

*Tasmanian*

*Code of Practice*

*for*

*Sawmilling and*

*Timber Operations*

*Part Two: **Chippers***

# Scope

## Part Two: Chippers

This code is designed to cover all chipping operations from the infeed of the chipper to the transportation of chips from the site.

It is the second of a series of documents covering:

Green Mills  
Chippers  
Planing Mills  
Kilns

Where ever practicable, generic information has been included in each of the Codes to make them stand-alone documents. Where this has not been practicable the Green Sawmills Code should be referenced for guidance on areas applicable to the whole mill such as signage and chainsaw use.

# INTRODUCTION

## **PART TWO: Chippers Code of Practice**

This Code of Practice for Chippers was developed by the Sawmill Code of Practice Sub-Committee of the Tasmanian Forest Industries Training Board in consultation with industry and Workplace Standards Tasmania. It presents a guide to safe practices and procedures that may assist the person in control of a workplace to comply with the requirements of the Workplace Health and Safety Act and Regulations.

This is part 2 of 4 parts of the *Tasmanian Code of Practice for Sawmilling and Timber Operations*. The other parts, relating to Green Mills, Planing Mills and Kilns, can be obtained by contacting the:

Tasmanian Forest Industries Training Board Inc.  
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Launceston Tas 7250  
Telephone (03) 6331 6077  
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Our thanks go to those committee members that have given selflessly of their time over the past 6 years to produce this code for the industry.

Tony Jaeger  
Chairman

## **General**

This code must be read in conjunction with the *Tasmanian Code of Practice for Sawmilling and Timber Operations – Part One: Green Mills*.

A risk assessment of all chipper operations is to be undertaken as per Appendix 2.

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# 1. DEFINITIONS

**Act:** Unless otherwise specified, refers to the Tasmanian *Workplace Health and Safety Act 1995*.

**Competent person:** Means a person with sufficient knowledge and skills acquired through qualification, training or experience to perform the task to which the term relates. A competent person is to be emotionally mature and physically capable of performing the tasks associated with the position.

**Contractor:** Means a person engaged by any person (otherwise than as an employee) to perform work for gain or reward.

**'Deadman' control:** This refers to a type of control that requires the application of operator pressure to activate the equipment. Releasing the pressure causes the control to shut off.

**Employee:** Means a natural person who is employed under a contract of service and, in relation to any educational or other training establishment, includes any natural person who, as a student, uses hazardous substances or plant in that establishment.

Where a person, in connection with a business carried on by an employer, performs work for an employer gratuitously, the person is taken to be employed by the employer.

**Employer:** Means a person by whom the employee is employed under a contract of service.

**Hook angle:** The angle made by the face, or inside line of the tooth nearest its point, and a line drawn from the tooth point to the centre of a circular saw, or perpendicular to the back of a bandsaw or reciprocating saw.

**Is to/are to:** The words "is to" and "are to" are to be construed as being directory.

**May:** The word "may" is to be construed as being discretionary or enabling, as the context requires.

**Must:** The word "must" is to be construed as being mandatory.

**Nip point:** This is the point at which a machine element moving in line meets a rotating element so that it is possible to nip, pinch, squeeze or entrap objects coming into contact with one of the two elements.

The term also applies to the similar point with respect to:

- two rotating parts
- two converging parts in linear motion
- a stationary machine element and a moving element

**The person in control of a workplace:** May be an employer or responsible officer.

**Regulations:** Unless otherwise specified, refers to the *Workplace Health and Safety Regulations 1998*.

**Responsible Officer** (section 10 of the Act):

- (1) An employer is to appoint a responsible officer for each workplace at which the employer carries on business.
- (2) If an employer fails to appoint a responsible officer for a workplace, the person responsible for the direction and management of the business of the employer at that workplace is taken to have been appointed as the responsible officer for that workplace.
- (3) An employer is to ensure that a responsible officer appointed under sub-section (1) has sufficient authority to perform the duties of a responsible officer under this Act.
- (4) An employer must –
  - (a) notify the responsible officer in writing of his or her appointment as responsible officer; and
  - (b) give notice of that appointment as far as reasonably practicable to all persons employed or engaged at the workplace.

**Substance:** Means any natural or artificial substance, whether in solid or liquid form or in the form of a gas or vapour; and includes the packaging of any such substance.

**Workplace:** Means any premises or place (including any mine, aircraft, vessel or vehicle) where an employee, contractor or self-employed person is or was employed or engaged in industry.

