



WORKSAFE

The 'WORKSAFE' logo is centered in the upper half of the page. It features the word 'WORKSAFE' in a bold, black, uppercase, sans-serif font. The letter 'O' is replaced by a white gear icon. Above the 'W', the letters 'ACC' are written in a smaller, black, uppercase font.

Forestry

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ACC WorkSafe is the roadmap from ACC to reducing injury and illness in the workplace. It is a guide for building comprehensive health and safety programmes in workplaces and can apply to a wide range of organisations and industries.



Commitment

Health and safety must have the same status within a workplace as other business and production goals. It is important that everyone within an organisation shows commitment to health and safety. Commitment across the workplace begins with management, who sets the culture of the organisation. Commitment from employees and their representatives is also needed for health and safety policies and procedures to be used effectively. Workplace commitment requires understanding how workplace injuries and illnesses are caused and the actions needed to prevent them. Commitment can be demonstrated by:

- Use of safe work practices
- Taking action on recording and reporting of hazards
- Accurate recording and reporting of incidents
- Comprehensive health and safety policies
- Adequate resourcing
- Production or performance goals that reflect health and safety
- A positive workplace that supports and recognises health and safety systems and procedures.

Health and safety becomes a part of core business.

Communication

The lines of communication within an organisation need to be open and effective so that health and safety messages can be passed efficiently and accurately. Communication channels mean health and safety initiatives are co-ordinated and well understood. They may be:

- Formal: audits, workplace inspections, health and safety committee meetings, training, incident investigations and reports, or hazard registers, and/or
- Informal: tool box meetings, suggestion box, verbal reports, day-to-day interactions, or leading by example.

Communication skills are equally important. The right approach will help 'sell' health and safety strategies, and 'bridge' gaps in knowledge. They may be:

- Consulting with employees, management, and/or contractors
- Giving information through talks, publications, training sessions, or as immediate feedback
- Facilitating group learning
- Mediating to reach solutions.

Good communication within a workplace supports people in healthy and safe practices and underpins the ACC WorkSafe Cycle.

Review

Reviews are important to assess an organisation 's injury prevention performance. They determine the value of health and safety activities, and provide a basis for planning. The main purposes of reviews are to:

- Identify the effectiveness of systems and practices currently in place
- Establish baselines against which future progress can be measured
- Determine the resources needed (time, money, people, skills, knowledge)
- Quantify costs related to workplace illness and injury
- Identify injury factors.

Plan

Planning involves setting goals, objectives and action steps in order to make improvement strategies happen. When planning you need to:

- Identify goals. These are usually activities or controls designed to eliminate, isolate or minimise factors causing injury/illness
- Establish the resources required for the activity/control and the degree to which it will impact on the problem
- Identify objectives. Ensure that they are SMART (specific, measurable, achievable, realistic and have a timeline)
- Prioritise strategies
- Identify measures and targets
- Create an action plan that details the specific steps needed to meet an objective.

Build a foundation

A good foundation includes key people, their skill base, and the proper channels to drive the ACC WorkSafe, health and safety activities. A strong foundation will help implementation run smoothly and will provide sustainable health and safety activities in the long term. To build a foundation you need to:

- Identify the workplace 'champion(s)' for the health and safety initiative
- Identify key people to be involved and establish the appropriate vehicle for the workplace, such as a task force, special team, or health and safety committee
- Determine roles and responsibilities for key personnel
- Educate and train key personnel
- Establish lines of communication and systems of communication
- Align health and safety with production goals
- Develop ACC WorkSafe Cycle components
- Establish procedures to access or link with resources (money, specialist advice, community services etc).

Implement

Implementation means doing the health and safety activities listed on the right-hand side of the ACC WorkSafe Cycle.

Evaluation data will be collected at this stage as well so that successful implementation of the activity can be celebrated, and opportunities for improvement can be identified when the Cycle proceeds to review again. The implementation stage involves:

- Educating and training general personnel and managers
- Communicating programme components, roles and responsibilities, procedures, and rationale
- Monitoring the use of resources
- Managing injury factors/injury management systems
- Collecting data as planned
- Measuring the progress and effectiveness of the health and safety activities against ACC WorkSafe Cycle goals and action plan timelines. Results of evaluations are fed back to the first step of the ACC WorkSafe Cycle
- Carrying out the health and safety activities.

Business Name: acc
Industry Name: Forestry
Location: New Zealand

Plant and Equipment >> Brushcutters

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Workplace Standards Tasmania - Draft Tasmanian Forest Safety Code

Hazards	Possible Consequences	Safe Work Practices
Maintenance of brushcutters	Cuts/lacerations	<p>Before cutting, inspect the area for debris which could be thrown or become entangled in the cutting attachment.</p> <p>Make sure that the blade is properly tightened using the wrench supplied.</p> <p>Check that the cutting mechanism is in good condition (ringing test on metal cutting tools).</p> <p>Check that the cutting tool and deflector are securely tightened and fitted.</p> <p>Make sure your brushcutter handles and grip are in good condition and free of moisture, pitch, oil or grease.</p>
Operating brushcutters	<p>Cuts/lacerations</p> <p>Fatigue</p> <p>Hearing damage</p> <p>Hit by flying debris</p> <p>Slipping/tripping/falling</p>	<p>Cover or remove the blade when the saw is not in use or is being carried to the work place or in a vehicle.</p> <p>Always hold the brushcutter firmly with both hands and the exhaust facing away from your body.</p> <p>Wrap your fingers tightly around the handles, keeping the handles cradled between your thumb and forefinger.</p> <p>Do not overreach when using brushcutters.</p> <p>Ensure you maintain a proper footing and keep good balance at all times during operation.</p> <p>Wear a properly adjusted harness which spreads the machine's weight evenly over both shoulders.</p> <p>Ensure that any emergency release system for the harness is working effectively.</p> <p>Do not operate using the starting throttle lock as you do not have control of the engine speed.</p>

Plant and Equipment >> Brushcutters

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Workplace Standards Tasmania - Draft Tasmanian Forest Safety Code

Hazards	Possible Consequences	Safe Work Practices
		<p>Keep hands and feet away from cutting tool.</p> <p>When using rigid blades, avoid cutting close to the fences, tree trunks, stones or other solid objects.</p> <p>The brushcutter should only be used at ground level with the cutting attachment parallel to the ground.</p> <p>If the cutting tool or deflector becomes clogged or stuck, always turn off the engine and make sure the cutting tool has stopped before clearing.</p> <p>During cutting, check the tightness and the condition of the cutting tool at regular intervals.</p> <p>Always use the rider plate as it prevents the tools touching the ground and becoming blunted.</p> <p>Bystanders should not be allowed in the area when a brushcutter is in use.</p> <p>When operating brushcutters the safe working distance is 3 m away from other workers or twice the length of the material being felled.</p> <p>Ensure the correct personal protective equipment is used when operating brushcutters e.g. eye protection, ear muffs, safety helmet, gloves, steel capped safety boots with a non-slip tread or metal spikes, leg protection and high viz gear.</p> <p>Don't smoke in work areas.</p> <p>Take regular rest breaks when operating brushcutters.</p> <p>Drink water regularly to prevent dehydration, even if you aren't thirsty. Ensure you always have an adequate supply of water with you.</p> <p>Ensure you can finish the job in good daylight.</p>
Refuelling of brushcutters	Burns	Refuel only with the engine off and away from open flames.

Plant and Equipment >> Brushcutters

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Workplace Standards Tasmania - Draft Tasmanian Forest Safety Code

Hazards	Possible Consequences	Safe Work Practices
		<p>Take care not to spill or splash fuel on the muffler.</p> <p>After refuelling, move at least 3 m away from the fuelling area before restarting your brushcutter.</p> <p>Store fuel in a cool place and in a suitable container.</p> <p>Keep an approved fire extinguisher handy as well as a rake or shovel and a piece of canvas to smother a small flame.</p>

Plant and Equipment >> Helicopters

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Approved Code of Practice Helicopter Logging

Forest Industries Training - Best Practice Guidelines for Working with Helicopters

Hazards	Possible Consequences	Safe Work Practices
Dust and loose material	Eye damage Hit by flying debris	<p>Wear appropriate eye protection e.g. safety goggles.</p> <p>If you are blinded by swirling dust or grit or become disoriented STOP crouch down and wait until conditions improve.</p> <p>Wear a hard hat which must be fitted with a chin strap.</p> <p>Do not wear loose or unfastened clothing.</p> <p>Remove loose items from around the helipad.</p> <p>Get clear of the downwash zone before a hovering helicopter powers up to lift a cargo slung beneath.</p> <p>If possible water the helipad down to reduce the hazard of blowing dust etc.</p>
Entering and exiting helicopter	Death/serious injury	<p>Approach or leave a helicopter only when instructed by the pilot.</p> <p>You should only approach or leave a helicopter from the front or side - refer picture.</p> <p>NEVER approach a helicopter from the rear.</p> <p>NEVER leave a helicopter towards the rear.</p> <p>If on uneven ground approach or leave the helicopter only from the downhill side - refer picture.</p> <p>NEVER approach a helicopter if the rotors are running down or starting up.</p> <p>Approach or leave a helicopter in a slightly crouched position to increase rotor clearance.</p> <p>When approaching or leaving helicopters carry any tools horizontally below waist level. NEVER upright or on</p>

Plant and Equipment >> Helicopters

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Approved Code of Practice Helicopter Logging

Forest Industries Training - Best Practice Guidelines for Working with Helicopters

Hazards	Possible Consequences	Safe Work Practices
		<p>If it is unsafe to walk away from the helicopter remain crouched beside the machine until it has left.</p> <p>Wear a hi-visibility jacket.</p> <p>Wear approved safety footwear.</p> <p>NEVER wear loose clothing such as unfastened jacket.</p> <p>NEVER reach up to grab clothing or other articles that have blown away.</p> <p>Do not stand under or within 25 m of a hovering helicopter unless you have an essential job to do.</p>
Excessive noise	Hearing damage	Wear approved hearing protection - Grade 4 or better.
Inexperienced people	Death/serious injury	<p>Inexperienced persons tend to rush when working with helicopters so ensure they work at a deliberate and measured pace rather than rushing to complete tasks.</p> <p>Ensure all instructions are given in a clear concise manner and the information is understood, e.g. verbal feedback.</p>
Refuelling	Burns Explosion	<p>The pilot is responsible for all refuelling procedures and his or her instructions must be followed.</p> <p>An appropriate area should be allocated for refuelling.</p> <p>Each refuelling site should have radio contact.</p> <p>No smoking or any other source of ignition should be within 15 m of a designated refuelling area.</p> <p>All fuel tanks/fuel trucks should be properly grounded (earthed) and should be checked daily before operations</p>

Plant and Equipment >> Helicopters

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Approved Code of Practice Helicopter Logging

Forest Industries Training - Best Practice Guidelines for Working with Helicopters

Hazards	Possible Consequences	Safe Work Practices
		maintained.
Static electricity	Electric shock	Let the helicopter or hanging strop earth itself by touching the ground before you touch the machine or strop.

