how workplace consultation is to be conducted.

The requirements of the WHS Regulations must be met. What is required is often qualified by ‘so far as is reasonably practicable’. But in some cases, a regulation is absolute, like the requirement to report a **notifiable incident** or to provide access to a safety data sheet to a worker using a hazardous chemical.

The WHS Regulations relevant to forestry work are referenced in later sections of the Code.

2.6 Shared or similar duties

Often in forestry operations, several PCBUs are working in a common workplace and thus may hold similar duties at the same time. Where multiple PCBUs (e.g. harvesting contractor, haulage contractor, and forest manager) hold duties at the same time, each PCBU will retain responsibility to minimise risks to the extent to which they have a capacity to influence and control the matter. A PCBU cannot contract out of their workplace health and safety obligations. Once control or influence exists, a PCBU owes an obligation to their contractors.

Control includes both legal and practical control. Practical control exists if a PCBU decides to give a direction to a person and this direction is acted on. The nature of the legal relationship and the control a PCBU can exercise will affect how much they are required to do. Engaging expert contractors and verifying that a contractor manages risks may be viewed as taking reasonably practicable steps to discharge a duty.

An example of a direction is where a landowner requires compliance with their PPE rules as a condition of entering a forest but does not have a direct contract. To discharge their duty, the landowner would need to check that the forest manager or contractor has a way of conveying this policy to visitors, such as through induction records.

To understand these situations, duty holders should refer to Section 16 of the WHS Act, which states that duty holders:

“... must discharge the person’s duty to the extent to which the person has the capacity to influence and control the matter or would have had that capacity but for an agreement or arrangement purporting to limit or remove that capacity.”

Where several parties share a duty and legal responsibility needs to be determined (e.g. after an incident), the facts of the situation will be used to make that determination. This would normally include the ability of the parties to control the outcome, along with foreseeability and practicability issues.



For example, a subcontractor who comes on to the site to maintain machinery has direct control of the safety of any specific maintenance task. Actions to meet this duty include:

- carrying out the work in a safe manner (e.g. de-energising electrical equipment)
- following site safety procedures
- remaining in the safe work area and only entering other zones when called in by the person operating in that zone.

The principal contractor has control and influence of where the maintenance takes place and is responsible for safe work areas to protect the people doing the work. Actions to meet this duty include:

- ensuring the subcontractor is familiar with access and communication protocols
- ensuring the subcontractor is aware of and follows separation distances
- providing a safe work area where repairs can take place (e.g. an open area).

The forest manager or landowner does not directly control or influence the safety of the maintenance subcontractor’s work but still has duties. The forestry manager or landowner holds the duty of a PCBU who manages or controls a workplace. Section 20(2) of the WHS Act states:

“The person with management or control of a workplace must ensure, so far as is reasonably practicable, that the workplace, the means of entering and exiting the workplace and anything arising from the workplace are without risks to the health and safety of any person.”

A specific duty in this case would be the safety of access roads and associated signage. These elements affect the safety of the subcontractors as they enter and exit the site. Thus, a duty holder’s level of control will vary even though they hold the same duty concurrently.

Finally, although a worker does not have the duties of a PCBU, they still have a responsibility to follow safe work procedures and not put others at risk. An example of meeting this responsibility would be operating equipment within the maintenance safe zone.

3 CONSULTATION, COOPERATION, AND COORDINATION

3.1 Duty to consult

Part 5 of the WHS Act outlines the duty to consult with workers and others such as landowners, forest managers, and contractors.

As *Section 2* noted, duty holders may share duties to provide a safe workplace.

This section examines situations where consultation, cooperation, and coordination are essential in achieving safe outcomes.

3.2 Consultation with workers

A business must consult with workers on any matters under the business's control that may have an impact on the workers' health and safety at work. The WHS Act states that a person conducting a business or undertaking (PCBU) must consult (so far as is reasonably practicable) with workers on matters including:

- identification of hazards and assessment of risks
- decisions on risk controls
- decisions on health monitoring
- issue resolution
- decisions on proposed changes that may affect workplace health and safety.