## **2. GENERAL DUTIES and OBLIGATIONS**

- 2.1 Employers have an obligation to ensure, so far as is reasonably practicable, the health, safety and welfare of employees and other persons at the place of work and to comply with the provisions of the *Workplace Health and Safety Act 1995* and the *Workplace Health and Safety Regulations 1998*.
- 2.2 Employees must take reasonable precautions to ensure the health and safety of themselves and other workers at their workplace.
- 2.3 Employees have a statutory obligation to comply with any direction given to the employee by an employer or responsible officer with respect to any matter relating to health and safety under the *Workplace Health and Safety Act 1995*.
- 2.4 Self-employed persons have an obligation to ensure, so far as is reasonably practicable, that he or she and all other persons not in their employment are not exposed to risks to their health and safety arising from their conduct while they are at a place of work.
- 2.5 A person who has control of any workplace, plant, structure or substance has an obligation to ensure, so far as is reasonably practicable, that the workplace and the means of access to or egress from the workplace, the plant, structure or any substance used are without risk to health and safety.
- 2.6 Manufacturers, designers, importers and suppliers of any plant, structure or substance have an obligation to ensure, so far as is reasonably practicable, the health and safety of persons using that plant or substance is not placed at risk. They are required to carry out all necessary research, testing and examination as required, to make available adequate information about the safe use of the plant, structure or substances and any conditions necessary to ensure that the plant, structure and substances are without risks to health and safety when properly used.
- 2.7 A record of work-related injuries must be kept by an employer in accordance with the provisions of the *Workplace Health and Safety Act 1995*.
- 2.8 Workplace Standards Tasmania must be notified by the quickest available means in the event of death or serious bodily injury or illness, or a dangerous incident as a result of which death or serious bodily injury or illness could have occurred. 'Serious bodily injury' or 'illness' means an injury or illness that disables a person to the extent that the person is subject to a period of admission to hospital as an in-patient. A "dangerous incident" means damage to any boiler or other pressure vessel, damage to a load bearing member or any lifting machinery, scaffolding or amusement structure, and uncontrolled explosion, fire or discharge of electricity, gas or steam or an occurrence, including those involving any substance, involving imminent risk of explosion, fire, death, serious bodily injury or illness to any person or serious damage to any property. See also regulation 62 of the *Workplace Health and Safety Regulations 1998* for further information.

### **TRAINING AND INSTRUCTION**

- 2.9 Under section 9 of the *Workplace Health and Safety Act 1995* employers must provide such training and instruction, including information and supervision, as is reasonably necessary to ensure the health and safety at work of their employees.

- 2.10 All persons involved in chipping operations must be trained, to the extent reasonably necessary in the circumstances, to follow systems of work and work practices that enable them to perform their work in a manner that is safe and without risks to health. Only those persons who are undergoing or who have received training and instruction are to carry out the work.
- 2.11 The employer must monitor the systems of work and provide refresher training to the extent reasonably necessary in the circumstances to ensure, so far as is reasonably practicable, that safe systems and work practices are being followed; including the use of personal protective equipment.
- 2.12 The training provided and the instruction given is to include:
- all work processes to be used for the chipping operations, including manual handling tasks and all control measures put in place to prevent injury. All control measures are to be based on a risk assessment (refer Appendix 2 for guidance).
  - the correct use, care and storage (in accordance with the manufacturer's recommendations or Australian Standards) of personal protective equipment, tools and equipment to be used.
  - the safe use of plant and associated equipment including electrical safety and hazardous substances.
  - procedures to be adopted in the event of an accident, injury or other emergency.

## **CONSULTATION**

- 2.13 Employers, employees and their representatives must ensure, as far as is reasonably practicable, that consultation with each other occurs, when determining the provision of safeguards in accordance with the recommendations of this *Code of Practice*, to ensure a safe working environment.
- 2.14 The consultation process is also to be used to determine safe systems of work based on an assessment of the risk associated with all tasks (refer Appendix 2). The consultation process is to include but not be limited to consideration of the following:
- nature of work
  - workplace access
  - appropriate machine guarding
  - manual handling
  - personal protective equipment (PPE)
  - fire safety and emergency procedures
  - establishment of a workplace health and safety committee (or representatives)
  - appropriate training.

## **INDUCTION**

- 2.15 Induction is the process by which you advise all people new to your workplace of the potential hazards of the working environment. This process applies to new employees and contractors. It is also an ongoing process; providing training and information to existing, as well as new personnel at the workplace about how exposure to identified workplace hazards is prevented and/or controlled.

Induction is to include training and information regarding 'safe working procedures'.

Written records must be kept of all persons inducted into the workplace. In this way you are working towards fulfilling your 'duty of care' obligations as an employer.

Visitors and customers to work sites are to be managed to ensure their health and safety whilst on the site.

(Complete induction manuals can be obtained from the *Tasmanian Forest Industries Training Board Inc.*)

### 3. PLANNING and PREPARATION

- 3.1 Careful planning and preparation is the first essential step in ensuring that work is done safely. Planning and preparation for safe systems of work and hazard control measures is to involve consultation with all those engaged in the work, and any health and safety committee, and include a hazard identification, risk assessment and control process.
- 3.2 The employer, or the person in control of the workplace, has statutory duties imposed by the *Workplace Health and Safety Act 1995* and *Workplace Health and Safety Regulations 1998*. The duty is to provide and maintain, in relation to those matters over which he or she has control, and so far as is reasonably practicable, a workplace that is safe and without risks to health for their employees and other persons present at the workplace or affected by the work. To fulfil these obligations the employer must plan for the work to be done safely.