Plant and Equipment >> Slashers

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Land Preparation

Hazards	Possible Consequences	Safe Work Practices
Working with slashers	Cuts/lacerations Slipping/tripping/falling	<p>Before using the slasher check for cracks. Cracked and damaged handles should be replaced before slashers are used.</p> <p>Do not use a slasher with a loose head.</p> <p>When slashers are being filed they should be fixed in a suitable clamp. Slashers should not be left unattended in a fixed clamp.</p> <p>When sharpening a slasher in the field where no fixed clamp is available, sit with the slasher handle under one knee and file away from the blade - refer picture.</p> <p>When filing a slasher, file away from the cutting edge not towards it - refer picture.</p> <p>Slashers should always be used with both hands.</p> <p>Work at least 3 m away from other workers, or if in scrub over 2 m tall, work at least two times the height of the scrub away from other workers.</p> <p>Ensure you cut small diameter stems as close as possible to the ground so they will not become a hazard in the event of a fall.</p> <p>Carry the slasher at the hip, not over the shoulder. Ensure cutting blade is away from the body.</p>

Plant and Equipment >> Skidders

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Forestry Bulletin No. 122

Hazards	Possible Consequences	Safe Work Practices
Operating skidders	Crushing Vehicle collision	<p>Operators should be trained and competent in the use of skidders and hold a valid approved qualification or be in training under adequate supervision.</p> <p>Skidding machines should not enter the landing site until signalled to do so by a pre-designated person (usually the landing attendant).</p> <p>Approach skids at reduced speed.</p> <p>Ensure skid workers are aware of your approach.</p> <p>Operate the skidder at a speed that is safe and reasonable for the conditions.</p> <p>Skidders should be kept to a low speed while travelling on roads as they can become unstable. If you double your speed the rollover chance increases four times.</p> <p>As a guide wheeled skidders should not operate on slopes greater than 18 degrees (30%) unless otherwise specified by the manufacturer.</p> <p>Skidders should not be used on slopes greater than that recommended by the manufacturers unless suitably formed tracks have been formed for the skidders (the skidder must remain on such tracks at all time).</p> <p>Tracked skidders should not operate on slopes that exceed 22 degrees (40%) unless otherwise specified by the manufacturer.</p> <p>Do not take short cuts between tracks. If a log is out of reach use a rope extension.</p> <p>Winch ropes should be of sufficient length to safely reach all parts of the working area.</p> <p>The operator must be able to place the machine in the best pulling position and to avoid the need to back down slopes or off the edge of a track in order to reach logs or trees.</p> <p>Never work below an object that may fall or roll into the work area.</p>

Plant and Equipment >> Skidders

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Forestry Bulletin No. 122

Hazards	Possible Consequences	Safe Work Practices
		<p>A speed limit should be set and observed at each forestry operation. The speed limit should have regard to:</p> <ul style="list-style-type: none">a. The capacity of the machines in use.b. The condition e.g. weather, terrain. <p>Ensure regular maintenance of the braking system is carried out to ensure the brakes hold the machine on any slope it operates on.</p> <p>All skidders should be fitted with suitable side protection on the canopy.</p> <p>All skidders should be fitted with seat belts and they should be worn at all times while the skidder is in motion.</p> <p>Wheeled and tracked skidders must have the following protective structures:</p> <ul style="list-style-type: none">a. Roll over protective structure.b. Fall over protective structure.c. Operator protective structure.

Plant and Equipment >> Ladders

Sources

OSH Department of Labour - Safe Ladder Use

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
Carrying ladders	Tripping/slipping	When carrying ladders distribute weight evenly by placing your shoulder half way alongside the stile.
Unattended ladders	Falling	Ladders must not be left unattended in an erect position.
Working with damaged or faulty ladders	Falling off the ladder Splinters.	Always repair damaged and faulty ladders immediately. Never attempt to work from a faulty or damaged ladder.
Working with ladders	Falling off the ladder Materials falling from ladder Unsecured ladder falling Muscular or back strain .	Always face the ladder and use both hands when climbing up or coming down. Tools should be kept in a pouch so hands are free for climbing. Do not slide down or jump from the ladder. Maintain three points of contact when ascending or descending ladders i.e. two hands and one foot or two feet and one hand. Boots must provide good ankle support and good grip. Never over-reach sideways - get down and move the ladder. As a guide your belt buckle should remain within the stiles of the ladder at all times. Never over-reach when pruning from a ladder - refer picture. Ensure the ladder is secure against the tree. Secure chain around the tree if fitted. All ladders should have spiked feet that are driven into the ground before climbing. Set the ladder feet firmly in the ground. Erect the ladder against the tree trunk not the branches. The ladder should be placed on the uphill side of the tree.

Plant and Equipment >> Ladders

Sources

OSH Department of Labour - Safe Ladder Use

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
		<p>For lower lifts the ladder should be at least 0.5 m from the tree. For higher lifts the ladder will need to be further out.</p> <p>Ensure you maintain a safe distance of 2 ladder lengths from other workers.</p> <p>Hook a leg around the back of the tree for extra support once the last two or three rungs of the ladder have been reached.</p> <p>Where workers are required to work off the top of ladders, tree steps, lifts or other climbing aids at a height above 3 m and where there is no adequate side support they should wear safety belt, harness or other fall restraint device.</p> <p>Ensure no one is underneath area of work being performed.</p> <p>Never hang any tools or other items from the steps or rungs.</p>

Plant and Equipment >> Bulldozers/Excavators

Sources

California Occupational Safety & Health Association - Code of Safe Practices

OSH Department of Labour - A Guide to the Approved Code of Practice for Operator Protective Structures.

Hazards	Possible Consequences	Safe Work Practices
Approaching bulldozers/excavators	Crushing	<p>Before approaching a bulldozer/excavator ensure the driver is aware of your presence and has signalled that it is safe to approach.</p> <p>When people are approaching your bulldozer/excavator, place the transmission in neutral, set the park brake and indicate that it is safe to approach the bulldozer/excavator.</p>
Maintenance of machinery	Bulldozer/excavator failure	<p>You should never work under bulldozers/excavators supported by jacks or chain hoists, without protective blocking that will prevent injury if jack or hoists fail.</p> <p>Where appropriate, lock-out procedures should be used.</p> <p>Ensure that the bulldozer/excavator is regularly serviced and maintained to manufacturer's specifications.</p>
Working around moving parts	Entanglement	<p>Ensure that long hair is securely tied back.</p> <p>Avoid wearing loose or frayed clothing.</p> <p>Machinery should not be serviced, repaired or adjusted while in use nor should oiling of moving parts be attempted, unless the parts are designed or fitted with safeguards to protect the person performing the work.</p>
Working on or around machinery	<p>Crushing</p> <p>Machinery tipping/rolling</p> <p>Noise</p> <p>Poor visibility</p> <p>Trip/slip/fall</p>	<p>Only trained and competent persons should operate a bulldozer or excavator.</p> <p>Ensure you are always aware of the location of employees particularly near tops of cuts, banks and cliffs.</p> <p>If operating bulldozer/excavator during times of darkness or in low light conditions, it should be equipped with at least two headlights for forward travel and adequate rear lights for reverse travel unless other adequate lighting is provided.</p> <p>Excavators: high risk activities should have Cabin Operator Protective Structure (COPS) designed to grade 3 including Operator Protective Structures (OPS) and Fall Over Protective Structures (FOPS).</p>

Plant and Equipment >> Bulldozers/Excavators

Sources

California Occupational Safety & Health Association - Code of Safe Practices

OSH Department of Labour - A Guide to the Approved Code of Practice for Operator Protective Structures.

Hazards	Possible Consequences	Safe Work Practices
		<p>over.</p> <p>Ensure appropriate speed used for the terrain and conditions.</p> <p>Wear hearing protection when operating machinery.</p> <p>To avoid ankle injuries, dismount by climbing down not jumping down and use provided foot and hand hold.</p> <p>Never leave unattended bulldozer/excavator running.</p> <p>Passengers are not allowed on bulldozers/excavators.</p> <p>Ensure all guards and shields are in place before starting the bulldozer/excavator.</p> <p>Lower the blade/bucket when the bulldozer/excavator is not in use.</p> <p>Don't exceed manufacturer's recommended load limits.</p>

Plant and Equipment >> Helmets

Sources

OSH Department of Labour - Bush Bulletin No. 59

Forest Industries Training - Best Practice Guidelines for Personal Protective Equipment

Hazards	Possible Consequences	Safe Work Practices
Incorrect usage of helmets	Head injury	<p>Safety helmets should be worn at all times by persons who are tree felling or at a logging operation site.</p> <p>The only exception to this rule are machine operators who are fully protected by an approved canopy, however as soon as the operator ceases to be covered by the canopy then a safety helmet must be worn.</p> <p>Safety helmets must be of high viz colours. Either fluro yellow or fluro melon (or pink).</p> <p>High viz helmets break down on exposure to sunlight faster than regular coloured helmets.</p> <p>High viz helmets have a life expectancy of up to three years from date of purchase/issue.</p> <p>The date of purchase/issue should be written on a sticker on the inside of the helmet. If this is not present or filled in the helmet should be replaced 40 months after the date of manufacture.</p> <p>Helmets may need to be replaced earlier than the three year limit if they show any signs of cracking or becoming brittle.</p> <p>Fading of the helmet's fluorescent colour indicates that the helmet needs to be replaced.</p> <p>Use an approved adhesive sticker if it is necessary to name the helmet.</p> <p>Inspect helmet shells regularly for damage. If damaged they must be replaced at once.</p> <p>Harnesses should be inspected regularly to ensure the clearance distance is correct. They should be washed as required and replaced on a yearly basis.</p> <p>Helmets should not be stored in direct sunlight e.g. in the back window of a vehicle.</p> <p>Do not apply paints, petrol, oil or solvents to a helmet as this may cause deterioration of the helmet.</p> <p>Clean the helmet regularly with hot soapy water as this removes harmful build up and maintains the high viz appearance.</p>

Plant and Equipment >> Vehicles

Sources

National Safety Council - Fact Sheet Library

Land Transport Safety Authority Fact Sheets

Pan Pac Forest Products Ltd - Website

Hazards	Possible Consequences	Safe Work Practices
Driving company vehicles	Vehicle accident	<p>Ensure employees who drive company vehicles hold a current New Zealand drivers licence.</p> <p>Ensure correct endorsements for particular vehicle use are held by drivers of those vehicles e.g. Endorsement D - Dangerous Goods.</p> <p>Ensure employees have been informed of the safe work practices for company vehicles.</p>
Driving company vehicles at night	Vehicle accident	<p>Clean headlights, brake lights, signal lights and windows (inside and out) once a week, more often when necessary.</p> <p>Ensure headlights are properly aligned.</p> <p>Avoid smoking when you drive. Cigarette's nicotine and carbon monoxide hamper night vision.</p> <p>If there is any doubt turn headlights on. Lights will not help you see better in early twilight, but they will help other drivers to see you.</p> <p>Reduce your speed and following distances. It is more difficult to judge other vehicles' speed and distances at night.</p> <p>Don't overdrive your headlights. You should be able to stop within the illuminated area. If you're not you are creating a blind crash area in front of your vehicle.</p> <p>Make frequent stops for light snacks and exercise.</p>
Driving company vehicles on long journeys	Driver fatigue	<p>Safe driving demands your full attention.</p> <ol style="list-style-type: none"> 1. Get enough rest - you usually need 7-8 hours of sleep prior to a trip. 2. When driving long distances, if possible do not drive alone. Passengers can take turns driving.