Consultation should take place whenever there is a decision that may affect health and safety in forestry operations. Done at the planning stage, it can minimise problems on the job.

Consultation may be achieved through formal processes such as elected health and safety representatives and committees or through crew meetings at which safety issues are discussed (see *Section 3.6*).

Section 48 of the WHS Act specifies the nature of consultation to ensure:

- relevant workplace health and safety information is shared with workers
- workers are given a reasonable opportunity to express their views, raise issues, and contribute to the decision-making process on a matter
- the views of workers are considered
- workers are advised of the outcome of any consultation in a timely manner
- consultation includes the workers' health and safety representative if they have one.

The Safe Work Australia approved Code of Practice *Work health and safety consultation, cooperation and coordination* provides detailed information about consultation, particularly where workers are represented by health and safety representatives.

3.3 Cooperation and coordination with other duty holders

In forestry operations, several parties (each with WHS duties) may work together, requiring a shared understanding of hazards and risks and how to manage them. *Figure 1* illustrates how different parties may interact on a site managed by one forest manager. Safety depends on each party understanding and undertaking their responsibility.

Figure 1: Coordination with other operators





In *Figure 1*, at the entry to a coupe, the landowner has already assumed responsibilities for safe access through road construction. The forest manager and harvesting contractor establish entry protocols through signage. The log truck driver is made aware of what procedures must be followed on the road and within the coupe.

The harvesting contractor ensures the safety of the access road by implementing relevant separation distances and consults with subcontractors on any changes to initial plans. The forest manager consults with contractors to ensure appropriate onsite communication systems.

Part of the coordination task is ensuring that the chain of information about hazards, risks, and operational controls flows through the various contractors and subcontractors to the workers conducting the operation.

3.4 Coordination with adjoining operations

The importance of coordinating forestry operations applies not only within a work area, such as a **log landing**, but also where there are adjoining operations. The following example illustrates coordination issues.



A landowner engages a company for aerial spraying to control weeds. An adjoining site has silviculture workers planting trees.

The landowner needs to:

- ensure the aerial spraying contractor understands the work and area, including any hazards such as power lines
- ensure the aerial spraying contractor meets all required standards (e.g. they are licensed and qualified)
- outline the conditions for safely doing the work (e.g. wind, weather, and visibility)
- advise and consult with the planting contractor about the nature, timing, and location of spraying.

The planting contractor needs to:

- provide workers with information about the spraying work
- take action to ensure there is no exposure to workers by moving work to another location, or suspending work and moving out of the exposure zone while spraying occurs
- restart work on advice from the landowner that spraying has been completed.

The aerial spraying contractor needs to:

- account for any hazards identified by the landowner
- follow safe work procedures
- do the work according to the agreed schedule
- advise the landowner of any changes that may affect the safety of their spraying work.

This example highlights the need to coordinate activities so new hazards are not created for those working in adjoining areas. Coordination of emergency response (e.g. see *Section 13 Fire management*) is another key area for parties to work together on.

3.5 Consultation and coordination with contractors

The best safety outcome is likely to be the result of a contractor engagement process where:

- the brief is clear and practicable
- the selected contractor can demonstrate the capability and track record to complete the job safely.

A forest manager or landowner should consider the following questions when selecting and engaging contractors:

- Does the contractor understand the forest manager's/landowner's health and safety policy?
- Does the contractor have a safe way of working given the nature of the work and the hazards identified in the work plan (e.g. terrain, type of timber, and slope)?
- Is there evidence of the suitability of their staff and equipment for the work?
- Is there evidence of safe work practices to address key activities?
- Have the contractor's safety system and track record been verified?
- What is their response to workplace health and safety incidents and concerns?
- Do they have an agreed process for consulting with key personnel and for resolving issues?
- What is their capacity to monitor contractor staff health and wellbeing?
- Is the amount of operational monitoring or auditing appropriate to levels of risk and operational control?