Before operations start, the employer, or the person in control must at least consider:

- hazard identification of the workplace
- an assessment of the risks involved in carrying out the work
- the most appropriate methods to control any risk of injury
- instructions for operators regarding any site safety requirements to be observed
- providing suitable safe access to and from the workplace including each work area
- an assessment of manual handling tasks which could cause injuries, and providing safe systems of work which comply with the provisions of the National Occupational Health and Safety Commission (NOHSC) *National Standard for Manual Handling and National Code of Practice for Manual Handling*
- the correct use and care of personal protective equipment (PPE)
- whether all persons carrying out the work have been provided with the appropriate training and instruction.

For information on the **Risk Management** process refer to Appendix 2.

## 4. CHIPPER INFEED

Refer also to Section 7: Log Decks and Section 18 Conveyors – General of the *Tasmanian Code of Practice for Sawmilling and Timber Operations – Part One: Green Mills*.

- 4.1 A person must not operate a chipper unless that person has been instructed in the dangers and the safe operating procedures and assessed as competent by a competent person or is undergoing training;
- All trainees are to be under the direct supervision of a competent person.
  - Juniors may be employed in any position for which the employer or the person in control of the workplace deems them to be competent to carry out the work, subject to the provisions of the relevant award or awards.
- 4.2 Safe access to the chipper infeed is to conform to AS1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*.
- 4.3 All persons must be protected as far as reasonably practicable from the risk of impact by any material. A system to prevent unauthorised entry into the chipper infeed area must be adopted.
- 4.5 Where sawmill residues are introduced to the chipper in bundle form, a safe method of releasing and removing the wire restraints/strapping is to be adopted, including the wearing of eye protection and gloves.
- 4.6 In the event of a blockage in the throat of the chipper, a safe system of freeing that blockage is to be adopted where manual removal is required. The operator must not be unreasonably exposed to entrapment by the chipper knives, moving waste and operating conveyor systems. (A risk assessment must take into account the run-down time of the chipper.)
- 4.7 Where winches are incorporated into the system, procedures of Section 6.5 are to be adopted. (refer Section 6: Log Winches of the *Tasmanian Code of Practice for Sawmilling and Timber Operations – Part One: Green Mills*).
- 4.8 An emergency isolation/stop system, that may be operated in the event of a person being inadvertently on the infeed conveyor, is to be installed.

## 5. CHIPPER

- 5.1 Controls for starting and stopping chipper and associated equipment (including infeed conveyor, outfeed conveyors, screens, re-chippers) are to be located in such a position that they can be readily and conveniently used by the operator in a normal working position.
- 5.2 All controls are to be clearly marked with their function.
- 5.3 An emergency stop button must shut down the whole chipper operation (infeed belt, screens etc). The button must be coloured red, of the mushroom headed type, clearly marked STOP and with a manual reset.
- 5.4 Devices activated by hydraulics or pneumatics must fail safe in the event of power loss.
- 5.5 Where the operator cannot view critical machinery, closed circuit television, start-up siren or flashing lights are to be considered.
- 5.6 All drives and V-belts are to be guarded in accordance with AS 4024.1 *Safeguarding of machinery – General principles*.
- 5.7 Where a braking system is installed on the chipper, the controls for operating the braking system are to be external to any fencing/guarding.
- 5.8 The chipper is to be maintained in accordance with the manufacturer's specifications/instructions.
- 5.9 For internal combustion power sources, an emergency stop control device with its function clearly marked STOP must be located in close proximity to the operator for use in an emergency.
- 5.10 Knife Changing or Maintenance/Cleaning

All guarding must remain in place until the machine is completely stopped.

- When run-down times exceed 10 seconds, a warning sign advising of the run-down time is to be placed near the machine controls.
- The employer must develop and implement a lock out/tag out isolation procedure for any inspection, cleaning or maintenance task to be performed on any plant or equipment.

NOTE: Chippers connected to high voltage electricity supplies may require an authorized person that holds an electrical licence to isolate, lockout and re-energize.

- All knives are to be carried in a sharps container.
- Knives are to be changed, positioned and tightened in accordance with the manufacturer's specifications / instructions. Where the manufacturer's specifications / instructions are not available a written procedure is to be developed and implemented.

NOTE: Compressed air is dangerous and can kill. It must never be directed at the operator or another person.

- When handling tools or knives, appropriate manual handling procedures are to be adopted.
- At the completion of changing the knives or chipper maintenance, personnel involved must ensure that all guards are in place and secured before de-isolating the machine and informing the operator the machine is ready for operation.
- The operator must ensure that all personnel are clear before starting the chipper.