Plant and Equipment >> Vehicles

Sources

National Safety Council - Fact Sheet Library

Land Transport Safety Authority Fact Sheets

Pan Pac Forest Products Ltd - Website

Hazards	Possible Consequences	Safe Work Practices
		<p>4. If undertaking long journeys take frequent breaks. Stop at petrol stations, restaurants etc - get out of the car and walk around.</p> <p>5. To reduce eye strain and glare wear sunglasses.</p>
<p>Inadequate vehicle maintenance</p>	<p>Vehicle accident</p>	<p>Ensure regular preventative maintenance for each vehicle is in place and carried out at pre determined intervals of time or mileage.</p> <p>Check that vehicles at your workplace are safe and suitable for the work for which they are being used.</p> <p>Vehicle checklists should look for:</p> <ol style="list-style-type: none"> 1. Does the vehicle hold a current Warrant or Certificate of Fitness and Registration? 2. Are the tyres wearing evenly, have correct tyre pressure and tread? 3. Is the windscreen chipped or cracked? 4. Is the vehicle free from oil leaks? 5. Are all lights in good working conditions, front, rear and interior? 6. Are the roof rack and bull bars in good working condition? 7. Is a first aid kit and fire extinguisher carried in the vehicle? 8. Ensure that safety belts are in good condition (not frayed or stained) and that they are retracting correctly? 9. Ensure you regularly check the water and oil in the engine.

Plant and Equipment >> Vehicles

Sources

National Safety Council - Fact Sheet Library

Land Transport Safety Authority Fact Sheets

Pan Pac Forest Products Ltd - Website

Hazards	Possible Consequences	Safe Work Practices
		<p>Ensure that all loose items are stored properly in workboxes, racks or clips.</p> <p>Ensure the load does not obscure the driver's rear view.</p>
Vehicle loads	Insecure loads falling	<p>Ensure loads are secured and arranged so they cannot move about e.g. slide forward if the driver has to brake suddenly or slide off if the vehicle has to negotiate steep inclines.</p> <p>Ensure vehicles are not loaded beyond their capacity.</p>
Vehicles in the forest	Vehicle accident	<p>A sample policy for vehicles in the forest could be as follows:</p> <p>Dipped headlights should be on at all times when travelling on forest roads.</p> <p>Seat belts should be worn at all times when the vehicle is moving.</p> <p>All public transport codes and regulations should apply. Authorised written exceptions to this rule may be issued for certain vehicles.</p> <p>Drivers should always drive at a safe speed relative to the conditions. The maximum vehicle speed for forest roads is 50 kph.</p> <p>All vehicles with the ability to carry passengers driven on forest roads should have a current vehicle inspection certificate and registration. Drivers of these vehicles should have the appropriate current drivers licence.</p> <p>All vehicles should be fitted with an approved first aid kit.</p> <p>All light vehicles should be fitted with a minimum 0.9 kg and preferably 1.5 kg dry powder fire extinguisher regularly serviced and maintained in good working order.</p> <p>Large vehicle - each vehicle should carry a minimum 1.5 kg dry powder fire extinguisher and one shovel.</p>

Plant and Equipment >> Vehicles

Sources

National Safety Council - Fact Sheet Library

Land Transport Safety Authority Fact Sheets

Pan Pac Forest Products Ltd - Website

Hazards	Possible Consequences	Safe Work Practices
		<p>All motorised equipment and vehicles including motorcycles should have sufficient spark arrestors and/or exhaust systems that prevent spark emission.</p> <p>Operators of ATVs should have completed an approved training course or be under training.</p> <p>Vehicle operators are responsible for ensuring loads are secure and safe.</p> <p>Show courtesy to laden trucks and uphill traffic.</p>

Plant and Equipment >> Diesel combustion engines

Sources

OSH Department of Labour - Bush Bulletin No. 67

Hazards	Possible Consequences	Safe Work Practices
Diesel fumes	Inhalation	<p>Exposure to diesel exhaust fumes has several serious effects:</p> <ol style="list-style-type: none">1. Breathing in exhaust fumes can cause nausea and dizziness.2. Eye irritation including itching, burning and itchy eyes.3. Sore throat and nose. Coughing, wheezing and tight chest.4. Damage to blood and circulatory systems.5. Carbon monoxide poisoning.6. Headaches, fatigue, stomach pains and diarrhoea. <p>PREVENTATIVE MEASURES:</p> <p>Ensure all machinery is maintained to a high standard.</p> <p>Replace worn out exhaust systems.</p> <p>Replace damaged manifolds.</p> <p>Do not allow exhaust products to blow back on the operator.</p> <p>Newer engines will produce less hydrocarbons and particles.</p> <p>Do not run machines/equipment in confined spaces.</p>

Plant and Equipment >> Elevated work platforms

Sources

Guidelines for the Safe Operation of Elevated Platforms - Projex Hirequip

OSH Department of Labour - Approved Code of Practice for Power-Operated Elevating Work Platforms

Hazards	Possible Consequences	Safe Work Practices
<p>Faulty machinery</p>	<p>Mechanical failure Personal injury</p>	<p>The following checks should be undertaken daily:</p> <ol style="list-style-type: none"> 1. Tyre pressure. 2. Brakes working efficiently and brake fluid level checked. 3. Fuel, water and oil levels in work platforms. 4. Hydraulic lines for leaks and damage. 5. Supporting structure is sound and free from distortion or cracking. 6. Powered mechanism for operating the platform is working properly. 7. Any communication system between the platform and the ground functions correctly. 8. Emergency controls function correctly and any safety equipment e.g. safety harness is in good condition. 9. If electrically insulated the insulated section is not bridged by any residue. <p>The following checks should be undertaken monthly:</p> <ol style="list-style-type: none"> 1. All of the daily checks listed above. 2. Operational check of the work platform. 3. Check of the condition of the chassis, support structure, powered mechanism and the platform. 4. Lubrication 5. Other checks specified in the manufacturer's instructions. 6. Electrically insulated machinery must be checked to ensure that all fibreglass components together with

Plant and Equipment >> Elevated work platforms

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Hazards	Possible Consequences	Safe Work Practices
		<p>modification or otherwise at least every six months by a competent person.</p> <p>If the elevated platform has a fibreglass boom and is subject to arduous use it is recommended the boom be checked annually.</p> <p>Elevated work platforms require a major examination as per OSH Code of Practice every ten years.</p>
<p>Operating elevated work platforms</p>	<p>Falling Trapping Crushing Electrocution</p>	<p>Ensure that staff using platforms are trained in their safe operation, and are advised as to the likely hazards associated with such machinery.</p> <p>The floor of the platform should be non slip.</p> <p>Do not use elevated work platforms on excessively sloping ground.</p> <p>Make sure there is a clear work area around the platform.</p> <p>Do not allow people to walk under the working area of the elevated platform.</p> <p>Do not exceed safe working load of platform.</p> <p>Do not get in or out of the platform while it is elevated.</p> <p>Do not operate elevated work platform during periods of high winds.</p> <p>Ensure the cage is lowered before travelling on steep terrain.</p> <p>Ensure the boom is fully lowered before dismounting.</p> <p>Only have one person in the picker cage at one time.</p> <p>Self propelled machines must be equipped with a horn or audible warning device.</p>

Plant and Equipment >> Elevated work platforms

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Hazards	Possible Consequences	Safe Work Practices
		<p>Scissor-actuated machines must include a captive chock within the scissors mechanism in order to prevent trapping of persons.</p> <p>Manually propelled work platforms must never be moved while the platform is elevated.</p> <p>Self propelled machines may be moved while the platform is elevated, however ensure route chosen is firm and level.</p> <p>You can only use creep speed when the platform is fully raised.</p> <p>Employees operating platforms should wear safety harnesses that are fixed to the platform.</p> <p>Check the bearing capacity of the ground - you may need to spread the load by using steel plates or heavy timbers under the pads.</p> <p>All controls should be clearly marked in readable English letters or symbols to show their functions.</p> <p>Make sure employees are aware of the location of the overhead power lines - refer picture.</p> <p>Keep safe clearances when working near power lines.</p> <p>If an uninsulated work platform comes into contact with live electrical lines persons in the personnel bucket should remain there and warn any other visitors to stay clear.</p> <p>Safest course of action is to do nothing until the line is de-energized.</p> <p>Only as a last resort people should attempt to jump clear from the platform by observing the following procedures:</p> <ol style="list-style-type: none"> 1. Switch off the motor and if not already applied, apply brakes. 2. Remove any loose clothing.

Plant and Equipment >> Elevated work platforms

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Hazards	Possible Consequences	Safe Work Practices
		<ul style="list-style-type: none">4. Jump so that you clear the platform before any part of you touches the ground.5. Fall away from the machine and not towards it.6. Do not touch the machine until the lines are de-energized.
Refuelling EWP's	Fire Explosion	<ul style="list-style-type: none">Shut down the machine prior to refuelling.Ensure no one is smoking nearby.Do not refuel during an electrical storm.Ensure fuel cap is closed and secure at all times.

Plant and Equipment >> Heavy vehicles (Trucks)

Sources

Forest Industries Training - Best Practice Guidelines for Transport

Land Transport Safety Authority Factsheet 2: Driving Hours and Logbooks

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Land Transport Safety Authority

Hazards	Possible Consequences	Safe Work Practices
Cab guards	Crushing	<p>Trucks should be fitted with an industry standard cab protection frame between the cab and forward end of the load.</p> <p>This frame should be fastened so that it protects the cab and driver during loading, unloading and in the event of the sudden movement of the load.</p> <p>The cab guard should provide limited protection in the event of a vehicle roll over.</p>
Driving	Vehicle accident Fatigue	<p>Drivers of the following vehicle types are subject to driving hours, unless exempted:</p> <ol style="list-style-type: none"> 1. Any heavy motor vehicle (that is a vehicle with a gross laden weight of more than 3,500 kg); or 2. Any vehicle being used in a transport service (other than a rental service, except where the rented vehicle is also a heavy motor vehicle). <p>A driver must:</p> <ol style="list-style-type: none"> 1. Not drive for any continuous period exceeding 5 1/2 hours. 2. After a continuous period of 5 1/2 hours' driving, have at least a 1/2 hour rest before undertaking any further driving. 3. Not exceed 11 hours' driving in any 24 hour period. 4. Not exceed 14 hours on-duty in any 24 hour period. 5. Have a minimum continuous off-duty period of at least 9 hours in any 24 hour period.