A contractor should ensure they have the following when assessing how they can meet job requirements:

- the forest manager's/landowner's risk assessment, including information on any hazards identified
- timelines and details of any contingency arrangements where changed conditions affect those timelines
- the opportunity to inspect the site and consult with the forest manager on hazards and risks
- a clear understanding of respective workplace health and safety responsibilities
- an outline of the methods, equipment, staff, and practices they will use to meet the safety needs of the work and the health and safety policy of their client
- any independent verification of their safety performance through previous audits or relevant certification schemes
- a process to consult on and resolve any issues that affect their ability to meet relevant standards.

Health and safety performance depends on shared expectations, information, and practices. These goals can be achieved through consultation and coordination up and down the contracting chain.

The ability to consult, resolve issues, and then communicate outcomes to all involved is a critical part of a safe contracting process.

3.6 Communication at crew level

Crew meetings (e.g. toolbox talks) provide an opportunity to keep everyone informed about the work, hazards, and risk controls.

On any new work site, an initial meeting should cover issues such as:

- work plans and methods
- safe work instructions
- **safe work areas** and separation distances
- communication protocols
- emergency plans.

The initial meeting should be documented.

After work has started on the site, regular crew communication should resolve any uncertainties, provide new information relevant to the day's work, and reinforce safe work practices. In particular, communication should cover:

- any new hazards identified, such as changes in weather, ground conditions, and visibility
- any concerns about safety or issues that have arisen
- problem-solving for any issues of concern
- information about any new workers, contractors, or visitors
- confirmation of safe work areas
- advice on any change to operations.

Crew communication should also allow workers to speak up about any safety concerns so they can be resolved.

The common hazard files in *Section 14* provide guidance about issues that could be discussed at crew meetings.

4 RISK MANAGEMENT IN OVERVIEW

Risk management is a process to help manage workplace health and safety and comply with the law.

Both the WHS Act and the WHS Regulations require the identification of hazards, assessment of risks, and development of controls to eliminate or reduce risk so far as is reasonably practicable.

The objective of this process is to provide the 'highest level of protection at work so far as is reasonably practicable'. *Figure 2* below shows the risk management process.

Figure 2: Overview of the risk management process



The four-step process includes identifying hazards, assessing risks, controlling risks, and reviewing controls. It is underpinned by consultation, cooperation, and coordination (see Section 3). It is the foundation for, and drives, any health and safety management system.

The elements of the process are outlined in the sections that follow. For more detail, refer to the Safe Work Australia approved Code of Practice *How to manage work health and safety risks*.

4.1 Common terms

A **hazard** is something in the work environment that has the potential to harm the health and safety of people. In forestry operations, key hazards include falling branches, irregular ground conditions, and steep slope work.

A **risk** is the chance (or likelihood) that a hazard will cause harm to the health and safety of people. Harm could be the death of a person exposed to the hazard, or an injury, illness, or disease they suffer as a result. In forestry operations, risks include death or injury caused by equipment rollover or falling branches.

A **risk assessment** is a way of estimating the nature and level of risk. Working out what could cause harm and how serious that harm could be provides the basis for deciding what risk controls are required.

A **risk control** is a prevention measure that either eliminates a hazard or risk or reduces it so far as is reasonably practicable. In forestry operations, risk controls include safe work areas, protective structures, and tag out and isolation procedures for plant maintenance.

4.2 Hazard identification

The WHS Regulations state that a person conducting a business or undertaking (PCBU) has a duty to identify hazards, control risks, ensure controls remain effective, and review controls where necessary.

For the first step, hazards can be identified by methods such as:

- walk-through inspections
- hazard checklists
- consultation
- reviews of equipment operating instructions.

In many cases, once a hazard is identified, known and effective controls can be applied immediately. This principle is shown in *Figure 2* as ‘**known risks and controls**’.

For these well-known hazards, regulations may mandate what must be done (e.g. de-energising equipment before maintenance) or codes of practice may recommend established and effective controls that should be used (e.g. separation distances).