#### 5.11 Knife Grinding

- The operator is to be made well aware of all hazards associated with knife grinding and sharp knife handling.
- Babbitting of knives is to be carried out in a well ventilated area. The operator is to be made aware of all hazards associated with the babbitting procedure.
- The use of "lead free" babbitt is highly recommended.

## **6. CHIPPER OUTFEED**

- 6.1 All conveyors used to transfer chips to the screens must comply with Section 18: Conveyors – General of the *Tasmanian Code of Practice for Sawmilling and Timber Operations – Part One: Green Mills*.
- 6.2 For top discharge or similar systems, inspection points are to be incorporated in the design to provide for safe unblocking of the discharge pipe.
- 6.3 The level of airborne contaminants must not exceed those given in *Worksafe Australia – Exposure standards for atmospheric contaminants in the occupational environment*. For further details refer Workplace Standards Tasmania.

## **7. CHIP SCREENS**

- 7.1 Access to chip screens is to be restricted to prevent inadvertent contact with moving parts or nip points.
- 7.2 All drives and V-belts are to be guarded in accordance with AS 4024.1 *Safeguarding of machinery – General principles*.
- 7.3 An emergency stop button for the screen must be located in a readily accessible position. The button must be coloured red, of the mushroom type, clearly marked STOP and with a manual reset.
- 7.4 The screen must be isolated and tagged/locked out before any maintenance is carried out.
- 7.5 All outfeed conveyors, including those that carry fines and oversize chips must comply with Section 18: Conveyors – General of the *Tasmanian Code of Practice for Sawmilling and Timber Operations – Part One: Green Mills*.

## **8. OVERHEAD CHIP / SAWDUST BINS**

- 8.1 All chip/sawdust bins are to be designed, manufactured and installed by capable persons.
- 8.2 It is recommended that bins be designed so that access is not necessary. Where there is a necessity to access the interior of a bin for any purpose, access is to be in accordance with AS 1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation* and AS 2865 *Safe working in a confined space*.
- 8.3 If the controls for opening the bin doors are in an elevated position, access is to be provided in accordance with AS 1657 *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*.
- 8.4 The area must be suitably signed to warn against entry at any time to the area directly under the bin.
- 8.5 Regular inspection and maintenance of the plant (chip bin) is to be carried out by competent persons (refer also Section 10 Inspection, Cleaning & Maintenance of Plant).

## 9. PROTECTIVE EQUIPMENT INCLUDING PERSONAL

- 9.1 Sites must have indicative noise level checks to determine ambient noise levels. If noise levels recorded are above 85dBA, a noise assessment is to be carried out by a competent person. If a noise assessment is carried out, the responsible person must arrange for another noise assessment to be carried out no more than five years later, with each record being kept for at least five years. Hearing protection is required if noise levels exceed 85dBA for an eight-hour day.
- 9.2 Engineering and administrative control measures are to be explored and implemented to reduce noise to acceptable levels. These may consist of any procedures that:
- i) Reduce the sound level either at the source of the noise, its transmission, or at the position normally occupied by the employee excluding the use of personal hearing protective devices; and,
  - ii) Limit the daily exposure to noise by control of the work schedule.

NOTE: If an employee is required to wear hearing protection, audiometric testing of employees must be carried out at least every two years.

- 9.3 The following personal protective equipment (PPE) must be worn in all designated areas where an identified risk exists and the PPE is to comply with the following Australian Standards where applicable.

	Applicable Australian Standard
• safety footwear (mandatory in all areas)	AS/NZS 2210.1
• hearing protection	AS/NZS 1270
• safety helmet	AS/NZS 1800
• eye protection	AS/NZS 1337
• high visibility clothing	AS/NZS 4602
• dust mask	AS/NZS 1715
• gloves	AS/NZS 2161
• leather aprons	
• sun protection	
• face mask	
• neck (sun) protectors	
• overalls (maintenance)	

Adequate signage is to be used to indicate requirements for particular designated areas.

## **10. INSPECTION, CLEANING and MAINTENANCE of PLANT**

10.1 In accordance with the *Workplace Health and Safety Regulations 1998*, regular planned inspection and routine maintenance of registered plant must be carried out to ensure, so far as is reasonably practicable, safe and efficient operation. Employers or responsible officers must implement the following procedures:

- General condition and maintenance of the registered plant must be checked on a regular basis.
- The plant must be inspected and maintained by an appropriately qualified person, in general accordance with the manufacturer's instructions or maintenance schedule.
- Employers must develop and maintain a record system of registered plant.

10.2 The employer must develop and implement a lock out/tag out isolation procedure for any inspection, cleaning or maintenance task to be performed on any plant or equipment.

- Any defects to equipment are to be reported immediately.

### 10.3 Hydraulics and Pneumatics

Plant which may contain residual pressure after isolation or power failure must be de-pressurised before any maintenance is carried out.