Plant and Equipment >> Heavy vehicles (Trucks)

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Hazards	Possible Consequences	Safe Work Practices
		<p>The accumulated total has to be counted from the last minimum 24 hour off-duty period.</p> <p>Driving, on-duty, rest, and off-duty mean the following:</p> <ol style="list-style-type: none">1. Driving means time spent driving a vehicle that is subject to driving hours.2. On-duty includes:<ol style="list-style-type: none">a. Driving and any time spent in paid employment (of any sort).b. Loading or unloading a vehicle, waiting for the loading or unloading of a vehicle, maintenance, cleaning (other than unpaid cleaning that occurs during any off-duty period of not less than 24 hours).c. Other activities relating to a vehicle are on-duty activities. On-duty also includes any other activity (whether or not it relates to a vehicle of any kind) relating to the provision of transport services for passengers or goods.3. Rest and off-duty are any periods where you are not driving, or on-duty. <p>LOGBOOKS:</p> <p>Drivers subject to driving hours must record their driving, on-duty and rest hours in an approved style of logbook.</p> <p>Logbooks should clearly and legibly show the following information:</p> <ol style="list-style-type: none">1. All periods spent:<ol style="list-style-type: none">a. Driving; and

Plant and Equipment >> Heavy vehicles (Trucks)

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Hazards	Possible Consequences	Safe Work Practices
		<p>c. Rest periods (being periods of not less than half an hour); and</p> <p>d. Off-duty.</p> <p>2. The relevant starting and finishing dates:</p> <p>a. Times, and (except in the case of off-duty periods) places of the periods referred to above.</p> <p>b. At the start and finish of each driving period, the distance recorder reading, if one is required under the Road User Charges Act.</p> <p>3. The registration number of each vehicle driven.</p> <p>Rules for keeping logbooks up to date are:</p> <p>1. Keep your logbook up to date for each period you are driving. In addition, you must always carry your current day's log page and the preceding 10 days' log pages, for inspection by an enforcement officer.</p> <p>2. Maintain your logbook for at least 10 days after your last day spent driving.</p> <p>3. Keep your logbook for at least 12 months from the date of the logbook's last entry.</p> <p>Employers must retain copies of drivers' log books for at least twelve months.</p>
Driving at night	Vehicle accident	<p>Ensure headlights are properly aligned. Clean headlights regularly.</p> <p>Avoid smoking when you drive. Cigarette's nicotine and carbon monoxide hamper night vision.</p>

Plant and Equipment >> Heavy vehicles (Trucks)

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Hazards	Possible Consequences	Safe Work Practices
		<p>at night.</p> <p>Don't overdrive your headlights. You should be able to stop within the illuminated area. If you're not you are creating a blind crash area in front of your vehicle.</p> <p>Make frequent stops for light snacks and exercise.</p>
Driving long journeys	Driver fatigue	<ol style="list-style-type: none"> 1. Get enough rest - you usually need 7-8 hours of sleep prior to a trip. 2. Adjust your vehicle's environment so that it helps keep you awake and alert. Keep the temperature cool with open windows or air conditioning in the summer or frugal amounts of heat in the winter. 3. Conversation, music or blowing cool fresh air onto your face can help you stay alert for a period of time, however these stimuli only help for a short period. The best solution is finding somewhere to stop and sleep. 4. If undertaking long journeys take frequent breaks at least every 2 hours. Stop at petrol stations, restaurants etc - get out of the vehicle and walk around. 5. To reduce eye strain and glare wear sunglasses. 6. Eat sensibly throughout the journey but avoid large meals as they may make you drowsy, particularly at lunchtime. 7. If you realise you need a nap find the first safe place and pull off the road. When taking a nap do not take longer than 40 minutes. Naps greater than 40 minutes lead to sleep inertia.
Inadequate training	Vehicle accident Personal injury	It is recommended that drivers hold NZQA unit 17769 (general requirements) and a first aid certificate made up of NZQA units 6401 and 6402 .

Plant and Equipment >> Heavy vehicles (Trucks)

Sources

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Hazards	Possible Consequences	Safe Work Practices
		<p>It is recommended that all drivers who operate heavy vehicles in an off-highway situation should hold NZQA unit 1738 (Drive Heavy Vehicle in Off Road Environment).</p>
<p>Inadequate truck maintenance</p>	<p>Vehicle accidents</p>	<p>Regular truck and trailer maintenance as per manufacturer's instructions should be undertaken and records kept. It is also advisable to conduct the following checks.</p> <p>PRE-START CHECKLIST - use a check sheet - refer picture.</p> <p>DAILY WALK AROUND INSPECTIONS - as the vehicle is used - refer picture.</p> <p>WEEKLY INSPECTIONS - refer picture.</p> <p>MONTHLY INSPECTIONS - refer picture.</p>
<p>Inappropriate protective equipment</p>	<p>Personal injury</p>	<p>Transport operators should have available and wear in the appropriate circumstances the following personal protective equipment:</p> <ol style="list-style-type: none"> 1. Safety boots. 2. High viz clothing (must have at least 150 sq cm of reflective material back and front if working during the hours of darkness). 3. High viz helmet when outside of a protective cab. 4. Gloves when setting up truck, trailer or changing tyres. 5. Safety glasses.

Plant and Equipment >> Heavy vehicles (Trucks)

Sources

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Land Transport Safety Authority

Hazards	Possible Consequences	Safe Work Practices
		<p>Keep speed down (particularly on corners).</p> <p>Pull over to let traffic pass you ONLY where there is adequate pull off area.</p> <p>Keep left on blind corners.</p> <p>Drive to the road conditions.</p> <p>Be aware of slips/washouts/trees or undergrowth encroaching on the road. Report any hazards seen.</p> <p>Watch out for other road users who are not as experienced as you in these conditions.</p> <p>Drive defensively.</p>
Transport - Legal	Vehicle accidents	<p>All motor vehicles, logging trucks and trailers travelling on public roads are subject to the following:</p> <ul style="list-style-type: none"> a. All aspects of the Transport Act 1962 b. Have a valid Certificate of Fitness. <p>All motor vehicles, logging trucks and trailers travelling on off-highways (private roads) not subject to the Transport Act 1962 should observe the following:</p> <ul style="list-style-type: none"> 1. Be inspected every six months and issued with a road worthiness certificate. 2. Have a copy of the certificate (signed by the issuing inspector) displayed in the vehicle. 3. Drivers must operate within the manufacturer's rating for the truck and trailer.

Plant and Equipment >> Heavy vehicles (Trucks)

Sources

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Hazards	Possible Consequences	Safe Work Practices
		<p>If working alone ensure you have the means of getting help in an emergency, such as an RT or a mobile phone.</p> <p>Arrange for regular contact with someone who can provide help in an emergency. Ensure that person knows where you are and your intended route.</p>

Plant and Equipment >> Log loaders

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Pan Pac Forest Products Ltd - Website

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Operating log loaders	Crushing	<p>Communicate with truck driver to clearly indicate where loader operator wants truck positioned.</p> <p>Before moving a loader the operator should ensure that the intended path to travel is clear of workers and machinery.</p> <p>Loaders should not be operated within 2 tree lengths of trees being felled.</p> <p>Operators should be aware of the number of people working on the landing and stop operations if the whereabouts of workers in the area is unknown.</p> <p>Operators should be aware of the turning radius of the loader when carrying logs.</p> <p>No load should be carried above or within reach of any crew worker or another machine.</p> <p>Loading should only commence when the following have been completed:</p> <ol style="list-style-type: none">1. Bolsters have been raised.2. Extension pins have been fitted.3. The driver is in a safe position (normally forward of the cab in full view of the loader operator at all times). <p>Logs being loaded by the loader should be fully encircled when the jaws are closed.</p> <p>Grasp the logs as near as possible to their centre of balance.</p> <p>Ensure all loads are within the capacity of the machine.</p> <p>Place the first stem or logs on the truck ensuring their position complies with legal requirements - refer Loading & Unloading category on this CD.</p>

Plant and Equipment >> Log loaders

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Pan Pac Forest Products Ltd - Website

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		bolsters. Use the grapple or forks to position stems or logs to reduce gaps in the load. As the required load height is reached crown the top of the load ensuring the crowning is even across the load.

Plant and Equipment >> Mobile plant

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

Forest Industries Training - Best Practice Guidelines for Mobile Plant

Kansas State University

The Forest Professional - Guidelines for the Stewards of Tomorrow's Forests

Hazards	Possible Consequences	Safe Work Practices
Asbestos	Asbestosis Inhalation	<p>Some older machines may have components containing asbestos in friction (brake linings) and gasket materials. The following safe work practices are recommended when working with asbestos:</p> <ol style="list-style-type: none">1. Never use compressed air for cleaning.2. Avoid brushing or grinding.3. Use "wet" methods for cleaning up.4. All asbestos contaminated waste (including rags used for wet wiping) must be disposed of as soon as possible by sealing in plastic bags, labelling as asbestos waste and removing from site.5. All operators should wear a half face piece respirator with a class P1 filter suitable for asbestos dust when particles are in the air.6. Avoid areas where particles may be in the air.7. Store food, drink and personal belongings away from the work area.8. Never eat, drink, or smoke where asbestos is in the area.
Batteries	Electric shock	<p>Disconnect the battery before working on the electrical system.</p> <p>Remove the ground cable first, connect this cable last.</p> <p>Keep arcs, sparks and naked flames away from lead-acid batteries.</p> <p>Do not charge a battery or jump-start the engine if the battery is frozen.</p>

Plant and Equipment >> Mobile plant

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

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Kansas State University

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Hazards	Possible Consequences	Safe Work Practices
solvents	Inhalation Skin contact	<p>Ensure there is adequate ventilation to minimise exposure to solvent fumes.</p> <p>Do not use solvents for cleaning hands and skin.</p> <p>When throwing out used rags that have solvents on them, put them in a sealed metal container to prevent fire.</p> <p>When working with solvents ensure all ignition sources have been eliminated.</p> <p>Always read the label on the container and follow the instructions for safe use.</p> <p>Obtain and read the material safety data sheet for the solvent being used. This is available from the manufacturer or supplier and gives vital information on safe handling, storage and transportation.</p>
Climbing into or out of the cab	Slipping/tripping/falling	<p>Move slowly while moving over the machine.</p> <p>Use hand rails and steps if present, and maintain three points of contact when climbing - refer picture.</p> <p>Avoid jumping from the machine.</p> <p>Boots must provide good ankle support and good grip.</p> <p>Do not wear spiked boots while operating mobile plant.</p> <p>Face the machine when climbing or dismounting.</p> <p>Be aware of the state of the ladder (e.g. ice, mud, water, oil, etc) and clean if necessary.</p> <p>Do not climb off a moving machine.</p>

Plant and Equipment >> Mobile plant

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Hazards	Possible Consequences	Safe Work Practices
		The cab should be aligned with the undercarriage centreline when entering or leaving the cab.
Exhaust fumes	Inhalation	If it is necessary to run the engine or operate the machine in an enclosed area, be sure there is enough ventilation.
Exposure to noise	Hearing damage	Use hearing protection inside a cab if noise level is above 85 dB. Reduce noise exposure by keeping doors and windows shut while working.
Fuels and oils	Explosion Fire	Never fill the fuel tank with the engine running, while smoking, or near a naked flame. Ground the fuel funnel or nozzle against the filler neck to prevent sparking. Remove rubbish and debris from the cab of the machine. Ensure oily rags and other flammable material are removed from the machine. Check for and repair fuel, oil and hydraulic leaks before operating the machine. Use non-flammable solvents for cleaning parts. Store all flammable fluids and materials away from the work area. Ensure fire extinguishers are available and regularly serviced and suppression systems are operative.
Hydraulic systems	Eye damage Fire	Do not use your hand when searching for leaks in hydraulic systems. If any fluid is injected into the skin it must be surgically removed within a few hours or gangrene may result.