4.3 Risk assessment


Risk assessment is used to develop an understanding of the risks and their importance to work out the best way to eliminate or reduce risks. Many WHS Regulations set out the factors to consider in this step. These are effectively the basis of the risk assessment.

It is common in the assessment of risk to plot the likelihood (probability) and the level of harm (consequence) on a risk matrix. An example is shown in *Figure 3*, which follows.

Figure 3: Example of a risk matrix

		Consequences	
		Minor (Low)	Serious (High)
Likelihood	Certain (High)	2	3
	Unlikely (Low)	1	2

3	High Risk Stop, Fix
2	Actively Reduce Minimise the Risk
1	Low Risk Closely Monitor



This risk matrix can help with prompt decision-making to find the highest level of protection for each situation. Here are two example scenarios.

If a risk has a high likelihood of occurring and serious injury as an outcome, it would be rated **3** and require immediate action to stop or fix the problem. This would be the case, for example, if hazardous trees are present in the working zone.

If weather and ground conditions are changing and might compromise the operation of certain equipment, the risk could be rated **2** and options to minimise the risk should be considered.

4.4 Risk controls

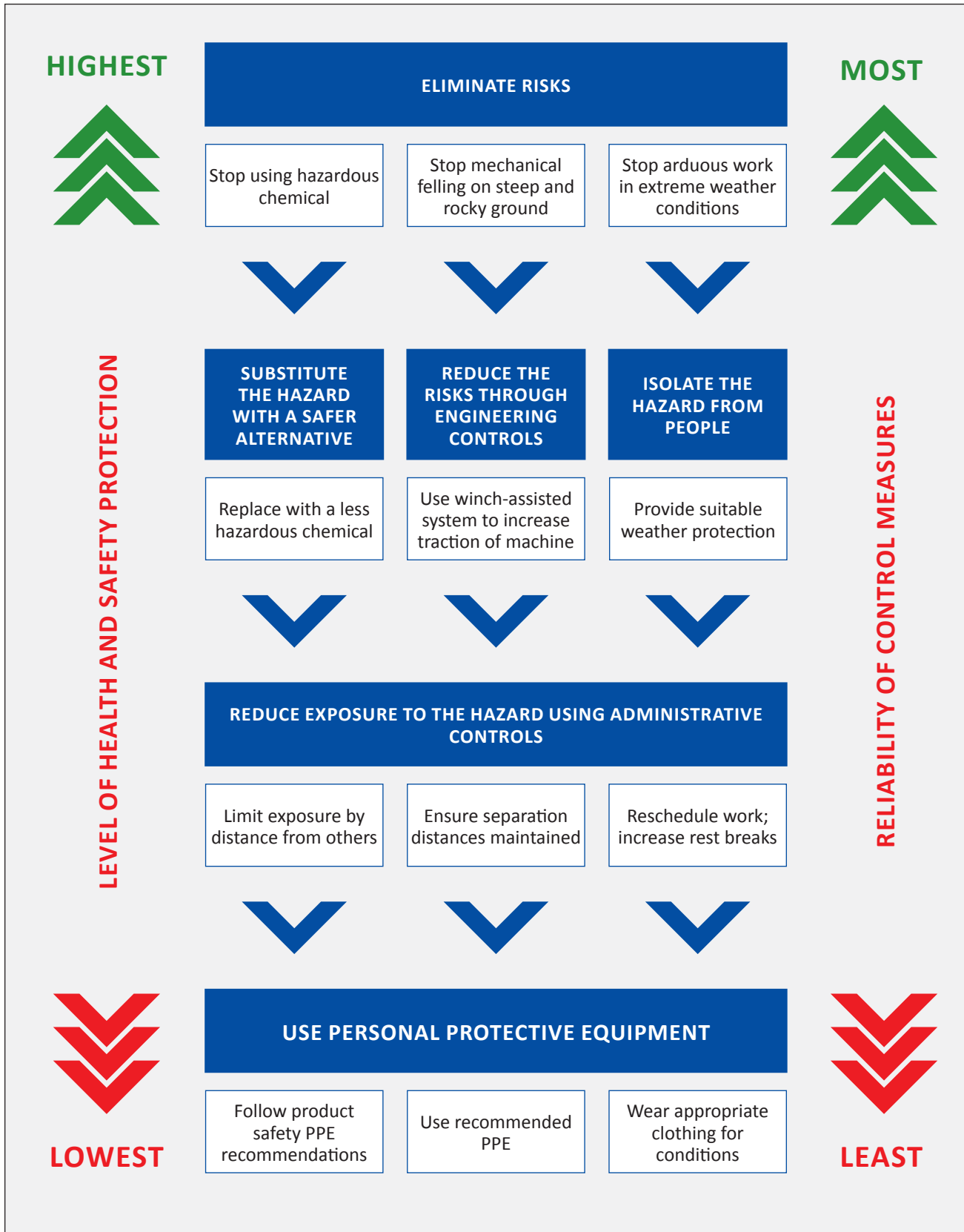
Risk assessments aim to identify risk controls that will achieve the highest level of protection so far as is reasonably practicable. What is meant by the highest level of protection is best described by the ‘hierarchy of control’.