## **11. INDUSTRIAL SAFETY**

### **FIRST AID**

11.1 The following first aid facilities are to be provided:

- Risk management procedures must be instituted to ensure, so far as is reasonably practicable, the provision and maintenance of a safe work environment.
- In every workplace the employer, or the person in control must make reasonable provision to render first aid to all employees who are injured or are ill while at work.
- Where provided, first aid rooms are to be well lit and ventilated, suitably located and accessible.
- First aid boxes are to be dust-proof and lockable, with the exterior coloured white and clearly labelled with a green cross and the words “FIRST AID” in green.
- There is to be displayed in a prominent position near each first aid box a clearly legible notice showing the names and work locations of the persons responsible for or qualified to render first aid.
- First aid boxes are to be kept stocked with first aid supplies in accordance with the list of basic minimum requirements set out in Appendix 1. Boxes are not to contain anything other than first aid supplies and are to be kept clean at all times, with a list of the required contents of the box attached to the inside of the lid of the box.
- First aid boxes are to be located within 100 metres of a work area.
- First aid boxes are to be provided on the basis of one box for every 100 employees, or part thereof, who are in a work area at any one time. The only exception is where a separate first aid room or health centre is provided on the site, which is accessible during working hours at all times, then first aid boxes need not be provided.
- Separate first aid boxes or approved portable first aid kits are to be provided for use by persons whose place of work is remote from other first aid facilities.
- Clean water is to be readily accessible close to the location of a first aid box.
- Every first aid box provided in a workplace in accordance with the requirements of this code is to, whenever there are employees working at the workplace, be in the care of a person responsible for rendering first aid.
- At any workplace at the one time, one person is to be the holder of a current certificate to render first aid, issued by an approved authority.
- All entrances to a first aid room are to be clearly marked “First Aid.”

- Every first aid room is to be in the care of a person who is the holder of a current certificate to render first aid, issued by an approved authority, and who is readily available at all times while persons are working at the workplace.

### **SIGNAGE**

11.2 In accordance with Section 9 of the *Workplace Health and Safety Act 1995*, the employer, or the person in control of the workplace, has a responsibility to ensure, so far as is reasonably practicable, the health and safety of all visitors, including contractors, at a workplace. To this end, appropriate signage is to be provided at appropriate locations warning of hazards located within the mill site. Examples may include:

- “Mill visitors must report directly to office”
- “No log trucks to proceed past this point unless directed by an authorised person”
- speed limits
- “Authorised personnel only”
- “No public access”
- “Danger – working machinery – high visibility clothing must be worn”
- Various signs indicating the use of personal protection equipment, i.e. safety helmets, eye protection, hearing protection.

### **LIGHTING**

11.3 All lighting throughout the mill is to be in accordance with AS 1680 *Interior lighting* (refer to Table 1).

- Lighting must not show strobing effects.
- Safety mesh is to be fixed under any roof skylights or translucent sheeting, and signs advising the existence of a “brittle roof” must be prominently displayed at all points where access may occur.

### **NOISE**

11.4 Every effort is to be made to keep noise levels to acceptable levels. (For more information refer to Section 9.)

**Table 1 Work Site Lighting**

TYPE OF WORK	RECOMMENDED SERVICE ILLUMINATION (LUX)
Rough sawing and benchwork	240
Sizing, planing, rough sanding, medium machine and bench work	400
Fine bench and machine work	600

**BASIC MINIMUM REQUIREMENTS FOR FIRST AID BOXES**

***QUANTITY    ITEM***

3 bottles	Antiseptic Solution 30ml
5	Disposable Splinter Probes
1 pkt	50 Waterproof Dressing Strips
1 roll	7.5 cm Strapping Tape
3 pkts	10cm x 10cm Gauze Swabs (5)
2	7.5 cm Conforming Gauze Bandage
6	Triangular Bandages
2	Wound Dressing No. 15
2	Wound Dressing No. 14
3	10cm Crepe Bandage
4	Eye Wash Saline 10ml
1 pr	Shears 20cm
1 pr	Splinter forceps
12	Safety pins
1	Thermal Blanket
2	Plastic Bags 150mm x 230mm
3 pr	Disposable Gloves
1	Notebook and Pencil
1	2.5cm Leukosilk Tape
3	10cm x 10cm Non-adhesive Dressings
2	Sterile Eye Pads
1	Resuscitation Mask
1	Digest of First Aid
1	4 x 4 metre Waterproof Ground Sheet

**OPTIONAL ITEMS:**

1	Constrictive Bandage
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NOTE: You must undertake a risk assessment for your individual workplace and consider the contents of your first aid box following the risk assessment. The above is a list recommended by St Johns Ambulance 2003.