Plant and Equipment >> Mobile plant

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Hazards	Possible Consequences	Safe Work Practices
		<p>Install cylinder rod support struts, or block the cylinders and equipment before working on the hydraulic system.</p> <p>Cycle all hydraulic steering and other controls after shutdown to relieve system pressure. Follow the manufacturer's instructions.</p> <p>When venting or filling the hydraulic system, loosen the filler cap slowly and remove it gradually.</p> <p>Wear a face shield or goggles for eye protection.</p> <p>Do not work on live or pressurised hydraulic systems without full protective equipment.</p>
Machine instability	Machinery rolling over	<p>All mobile plant used in forestry work such as wheeled tractors, crawler tractors, skidders, graders and loaders are required to have roll over protective structures fitted.</p> <p>Hydraulic excavators operating on terrain where stability is not certain should be fitted with a cabin operative protective structure.</p> <p>Mobile plant fitted with ROPS or COPS cabs should be fitted with seat belts or other safety restraints.</p> <p>The operators should wear the restraint device whenever the machine is being operated.</p> <p>As a guide subject to weather and ground conditions:</p> <p>a. rubber-tyred machines should not operate on slopes that exceed 30% (18 degrees).</p> <p>b. crawler tractors, feller bunchers, excavators and other similar mobile plant should not operate on slopes that exceed 40% (22 degrees).</p>

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Hazards	Possible Consequences	Safe Work Practices
		<p>Ensure that the angle of break-out is directly behind the machine.</p> <p>Do not plan for or winch across a side-slope. If stems are caught on a stump or an obstacle, the extra tension on the rope could make the machine unstable.</p> <p>If moving on a track, keep as close to the inside (batter slope) and avoid driving on less stable fill.</p>
Maintenance of machinery	Collision Cuts/lacerations Machinery rolling over	<p>Mobile plant should be serviced and maintained to the manufacturer's specifications, recommendations and instructions.</p> <p>Ensure daily operational checks are carried out by the operator or their supervisor.</p> <p>No machine should be cleaned, lubricated or repaired with the engine running except where final adjustments are specified by the manufacturer.</p> <p>If doing maintenance on a running engine, use two people; one to sit in the operator's seat to switch off the machine if needed, the other to carry out the maintenance.</p> <p>Repairs or adjustments should never be made while the machine is in motion.</p> <p>No person should work under a raised blade, load, accessory or machinery raised for repairs unless supports are used to ensure that the object cannot be dropped or lowered.</p> <p>Ensure machinery is on a level surface when maintenance is being undertaken.</p> <p>Lower all equipment to the ground so the machine is resting on level blocking. Stop the engine and remove the key.</p>

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Hazards	Possible Consequences	Safe Work Practices
		<p>Ensure a maintenance log book is kept for each machine/plant.</p> <p>When checking coolant, stop the engine and let the system cool first before removing the filler cap (if this is necessary).</p> <p>If servicing the air conditioning system, ensure you do not come in contact with Freon gas.</p>
<p>Operating machinery</p>	<p>Collision Crushing Cuts/lacerations Hit by flying debris Machinery rolling over Slipping/tripping/falling</p>	<p>Mobile plant should be operated to the manufacturer's specifications, recommendations and instructions.</p> <p>Mobile plant and vehicles used for forest operations should have a valid Warrant or Certificate of Fitness where applicable.</p> <p>Ensure drivers and operators of vehicles and mobile plant hold a relevant valid licence.</p> <p>Ensure people do not get on or off a moving vehicle.</p> <p>Persons should not ride on a machine that does not have proper seating.</p> <p>Ensure people do not ride on a load carried or towed by a machine.</p> <p>Ensure machines are kept away from tree felling by a distance equal to at least twice the height of the tallest tree being felled.</p> <p>In general machinery should only enter the area when felling has ceased and the fellers have signalled their approval.</p> <p>When the machine is shut down or left unattended with the engine running:</p>

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Hazards	Possible Consequences	Safe Work Practices
		<p>Keys should not be left in machinery if it is unattended.</p> <p>If a guard is removed for maintenance or repair, ensure it is replaced before the machinery, plant or equipment is re-used. Do not leave guards off or access doors open when the machine is unattended.</p> <p>Start the engine only from the operator's seat.</p> <p>Check the workspace has adequate clearances, light and ventilation.</p> <p>Wear protective clothing, overalls, gloves, and eye protection.</p> <p>Keep clear of rotating components (e.g. fan blades and couplings).</p> <p>Keep pockets free of objects that could fall into machinery.</p> <p>No loose objects should be carried in the cab of a machine.</p> <p>The climbing, walking and working surfaces of mobile machinery should be non skid. There should be suitable hand holds on each sides of steps and ladders and suitable foot and hand holds where someone might slip.</p> <p>All debris such as twigs, leaves etc should be removed from around manifolds, transfer cases and other areas that get hot and could cause a fire.</p> <p>For tracked machines, block the tracks before releasing service brakes.</p> <p>Operators should understand all control levers and functions. Take particular note of safety devices and ensure they work correctly.</p>

Plant and Equipment >> Mobile plant

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Hazards	Possible Consequences	Safe Work Practices
Overhead hazards (power lines, trees)	Electric shock Electrocution	Check logging plan for hazards. Stay alert and observant when operating. Operators of machinery working in the proximity of live power lines should keep any part of the machinery at least 4 m away from the power lines.
Relocating mobile machinery	Collision	Make sure all flags, lights and warning signs are in place and visible. Use hazard-warning lights. Use an escort vehicle if required. Secure all accessory equipment or attachments.
Shifting mobile plant	Collision	When mobile plant is to be shifted by a transporter or other vehicle the machine operator or other competent person should be present to load the machine. On narrow or one way roads ensure a pilot vehicle is used to warn oncoming traffic. When skidders, loaders and some types of wheel tractors are driven, the gear being used should not be too high. This ensures the correct engine speed is maintained, allowing the hydraulic system to properly operate the steering and braking systems.
Track hazards	Burns Explosion	Wear gloves if handling recently used pins and brushings from a dry joint - they may be hot. Never hit track tension springs (they could shatter explosively if under compression).

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Hazards	Possible Consequences	Safe Work Practices
		<p>Inspect tyres and wheels daily.</p> <p>Do not operate with low pressures, cuts, bubbles, damaged rims, or missing lug bolts or nuts.</p> <p>When adjusting the tyre pressure, use a long hose with a self-adjusting chuck. Always stand behind the tread when doing this. Ensure the area to the side of the tyre is clear of other people.</p>
Whole body vibration	Back injury	<p>Ensure that vehicles and machinery are adequately maintained, particularly suspension components.</p> <p>Check the driver's seat to ensure it is in good repair and gives good support.</p> <p>If a suspension seat is fitted ensure it is correctly adjusted to the operator's weight according to the manufacturer's instruction (some seats adjust automatically for driver weight).</p> <p>Ensure that where equipment in vehicle cabs can be adjusted it is set to suit the size and reach of drivers expected to use it.</p> <p>Choose the right vehicle or machine for the ground surface and task.</p> <p>Check that vehicles have the right tyres and they are inflated to the correct pressure for the ground surface.</p> <p>Identify the vehicles or machines and work situations with the highest levels of vibration and arrange a roster for operators or drivers to reduce the time spent on them by individuals.</p> <p>Plan worksite routes with the smoothest terrain.</p> <p>If possible improve the ground surface over which vehicles have to be driven regularly by repairing potholes, clearing debris or levelling it out.</p>

Plant and Equipment >> Mobile plant

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

Forest Industries Training - Best Practice Guidelines for Mobile Plant

Kansas State University

The Forest Professional - Guidelines for the Stewards of Tomorrow's Forests

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">1. Correct sitting and posture:<ol style="list-style-type: none">a. how to adjust the seat for seating position and posture.b. where a suspension seat is fitted for the driver's weight especially when different people drive the vehicle.2. Ensuring tyre pressures are correct.3. Keeping speed low when crossing uneven terrain.4. Steering the vehicle to avoid hitting objects and potholes.5. Varying their pattern of work to reduce exposure where possible.6. Encourage workers to report back pain as early as possible.

Plant and Equipment >> Pruning tools

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Using epicormic knives	Cuts/lacerations	<p>Always carry the knife in a pouch when it is not in use.</p> <p>When cleaning epicormics from the stem keep your hand clear.</p> <p>Ensure the knife has a protective handle attached.</p>
Using jacksaws	Cuts/lacerations Hit by falling object	<p>Keep the jacksaw in the pouch when climbing.</p> <p>On completion of pruning replace the jacksaw in a pouch before descending the ladder.</p> <p>Do not hold the branch being cut.</p> <p>Where practicable the free hand should always be above the branch being cut - refer picture.</p> <p>Always keep the saw blade properly tensioned.</p> <p>In cold weather release the tension of the blade at the end of each day (blades shrink and may crack).</p> <p>Do not throw tools to the ground.</p> <p>Dispose of jacksaw blades properly - do not leave them lying around.</p>
Using pole pruners	Cuts/lacerations Hit by falling object	<p>When pole pruning safety helmets must be worn with a suitable chin strap.</p> <p>Stand up wind to avoid wind blown saw dust.</p> <p>Workers should be at least 1.5 pole lengths apart whilst working.</p>
Using pruning shears	Cuts/lacerations Hit by falling object	<p>Pruning shears should be kept in good working condition and maintained regularly.</p> <p>As a general guideline the following is a recommended maintenance checklist:</p>

Plant and Equipment >> Pruning tools

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">2. Adjust centre bolt/star-washer tab as required.3. Inspect bolt holes in the handles for signs of fatigue or cracks.4. Replace bent or cracked handles.5. Ensure rubber grips are secure.6. Clean the blade and hook when necessary and oil regularly.7. Hold pruners securely when sharpening and keep a firm grip on the sharpening stone.8. Make even strokes along the length of the cutter edge.9. Never use a file or grinder on the cutting edge. <p>The use of a safety belt while medium (up to 4 m) or high (up to 6 m) pruning is optional but belts should be provided if requested by employees.</p> <p>Pruning shears should not be left on ladder rungs whilst shifting a ladder from tree to tree.</p> <p>Carry pruning shears in a pouch at all times when you are not working with them.</p> <p>Pick up pruners from handle end not by the blade.</p> <p>Gloves should be worn when using pruners to improve your grip and to help prevent falls.</p>