The hierarchy of control begins with eliminating the risk. If this is not practicable, other options must be considered – from substituting safer alternatives and designing out risks down to adopting administrative procedures and using personal protective equipment (PPE). In practice, a combination of risk controls may be required.

The principle behind the hierarchy of control is that risk controls that depend on individual behaviour are less reliable than risk controls that engineer or design out risks. In some cases, a regulation will prescribe the hierarchy that must be followed.

The hierarchy in *Figure 4* was extracted from the Safe Work Australia approved Code of Practice *How to manage work health and safety risks*. It has been matched with some examples from forestry operations.

Figure 4: The hierarchy of control with forestry operations examples



4.5 Review of risk controls

Once risk controls are in place, effective risk management requires that they be monitored to see if they are operating effectively and that circumstances have not changed. Similar methods to those for hazard identification can be used to check the effectiveness of controls.

Other situations should prompt a review of risk controls, including:

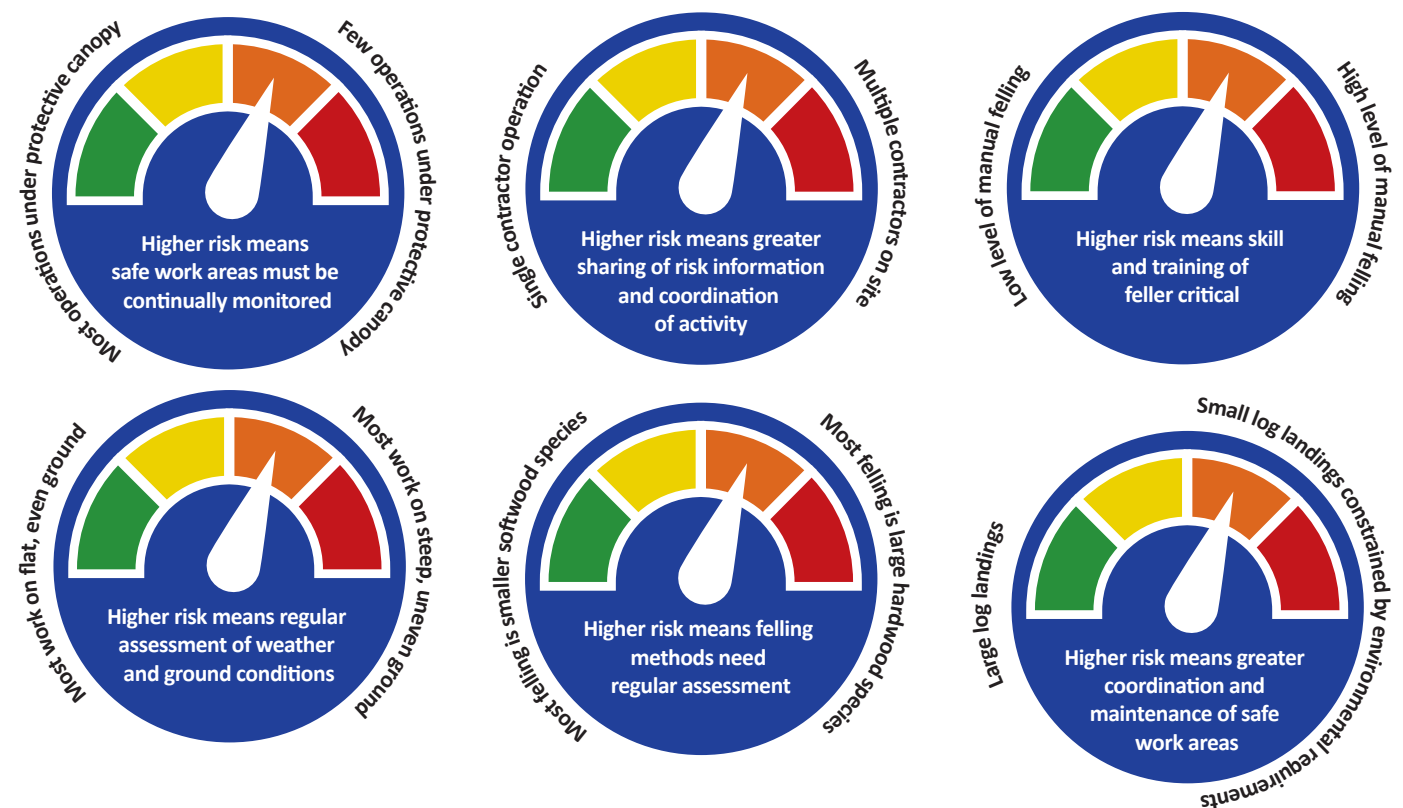
- an unplanned circumstance like a vehicle breaking down or machine getting bogged
- an incident, regardless of injury
- audit findings showing failures or non-compliances
- a notice from the regulator
- workers or others raising concerns about the effectiveness of controls
- changes to competency standards or the ability of current workers to meet them
- new information from manufacturers and suppliers about substances or equipment that could impact the effectiveness of current controls.

4.6 Levels of risk to be managed in forestry operations

It is important to understand what level of risk has to be managed and what the implications for managing that risk are.