# RISK MANAGEMENT

## 1. Introduction:

With the introduction of the non-prescriptive **Workplace Health and Safety Regulations 1998**, risk management procedures must be instituted to ensure, so far as is reasonably practicable, the provision and maintenance of a safe work environment.

## 2. Principles of Risk Management:

The principles of the risk management procedure are:

**Spot the hazard**  
**Assess the risk**  
**Fix the problem**  
**Evaluate the results**

### 2.1 *Spot the Hazard*

There are a number of methods that can be used to identify hazards associated with the workplace. The type of plant used and work processes involved will determine the method of identification, a combination of which may give the best results. Methods of identifying hazards include:

- (a) Walk through survey – of the workplace using a hazard checklist.
- (b) Work process evaluation – it is essential to establish a priority for the order in which to analyse.

*First* – select the jobs in which most accidents occurred and remember – consider **all** accidents – injury, property damage and near misses.

*Second* – consider jobs that have a potential for severe accidents.

*Third* – study newly-established jobs carefully or review any change in existing job methods or process changes.

- (c) Consult with employees – employees are usually the best source of what can go wrong and why, based on their experience. Consultation can take the form of:
  - i) formal discussions during safety committee meetings
  - ii) informal discussions occurring during on-the-job contact or tool box meetings during work breaks

In either case, the feedback element is important from a motivational viewpoint. The risk identifier **must** be kept fully informed of any actions taken.

- (d) Manufacturers' instructions – these are an important source of information regarding hazards associated with plant.
- (e) Specialist practitioners and representatives of industry associations, unions and government bodies may be of assistance in gathering health and safety information relevant to hazards associated with plant.

## 2.2 **Assess the Risk**

- (a) Once a hazard has been identified, a risk assessment must be carried out to determine the extent of the risk associated with the hazard. A risk assessment must consider the risks to all people potentially affected by the hazard including non-employees, such as contractors and members of the public.
- (b) A risk assessment is to determine the following:
  - i) the occupations and tasks at risk
  - ii) the number of persons at risk
  - iii) the probability of a hazard resulting in an injury or disease
  - iv) the duration of exposure a person has to the hazard
  - v) the possible consequences (injury, disease, fatality) that may result from (iii) and (iv) above
- (c) The '**Risk Analysis Work Sheet**' contained within this information brochure is an example of one technique that can be used and is intended as a rapid guide to identify the level of risk. For instructions and use of the Risk Analysis Work Sheet refer to page 24.

## 2.3 **Fix the Problem**

Exposure to hazards that may present risks to the health or safety of persons in a workplace must be controlled. This may be accomplished by a number of methods forming what is known as the **hierarchy of control measures**, consisting of six stages described below in decreasing order of priority and effectiveness.

Control measures may be divided into short-term/immediate control measures and long-term control measures. The long-term aim is to always **eliminate the hazard at the source** but, while attempting to achieve this aim, other short-term actions are to be used.

In some cases, the control of a hazard may involve the combination of two or more control measures.

**1) Elimination –**

Removal of the hazard from the workplace, e.g. automation of breast-bench operation to remove operator from the area of the throw of the saw.

**2) Substitution –**

Replacement of the hazard with something that, although still a hazard, is a hazard to a much lesser degree, e.g. using water-based paint in place of a solvent-based material.

**3) Isolation –**

Separation of persons from a hazard by means of relocation of the hazard to a remote location, or by segregating the hazard to prevent personal exposure, e.g. enclosing noisy items of plant in a sound-proof enclosure.

**4) Engineering Controls –**

Minimises the creation of the hazard at its source, or controls the hazard's potential risks by limiting its effective range, e.g. provision of a correctly placed top-guard to a breast-bench saw and use of a localised dust extraction system.

**5) Administrative Controls –**

Address the health and safety of persons in the workplace by:

- i) documenting safe work procedures
- ii) limiting / adjusting the time or conditions of risk exposure

**6) Personal Protective Equipment (PPE) –**

Involves the use of appropriately designed, approved and properly fitting equipment to be worn by persons to isolate them from hazards present in their surrounding workplaces where other control measures are not practical.

It must be stressed that the use of PPE is a **"last ditch effort"** to provide protection from a hazard and is **never** to be considered as the primary form of protection.

## **2.4 Evaluate the Results**

- (a) In consultation with employees, review the control measures to be applied in order to determine:
  - i) the potential effectiveness of the control measure, i.e. will the risk be reduced if the control measure is applied?
  - ii) whether the application of a chosen control measure introduces new hazards.
- (b) If the control measure will not introduce any new hazard and it would be effective, apply the control measure.
- (c) Should new hazards, or different systems of work be introduced, a separate risk assessment will need to be carried out on both the work process and the control measure.
- (d) Monitor the effectiveness of all control measures. It is strongly suggested that this be done at least annually, unless plant or work procedures change.