Plant and Equipment >> Mobile tailhold

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
<p>Binds or bights</p>	<p>Cuts / lacerations Hit by moving object Hand injury</p>	<p>Watch for binds when tensioning the ropes.</p> <p>A rope may be able to be lifted over an obstruction by hand. Ensure the rope is completely lowered to the ground before attempting.</p> <p>Watch for sprags - wear leather gloves.</p> <p>Only stand on the safe side of the rope - DO NOT stand in the bight.</p> <p>If attempting to clear an obstacle by tightlining, go ahead on the rope slowly, and constantly assess the situation.</p> <p>If using a chainsaw to clear the obstruction, ensure you wear the required PPE and are either skilled or under the supervision of a competent person.</p>
<p>Tower failure / movement of tailhold</p>	<p>Hit by moving object Personal injury</p>	<p>All towers must be rigged and operated in accordance with the manufacturer's recommendations.</p> <p>Ensure the tower is adequately guyed to resist the applied forces.</p> <p>Ensure the hauler is located on stable and level ground.</p> <p>Ensure that the strength of the ropes, rigging and anchors are matched to the breaking strength of the working ropes.</p> <p>Do not overload the cable system.</p> <p>Do not stand directly in front of, or on the tailhold when loaded.</p> <p>Watch for the anchored rope suddenly going slack - this may indicate that the tailhold has moved.</p> <p>Ensure the tailhold is adequately secured to avoid movement.</p> <p>Mobile tailhold machines should only be operated by experienced operators, or under strict supervision - the weight of the attached rope(s) can make the machine unstable.</p>

Plant and Equipment >> Mobile tailhold

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>Wear the seatbelt when you are operating the machine.</p> <p>Do not stand in the bight of a rope.</p> <p>Stand clear of rigging when loaded or during a lineshift.</p> <p>Ensure all ropes and rigging have stopped moving before approaching them.</p>
Working around tailholds	Slipping Hit by moving object	<p>If audible (including radio) communication fails, move to a safe position and use hand signals.</p> <p>Do not act until signalled to.</p> <p>Wear spiked boots; the chance of slipping or losing control of the foot pedal is higher if the boots are not spiked.</p> <p>Have non-slip steps and pedal covers fitted.</p> <p>Only operate the tailhold in a stable position.</p> <p>Do not stand beneath a loaded rope.</p>

Plant and Equipment >> Self loading trucks

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Forest Industries Training Best Practice Guidelines

Pan Pac Forest Products Ltd - Website

Hazards	Possible Consequences	Safe Work Practices
Self-loading truck operations	Crushing	<p>Self loading trucks should be fitted with outriggers and stabilisers.</p> <p>Outriggers and stabilisers should be used unless the stability of the empty truck exceeds the maximum tipping movement the crane can apply.</p> <p>Be aware of the location of power lines on site and keep a safe distance. The minimum clear distance between machinery and power cables is 4 metres.</p> <p>The operator should inspect the vehicle following a daily maintenance checklist and be satisfied as to the safe working condition of the vehicle and crane.</p> <p>No person should be permitted to ride the crane or load at any time.</p> <p>Outrigger extensions should be locked or pinned in position with the base plates placed on a firm level surface. Any packing used is to be of a substantial nature and not soft or small sections.</p> <p>When travelling the crane and outrigger should be locked in the retracted and folded travel position.</p> <p>The operator should be advised of any weakness in the ground that is likely to compromise the safety or safe workings of the vehicle or crane.</p> <p>Ensure that the operator is not requested to leave the controls of his crane once the load has been lifted.</p> <p>Never stand under the load or between the load and the truck.</p> <p>Never use the crane unless both outriggers are fully extended laterally and locked in place.</p> <p>Ensure that the outrigger leg extension is returned to the crane base and locked in before moving the vehicle.</p> <p>Never travel with a suspended load or boom over the side of the truck.</p>

Plant and Equipment >> Self loading trucks

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

Forest Industries Training Best Practice Guidelines

Pan Pac Forest Products Ltd - Website

Hazards	Possible Consequences	Safe Work Practices
		<p>Always keep your eyes on a moving load.</p> <p>If you must look in another direction stop operation immediately.</p> <p>Make only vertical lifts - never slew if load is not clear of ground.</p> <p>Keep the speed slow when lifting and lowering loads.</p> <p>There must be a safe and adequate means of getting onto and off the loading crane work station.</p> <p>Positive means should be provided to prevent a free fall of the boom in the event of a malfunction.</p> <p>Each set of controls for the operation of the self loading unit is to be of the deadman operation type.</p> <p>Operators must have means of emergency communication. The operator should have a contact schedule with someone who can render help in an emergency.</p>

Plant and Equipment >> Welding plant

Sources

Western Australia Safetyline: Safetyline Essentials: Toolbox Topics Welding

Hazards	Possible Consequences	Safe Work Practices
Heat, fumes and gases	Inhalation	<p>Heat and humidity can usually be controlled with sufficient general ventilation. This type of ventilation does not provide enough air movement to keep the fumes and gases out of the welder's breathing zone.</p> <p>Local exhaust ventilation should be used to effectively control welding fumes and gases as it captures the fumes and gases close to the source and keeps them from entering the welder's breathing zone.</p> <p>To be effective, local exhaust ventilation must be close to the welding arc or flame where the fumes, gases and heat are generated, and have enough velocity to draw away the contaminants.</p> <p>Ensure protection from fumes and gases by one or a combination of the following: good general ventilation, use of a booth, local exhaust ventilation on the handpiece, air supply to the helmet or suitable respirator which fits inside the helmet.</p>
Smoking and welding	Poor health	Welders who smoke are more likely to be severely affected by welding fumes.
Substances/metals used during welding	Burns Fire Explosion Inhalation	<p>Aluminium appears to pose less of a hazard than many other metals, but inhalation of fumes should be avoided.</p> <p>Cadmium occurs in some alloys. It may also be part of the coating of the welding electrode, or in other protective coatings. Cadmium can cause serious pulmonary oedema (fluid in the lungs). Chronic effects are emphysema and kidney damage.</p> <p>Potential exposure to cadmium fumes warrants stringent preventative measures.</p> <p>Chromium is used as an alloying agent in stainless steel. Prolonged excessive exposure to chromium may result in skin irritation and a greater risk of lung cancer.</p> <p>Welders may become sensitised to chromium, and develop skin eczema when exposed to small amounts.</p> <p>Copper is found in many alloys, such as brass and bronze, as well as in welding electrodes. Copper can cause respiratory irritation, nausea and metal fume fever.</p> <p>Fluorides are present in some electrodes and in flux. Long-term exposure to very high concentrations may cause bone changes and joint deterioration. Milder excessive exposure may have chronic effects such as</p>

Plant and Equipment >> Welding plant

Sources

Western Australia Safetyline: Safetyline Essentials: Toolbox Topics Welding

Hazards	Possible Consequences	Safe Work Practices
		<p>capable of causing siderosis, a benign accumulation of iron oxide in the lungs.</p> <p>Lead is found in solder, brass, bronze and is also used as a metal primer and steel coating. Exposures must be controlled to prevent lead poisoning.</p> <p>Manganese is used in most stainless steel carbon alloys and welding electrodes. Welders are unlikely to be exposed to hazardous concentrations if adequate ventilation is provided.</p> <p>Molybdenum can cause respiratory irritation and impaired breathing, but welders are unlikely to be exposed to excessive amounts.</p> <p>Nickel is found in many alloys and stainless steel. Eye and throat irritation are acute effects of exposure. Scientists are currently disagreeing on whether nickel compounds are capable of causing or promoting cancer in welders.</p> <p>Tin is present in some bronze alloys and solders. The fumes are known to cause stenosis, a benign pneumoconiosis, but it is improbable that soldering work could place the worker at risk.</p> <p>Titanium is found in stainless steel, alloys, flux and coatings, but it is not known to have any ill effects on welders.</p> <p>Vanadium is present in certain alloys and welding electrode coatings. Acute symptoms of exposure are eye and respiratory irritation. Chronic conditions may comprise bronchitis, rhinitis, pulmonary oedema and pneumonia.</p> <p>Zinc: welding galvanised or zinc plated metals can result in the inhalation of zinc oxide fume and cause metal fume fever.</p> <p>Solvents used to clean and degrease metal before welding may release toxic gases or fumes when welding starts. These gases include: Phosgene, Phosphine, Hydrogen Chloride, Chloroacetic acids, Arcolein, Formaldehyde, Acetaldehyde.</p> <p>Carbon monoxide is colourless and odourless. The gas is an asphyxiant, causing headache, dizziness and confusion.</p>

Plant and Equipment >> Welding plant

Sources

Western Australia Safetyline: Safetyline Essentials: Toolbox Topics Welding

Hazards	Possible Consequences	Safe Work Practices
		<p>OZONE:</p> <ol style="list-style-type: none"> 1. Ozone is formed when air is exposed to ultraviolet radiation, as happens in the welding arc. 2. Ozone may be very detrimental to health, causing pulmonary congestion, oedema, and haemorrhage. Minute concentrations of about 0.1 ppm, even for short periods, dry out the eyes and cause headaches. 3. Prolonged exposure may result in severe changes in lung function. <p>PHOSGENE:</p> <ol style="list-style-type: none"> 1. Phosgene is formed through the decomposition of chlorinated hydrocarbons (trichlorethylene, perchlorethylene) which are quite common degreasing agents in places where welding is carried out. 2. Metal inert gas (MIG) welding electrodes are particularly prone to the creation of high concentrations of phosgene. 3. Normal welding is unlikely to cause excessive amounts, but care should be taken to keep these substances well away from all welding work. <p>Teflon welding (thermoplastic welding) may also include several dangerous gases, such as carbonyl fluoride, hydrogen fluoride and perfluorolsobutylene.</p>
Welding operations	Burns, fire & explosion	<p>Prevent burn hazards with proper personal protective equipment that includes gloves, overalls, safety footwear, aprons and head covering. Remember sparks and molten metal can fly and work-pieces can be hot even though the glow has gone.</p> <p>Protect eyes with helmet and grade of visor designed for the type of welding.</p> <p>Prevent fire with welding blanket, by removing or covering flammable materials, and maintaining a proper distance from flammable substances.</p> <p>Prevent explosion by checking before welding or cutting that tanks and drums are free of substances that are flammable or give off flammable substances - refer picture.</p>

Plant and Equipment >> Welding plant

Sources

Western Australia Safetyline: Safetyline Essentials: Toolbox Topics Welding

Hazards	Possible Consequences	Safe Work Practices
		<p>Store oxygen and fuel gasses separately.</p> <p>Ensure gas equipment is well maintained and leak free.</p> <p>Protect gas supply lines from hot metal and abrasion.</p> <p>Ensure appropriate fire fighting equipment is maintained and readily available.</p> <p>Do not weld near cleaning tanks containing chlorinated solvents - the heat breaks down the vapours into very toxic gases.</p> <p>Laser cutting requires protection from accidental eye contact with the beam or beam reflections.</p> <p>Ensure that you use the correct cylinder regulators.</p> <p>Ensure the lighting is adequate for your needs.</p> <p>Ensure proper earthing of arc - welding equipment.</p> <p>Always wear appropriate eye protection during slag removal (chipping).</p> <p>Use welding screens to prevent welding flash from affecting others.</p>