The level of risk is illustrated in *Figure 5* with examples found across most forestry operations.

Figure 5: Understanding levels of risk and implications for risk management



Risk management efforts will vary with the level of risk. High levels of risk mean a business will rely more heavily on risk management to determine how the risk can be reduced. This will be reflected in a health and safety management system and influence the nature and detail of documentation required for compliance.

4.7 Use of risk management process

WHS Regulations may require risk management and specific elements such as risk assessments. The process is needed in other situations, such as when:

- developing a health and safety management system and site safety plans
- managing a high-risk situation such as removal of hazardous trees
- assessing a newly identified hazard
- purchasing new equipment
- working with contractors or subcontractors
- doing an activity in a new or changed environment
- responding to incidents
- justifying an alternative to a Code recommendation, such as a purpose-specific exclusion zone
- planning for new methods and technologies.

4.8 Documentation

The results of risk management activity should be documented. In some cases, WHS Regulations will require certain records, such as a register of hazardous chemicals, lists of applicable safety data sheets, or emergency plans.

Documentation is also a basic element of a health and safety management system. It enables:

- a duty holder to demonstrate how decisions were made about what is reasonably practicable
- induction and specific training to be targeted at key hazards
- effective safe work procedures to be prepared
- new staff to understand why risk control decisions have been made
- the approach to managing risk to be demonstrated to others (e.g. a regulator, auditor, or company issuing a tender).

The level of record-keeping will vary according to the size and complexity of the operations and the breadth and nature of the risks managed.