## **3. Conclusion**

- (a) All risk management procedures are to be repeated at intervals and whenever there is reason to suppose that the results are no longer valid, e.g. new plant or processes are introduced or plant is modified so that it deviates from the original design.
- (b) Tasmanian workplace safety legislation insists that all risk must be minimised by adoption of the highest-ranked control measures reasonably practicable.

## Using the **SAFE** Steps to Undertake a Risk Assessment

### **SPOT THE HAZARD**

1. Photocopy both the **RISK ASSESSMENT FORM** and the **RISK ANALYSIS WORK SHEET**. You will need a fresh Risk Analysis Work Sheet for each hazard identified and included on the Risk Assessment Form.
2. Identify the location, area or section where you are performing the risk assessment and complete the details including the allocation of a reference number to be included in the **Ref. No.** box at the top of the **RISK ANALYSIS WORK SHEET**.
3. Allocate a reference number for each hazard identified and write this in the **Ref. No.** column on the **RISK ASSESSMENT FORM**. This number will be the link between the hazard and the **RISK ANALYSIS WORK SHEET**.
4. Identify the task or item of plant you are assessing and complete those details at the bottom of the **RISK ANALYSIS WORK SHEET**.
5. List all the hazards associated with the task or item of plant you are assessing and write them in the **Hazard Identified** column. There may be several hazards associated with the one task or item of plant. If there are many, you may need to break the task or plant into smaller, more manageable components.

### **ASSESS THE RISK – Guidelines for completing the Risk Analysis Work Sheet**

1. Go to the **RISK ANALYSIS WORK SHEET** on page 27.
2. Write the reference number of the hazard you are assessing on the **Reference No.** box on the top right hand side of the page.
3. How likely is it that an injury will occur from the hazard? Place an "X" on the **Probability** line according to how likely you think it is that the hazard will cause an injury.
4. How frequent is exposure to the hazard? Place an "X" on the **Exposure** line according to what the frequency of exposure to the hazard is.
5. Draw a straight line between the two "Xs" and continue until the **Tie Line** is reached. Mark where it crosses the **Tie Line** with an "X".
6. What would the consequences be if an accident did occur from this hazard? What harm could occur or how serious could an injury be? Place an "X" on the **Consequences** line according to what you think the consequences could be if an injury resulted from the hazard.

7. Draw a straight line from the "X" on the **Tie Line**, through the "X" on the **Consequences** line. Continue to the **Risk Score** line and mark where it crosses the **Risk Score** line. This provides your assessed **Risk Score**.
8. From the **Justification Score** line determine the recommended time frame for action to be taken to *remove* or *reduce* the risk to an acceptable level.
9. Return to the **RISK ASSESSMENT FORM** and write the Assessed Risk in the **Risk** column beside the hazard you assessed.

## **FIX THE PROBLEM**

1. Go to the **Control Mechanism** column of the **RISK ASSESSMENT FORM** and work your way down the Hierarchy of Controls until suitable control measures are identified that will best reduce or control the hazard. Circle those to be implemented. (Refer to section **2.3 Fix The Hazard** of the RISK MANAGEMENT document for an explanation of the Hierarchy of Controls).
2. Go to the **Action to be Taken** column and write the number(s) of the control mechanism(s) chosen and the resultant action to be taken.

## **EVALUATE RESULTS**

1. Using the **RISK ANALYSIS WORK SHEET**, re-assess the hazard but this time with the control measures implemented. Use a different coloured pen to compare the scores. The assessed risk is to be lower than the first assessment. Be aware of any secondary hazards that may have been introduced as a result of any control measures implemented.
2. Return to the **RISK ASSESSMENT FORM** and write the revised risk score in the **Revised Risk** column.
3. Complete the details at the bottom of both forms ensuring that each is signed and dated.
4. Continue to evaluate the hazard on a regular basis to ensure no new hazard has arisen.

## RISK ASSESSMENT FORM

Location:.....

Area: .....

Section:.....

Task: .....

Plant Item:.....

Ref. No.	Hazard Identified	Risk Score <small>(from risk analysis work sheet)</small>	Control Mechanism	Action to be Taken	Revised Risk
			1. Elimination 2. Substitution 3. Isolation 4. Engineering Controls 5. Administrative Controls 6. PPE		
			1. Elimination 2. Substitution 3. Isolation 4. Engineering Controls 5. Administrative Controls 6. PPE		
			1. Elimination 2. Substitution 3. Isolation 4. Engineering Controls 5. Administrative Controls 6. PPE		
			1. Elimination 2. Substitution 3. Isolation 4. Engineering Controls 5. Administrative Controls 6. PPE		