Plant and Equipment >> ATVs

Sources

NSW Workcover - Rural Safety July 2001 Publication

ACC - Injury Prevention, Ruralsafe Facsheets

OSH Department of Labour - Farming Bulletin ATVs in Agriculture

Hazards	Possible Consequences	Safe Work Practices
Mounted loads, loss of stability	ATV tipping or rolling	<p>Do not fill spray tanks above the ATV manufacturer's recommended limit, taking into consideration the weight of the tank, its contents, brackets and attachments.</p> <p>Most ATVs have a recommended maximum carrying capacity of approximately 90 kg (30 kg at front, 60 kg at rear).</p> <p>It is common for spray tanks to weigh 100 kg when full (100 litres). These tanks can create an overweight situation and are often designed without baffles to reduce sudden load shifts which can result in a loss of stability.</p> <p>Ensure spray tanks have baffles.</p> <p>Trailers should be coupled and uncoupled on level ground.</p>
Operating ATVs	ATV tipping or rolling Loss of control	<p>Be aware of alternative routes that can be used in adverse weather conditions.</p> <p>Attention should be paid to the combination of slope, terrain and/or ground conditions and when these are not suitable for safe travel, walk the rest of the way.</p> <p>Operator/drivers should be trained by an approved, qualified instructor.</p> <p>Ensure that you have sufficient strength and weight to keep the ATV stable while riding on steep or rough ground.</p> <p>CORNERING:</p> <p>At slower speeds, move bodyweight to the outside of the turn so that the inside rear wheel can slip and turn through the corner.</p> <p>At higher speeds, counteract the tendency for the ATV to tip over towards the outside of the turn by moving</p>

Plant and Equipment >> ATVs

Sources

NSW Workcover - Rural Safety July 2001 Publication

ACC - Injury Prevention, Ruralsafe Facsheets

OSH Department of Labour - Farming Bulletin ATVs in Agriculture

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">1. When riding across slopes:<ol style="list-style-type: none">a. Move your bodyweight forward to counteract the weight shift of the ATV.b. Avoid bumps and hollows.c. Ride slowly and smoothly.2. When riding straight up slopes:<ol style="list-style-type: none">a. Move your bodyweight forward.b. Avoid bumps and hollows.c. Select a low gear and use a steady throttle. Avoid 'blipping' the throttle, which may cause weight to be suddenly shifted from the front wheels to the rear, causing the ATV to flip over backwards.3. When riding straight down slopes:<ol style="list-style-type: none">a. Move your bodyweight backward.b. Avoid bumps and hollows.c. Select a low gear and travel slowly and steadily.d. Avoid sudden application of the front brake as this may cause the ATV to flip over forward. <p>The steeper the slope, the more bodyweight needs to be moved to the uphill side of the ATV. To achieve this, you may need to become an 'active' rider and stand up on the foot plates.</p>

Plant and Equipment >> ATVs

Sources

NSW Workcover - Rural Safety July 2001 Publication

ACC - Injury Prevention, Ruralsafe Facsheets

OSH Department of Labour - Farming Bulletin ATVs in Agriculture

Hazards	Possible Consequences	Safe Work Practices
		<p>riding through stubble or other vegetation.</p> <p>Low tyre pressure makes 'bouncing' when hitting an obstacle a potential hazard.</p> <p>Choose a model appropriate to your experience, needs and abilities.</p> <p>Never ride an ATV when fatigued or under the influence of alcohol.</p> <p>Never allow children to operate an adult-sized ATV because they don't have the physique or strength to handle the vehicle.</p>
Overloading ATVs	<p>ATV tipping or rolling</p> <p>Changing ATV's centre of gravity</p> <p>Restricting drivers mobility</p>	<p>Most ATVs have carry frames front and rear. The manufacturer's loading for these carry frames should be noted and not exceeded. Ensure the load is evenly distributed and well secured.</p> <p>Passengers should only be carried if specified by the ATV manufacturer.</p> <p>The 10% rule should be followed so that you have 10% of the total weight of the trailer and its load on the drawbar.</p> <p>When using attachments and carrying loads ensure any attachment or load does not alter the ATV's centre of gravity and affect its stability.</p>
Poor vehicle maintenance	<p>Mechanical failure</p> <p>Brake failure</p>	<p>Regularly check: tyre inflations and tread, brake and throttle cable condition, steering ball joints, oil level and accessory attachments.</p> <p>Follow the manufacturer's/supplier's recommended maintenance plan and ensure all repairs are carried out by a competent person.</p> <p>After riding through water, check brakes.</p>

Plant and Equipment >> Safety harness

Sources

OSH Department of Labour, Approved Code of Practice, Forest Establishment and Silviculture

Forest Industries Training, Best Practice Guidelines for Personal Protective Equipment

Hazards	Possible Consequences	Safe Work Practices
Lack of fall arrest system	Falling Death	<p>Fall arrest harnesses, lanyards and static lines provide a satisfactory degree of fall protection provided the following points are taken into account:</p> <ol style="list-style-type: none"> 1. Persons should be properly trained and supervised in the use of the equipment. 2. Persons using fall protection such as a fall arrest harness should not work in isolation. 3. A lanyard assembly should be as short as possible and the working slack length not more than 2 m when used in conjunction with a fall arrest system, to minimise the pendulum affect (belaying). 4. The fall arrest anchorage point (fixed or travelling on static lines) should be located so that the lanyard can be attached before the user moves into a position where he or she would be at risk from a fall. 5. The components of a fall arrest system should be compatible. The use of non compatible components could lead to ineffective equipment that presents a risk of injury from falling to the person using the equipment. 6. An important factor in the safe use of a fall arrest system is to reduce the free fall distance as far as possible. The longer the free fall distance the greater the risk of person hitting obstructions. 7. Any obstructions should be removed from the fall path area. 8. A personal energy absorber should be used in conjunction with a fall arrest harness and a lanyard to reduce the deceleration force imposed by a suddenly arrested fall. 9. A drop of 0.6 m without a specialised shock absorber creates a loading on the body and harness of more than 1 tonne. 10. Ensure rescue plans are in place and practiced regularly for retrieving workers who have fallen e.g. anyone dangling from a safety harness may suffer blood circulation problems after only 20 minutes. <p>Footwear should be worn which minimises the risk of slipping.</p> <p>Consideration should be given to the surface that is being worked on e.g. slippery surfaces from wet</p>

Plant and Equipment >> Safety harness

Sources

OSH Department of Labour, Approved Code of Practice, Forest Establishment and Silviculture

Forest Industries Training, Best Practice Guidelines for Personal Protective Equipment

Hazards	Possible Consequences	Safe Work Practices
Working at heights - logging	Falling	<p>Safety helmets should be fitted and attached to the person's head so that it remains in place should a person be arrested from a fall.</p> <p>Climbing rope must have an 8 mm wire rope core construction where there is a risk of it being cut (this includes the use of chainsaws or axes).</p> <p>The climbing rope must:</p> <ol style="list-style-type: none"> a. Be laced to the climbing belt (or passed through at least three rings that are secured around the belt). b. Have an eye at one end of the climbing rope. c. Be passed around the climber and around the tree. d. Have the dead end pass through the eye and secured with an easily adjustable mechanism, such as the bow line or cat's paw knot. <p>A duplicate set of equipment (or other means) must be available for immediate use by a competent worker so that an injured climber can be lowered to the ground in an emergency.</p> <p>There should be daily checks of fitting, stitching and strapping.</p> <p>Checks should also be undertaken immediately if a fall has been sustained on the belt or harness.</p>
Working at heights - silviculture	Falling	<p>Safety harnesses must be used at all times when a chainsaw is operated above ground level.</p> <p>Safety harnesses must be worn when manual pruning from a ladder above three metres in height unless:</p> <ol style="list-style-type: none"> 1. Pruners hold NZQA units 1243, 1245, 6949. 2. And a stable ladder is used that:

Plant and Equipment >> Safety harness

Sources

OSH Department of Labour, Approved Code of Practice, Forest Establishment and Silviculture

Forest Industries Training, Best Practice Guidelines for Personal Protective Equipment

Hazards	Possible Consequences	Safe Work Practices
		<p>b. Has a chain for securing around the tree located at the second or third rung from the top of the ladder and has points at the base to improve stability in the ground.</p> <p>Safety harnesses may be either full bodied safety harnesses, half body safety harnesses or safety belts.</p> <p>The lanyard may be made of fibre rope with a wire rope core, wire rope or chain.</p> <p>Workers using safety belts or harnesses should be adequately trained in:</p> <ul style="list-style-type: none">a. Securing the belt or the harness to themselves.b. Attaching and detaching the lanyard from around the tree.c. Body position relative to the lanyard and activity undertaken. <p>Safety belts should be correctly fitted and adjusted to eliminate slack, as poorly fitted or loosely adjusted belts can cause significant bruising or more serious injuries in the event of a fall.</p> <p>There should be daily checks of fitting, stitching and strapping.</p> <p>Checks should also be undertaken immediately if a fall has been sustained on the belt or harness.</p>

Plant and Equipment >> Hand tools

Sources

OSH Department of Labour Guidelines Woodworking

Forest Industries Training Best Practice Guidelines to Tree Planting

Hazards	Possible Consequences	Safe Work Practices
Poorly maintained tools	Cuts/lacerations	<p>Tools which develop defects while in use should be removed from service, tagged and not used again until they have been repaired.</p> <p>Split axe heads and damaged or mushroomed wedges, hammers and similar equipment should not be used until they have been reconditioned or replaced.</p> <p>A maul or other suitable tool should be provided for the driving of wedges. Steel wedges must be driven with a soft maul.</p> <p>Soil build up on planting spades should be cleaned off by scraping with a small steel scraper, not by hitting the spade on a solid object such as a stump.</p> <p>Hammers, axes, shovels and similar tools should not be used if the handles are loose, cracked or splintered.</p> <p>Planting spades should be kept in good solid condition with no loose handles or cracks in the spade.</p> <p>Defective wrenches should not be used as they are likely to slip e.g. open end and adjustable wrenches with spread jaws or pipe wrenches with dull teeth.</p> <p>Files or other tools with pointed edges should be equipped with suitable handles.</p>
Sharpening tools	Cuts/lacerations	<p>When sharpening hand cutting tools, ensure the following guidelines are used:</p> <ol style="list-style-type: none"> 1. File away from the cutting edge not towards it. 2. Ensure files are fitted with proper handles. 3. Where practicable tools should be held in a suitable fixed clamp while being sharpened. Tools should not be left unattended in a fixed clamp.
Storage of tools	Cuts/lacerations	<p>Sharp edged or pointed tools should have the edge or point guarded at all times when not in use.</p>