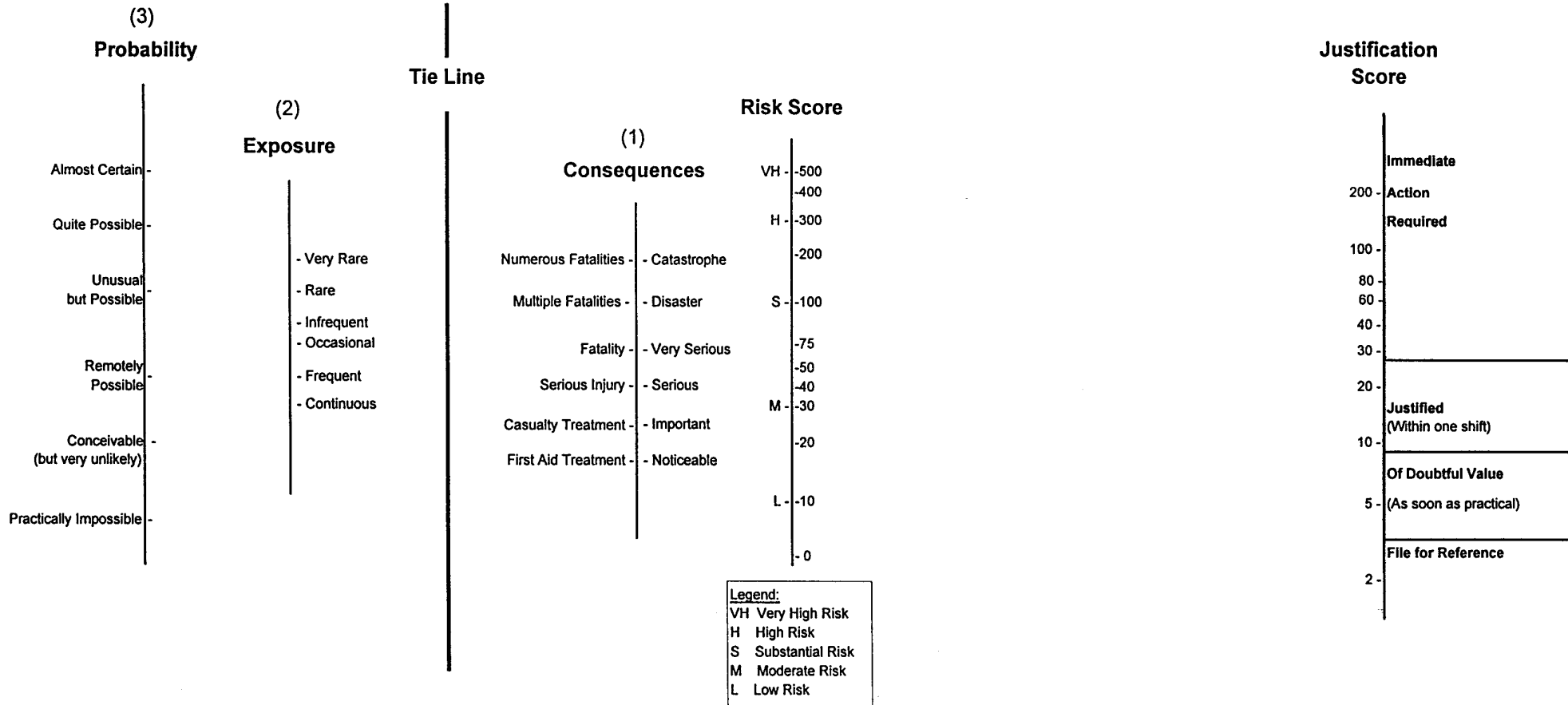
Signed

Date

## RISK ANALYSIS WORK SHEET

Area / Location

Ref. No.



Identify the hazard:

Risk score:

## **Appendix 3**

### **DOCUMENTS REFERRED TO IN THIS CODE OF PRACTICE**

- *AS/NZS 1270 Acoustics – Hearing protectors*
- *AS/NZS 1337 Eye protectors for industrial applications*
- *AS 1657 Fixed platforms, walkways, stairways and ladders - Design construction and installation*
- *AS/NZ 1680 Interior lighting (refer to 1680.0 through 1680.3 as applicable)*
- *AS/NZS 1715 Selection, use and maintenance of respiratory protection devices*
- *AS/NZS 1800 Occupational protective helmets – Selection, care and use*
- *AS/NZS 2161 Occupational protective gloves – Selection, use and maintenance*
- *AS/NZS 2210.1 Occupational protective footwear – Guide to selection, care and use*
- *AS 2865 Safe working in a confined space*
- *AS/NZS 4024.1 Safeguarding of machinery – Part 1: General principles*
- *AS 4602 High visibility clothing*

## Appendix 4

### FURTHER INFORMATION

If further information is required contact your nearest office of Workplace Standards Tasmania (see below).

#### Workplace Standards Tasmania

**Telephone: 1300 366 322 (within Tasmania)**

**(03) 6233 7657 (outside Tasmania)**

**Email: [info@wst.tas.gov.au](mailto:info@wst.tas.gov.au)**

**Internet: [www.wst.tas.gov.au](http://www.wst.tas.gov.au)**

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