Plant and Equipment >> Hand tools

Sources

OSH Department of Labour Guidelines Woodworking

Forest Industries Training Best Practice Guidelines to Tree Planting

Hazards	Possible Consequences	Safe Work Practices
Working with hand tools	Cuts/lacerations OOS (Occupational Overuse Syndrome) Tripping/slipping	<p>Provide workers with training and information about safe working practices and the correct methods, postures and the use of tools, machinery and other equipment.</p> <p>If purchasing new tools consider such things as anti vibration handles.</p> <p>Where necessary suitable hand grips should be fitted to metal handles.</p> <p>Organise the work so that you can mix repetitive and non-repetitive activities.</p> <p>Take frequent, short rest breaks.</p> <p>Vary or rotate jobs.</p> <p>Undertake simple and gentle exercises to reduce muscle tension.</p> <p>Review work rates to ensure they are realistic and within your physical and psychological capabilities.</p> <p>Try to arrange work materials or equipment to avoid over reaching or twisting, which can exhaust one's muscles.</p> <p>Hand tools for repetitive tasks should be a comfortable size, shape and weight, be well-balanced with a comfortable grip and need no more than reasonable force to operate.</p> <p>If the job needs precise movements, make sure the task is done slightly above elbow level so the elbows remain in a relaxed position close to the body and shoulders are relaxed avoiding muscle strain.</p> <p>If the job needs a lot of muscle strength, make sure the task is performed slightly below elbow level.</p> <p>Ensure you are wearing appropriate clothing and personal protective equipment e.g. safety boots, ear muffs, safety goggles.</p>

Plant and Equipment >> Hand tools

Sources

OSH Department of Labour Guidelines Woodworking

Forest Industries Training Best Practice Guidelines to Tree Planting

Hazards	Possible Consequences	Safe Work Practices
		down. When using hand cutting tools in the field workers should keep at least 3 m apart or twice the height of the tallest vegetation involved.

Plant and Equipment >> Chainsaws

Sources

OSH Department of Labour - A Guide to Safety With Chainsaws

WorkSafe Western Australia - SafetyLine - Tree Felling

OSH Department of Labour - Tree Felling Safety Basics for Farmers

Forest Industries Training - Best Practice Guidelines for Chainsaw Use

Health and Safety Executive - Chainsaws at Work

Hazards	Possible Consequences	Safe Work Practices
Carrying and transporting chainsaw	Cuts/lacerations Hit by moving object Slipping/tripping/falling	<p>Turn saw off or activate chain brake when walking any distance or over obstacles.</p> <p>Carry a chainsaw in both hands so that it can be thrown clear if you slip.</p> <p>Ensure your saw has a bar cover for transportation to and from the work area - refer picture.</p> <p>Secure all loose tools, saw and fuel containers in your vehicle so they are not damaged in transit or become missiles in the event of an accident.</p> <p>Ensure you do not carry equipment in the passenger compartment.</p>
Chainsaw kickback	Cuts/lacerations	<p>Kickback occurs when the upper part of the bar nose (upper quadrant) contacts a solid object or is pinched - refer picture.</p> <p>Kickback can occur when:</p> <ol style="list-style-type: none"> 1. The bar nose hits hidden limbs or light material. 2. The saw is boring into a log. 3. The bar nose is pinched while cutting. 4. The bar nose contacts ends of logs or obscured material. 5. The chain is loose.

Plant and Equipment >> Chainsaws

Sources

OSH Department of Labour - A Guide to Safety With Chainsaws

WorkSafe Western Australia - SafetyLine - Tree Felling

OSH Department of Labour - Tree Felling Safety Basics for Farmers

Forest Industries Training - Best Practice Guidelines for Chainsaw Use

Health and Safety Executive - Chainsaws at Work

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">1. Hold the saw firmly in both hands.2. Make sure your left thumb is wrapped firmly under the front handle and in the mitt.3. Be aware of the location of the guide bar nose at all times.4. Stand to the side when cutting, not directly behind the bar.5. Do not let the guide bar nose come in contact with any object - refer picture.6. Be especially careful when cutting small limbs or light material that may catch in the chain.7. Do not over-reach or cut above shoulder height.8. Use extreme caution when re-entering a cut.9. Cut only one log at a time.10. Correctly maintain your saw, making sure there are no loose fittings, nuts, bolts or screws.11. Ensure that safety devices are operable.12. Make sure the chain is tensioned and sharpened and the depth gauges are set to the manufacturer's specifications.13. Use a safety chain and the correct bar and chain combination.

Plant and Equipment >> Chainsaws

Sources

OSH Department of Labour - A Guide to Safety With Chainsaws

WorkSafe Western Australia - SafetyLine - Tree Felling

OSH Department of Labour - Tree Felling Safety Basics for Farmers

Forest Industries Training - Best Practice Guidelines for Chainsaw Use

Health and Safety Executive - Chainsaws at Work

Hazards	Possible Consequences	Safe Work Practices
	Falling	<p>A suitable cutter bar guard must be securely fitted to a short bar.</p> <p>When carrying out chainsaw pruning up a ladder the operator must have a suitable system to attach the chainsaw to the operator's belt.</p> <p>When carrying out chainsaw pruning up a ladder the operator must wear a safety belt/harness once they reach their working position. The lanyard part of the fall restraint should be of metal chain or wire core construction.</p> <p>Pruning chainsaws must be of a top handle design and less than 40 cc in capacity.</p> <p>When a chainsaw is to be used for low pruning above chest height it should be fitted with a chain guard that will fully cover the chain along the top of the guide bar and should extend at least 25 mm beyond the tip of the guidebar.</p>
Cutting with chainsaw	Cuts/lacerations Hit by flying debris Slipping/tripping/falling	<p>The following are checks you should carry out on your saw prior to starting work:</p> <ol style="list-style-type: none"> 1. Check that your chain brake is in working order. 2. Check that the lubrication system is working - rev the engine and operate for a few seconds before switching off. Check the chain to ensure it is properly lubricated. 3. Alternatively activate the oiler while pointing the bar towards a light object, such as a stump and wait for the oil to show up - refer picture. 4. Check the throttle control lock-out throttle, control trigger and the on off switch are operating correctly.

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<p>6. Check that the chain stops moving when the throttle control trigger is released.</p> <p>7. Check that all the external fittings are secure.</p> <p>8. Check that the high tension lead does not show signs of wear, especially where it passes through the body of the saw.</p> <p>9. Pay particular attention to the above checks if the saw has been used by other people.</p> <p>There are three types of force encountered when cutting with a chainsaw: traction, recoil, kickback.</p> <p>Ensure that you hold the saw correctly and adopt the proper stance. It is also necessary to know the different types of cutting action.</p> <p>Do not operate the saw when holding it above shoulder height. (The only exception is chainsaw pruning).</p> <p>The chainsaw should not be used if:</p> <ol style="list-style-type: none"> 1. The saw chain does not remain stationary when the motor is idling. 2. The cutter bar handles or control levers are loose. 3. Any parts are damaged, missing or ineffective. 4. The saw will not idle correctly. <p>HOLDING THE SAW:</p>

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<p>2. Use the mitt. Your right hand should grip the rear handle, with your index finger on the throttle trigger.</p> <p>3. Maintain control of the saw while the motor is running by keeping a firm grip with both hands.</p> <p>4. Keep your feet firmly planted slightly apart in a balanced position. Do not over-reach. Move feet closer to the cutting position.</p> <p>5. Hold the saw close to your body with the saw body close to the cut for better control. Slightly bent arms will improve your control over the saw.</p> <p>6. Position yourself to the side of the intended cut to lessen the chance of injury from kickback.</p> <p>7. Never use the saw with one hand as you can easily lose control over it.</p> <p>8. Start the cut at high speed and maintain engine speed as you cut.</p> <p>9. When the cut is almost finished, reduce speed to avoid a sudden finish with the loss of balance, or the guide bar and chain hitting the ground or other objects.</p> <p>10. Regularly check chain tension and ensure that chain is correctly sharpened.</p> <p>TYPES OF CUTTING ACTION:</p> <p>1. The Down Cut - refer picture.</p> <p>a. This cut uses the bottom of the chain.</p>

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<p>2. The Up Cut - refer picture.</p> <ul style="list-style-type: none">a. This uses the upper part of the chain.b. The chain's reactive force will push the saw away from the cut and towards you. This is called recoil.c. There is a risk of kickback if the saw is pushed far enough away from the cut for the nose of the bar to be used. <p>3. The Bore Cut - refer picture.</p> <ul style="list-style-type: none">a. This cut starts by using the bottom portion of the nose of the bar and then the upper portion as the cut proceeds.b. Because of the likelihood of kickback, only trained or experienced operators should use this cut. <p>Proceed as follows:</p> <ul style="list-style-type: none">1. Using the lower tip of the guide bar, cut until the depth is about bar width.2. Align the saw towards the horizontal with the saw at full throttle.3. Still at full throttle, press the saw forward whilst maintaining pressure down. <p>BUCKING A STEM WHERE THE END IS UNSUPPORTED - refer picture.</p>

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<p>during the cut, it is necessary to complete the cut in two parts.</p> <p>BUCKING A STEM SUPPORTED AT TWO ENDS - refer picture.</p> <ol style="list-style-type: none"> 1. If a tree or log is supported at both ends, there will be a tendency for the unsupported portion to bow down. 2. This creates compression on the topside, and tension on the bottom. To avoid the chainsaw jamming or the tree splitting, it is necessary to complete the cut in two parts.
Exhaust fumes	Inhalation	<p>Conditions that may lead to excessive exposure to carbon monoxide are:</p> <ol style="list-style-type: none"> 1. Felling operations. 2. Other operations performed in a leaning or squatting position. 3. Working at low wind velocity. 4. Working in thick forest stands. <p>Exhaust fumes contain carbon monoxide, which can make you feel drowsy and cause you to lose concentration, increasing the risk of an injury. The following safe work practices should be followed:</p> <ol style="list-style-type: none"> 1. Maintain muffler of the chainsaw in good condition. 2. Ensure fuel/air mix is correct and saw is correctly tuned.

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
Ineffective personal protective equipment	Cuts/lacerations Hearing damage/loss Slipping/tripping/falling	<p>The following are guidelines for chainsaw operator's appropriate protective equipment:</p> <ol style="list-style-type: none"> 1. Visor or safety glasses are to be worn and must be capable of accommodating the wearing of prescription spectacles. 2. Safety glasses should be regularly cleaned and if they become badly scratched replace them immediately. 3. Wear ear protection (earmuffs rated grade 4 or better) while operating chainsaw. 4. Hi-visibility helmet. 5. Hi-visibility shirt, vest or coat - ensure this is kept clean. 6. Protective chainsaw leg wear, chaps or trousers. 7. Safety boots, steel capped, leather boots or chainsaw resistant gumboots. 8. Communication system (either whistle, radio, phone, pager, visual signals or regular two hour checks on worker's well being by other staff). 9. Ensure a basic first aid kit is nearby containing at least two large sterile wound dressings (fellers only).
Operating chainsaw up a tree	Cuts/lacerations Slipping/tripping/falling	<p>GENERAL GUIDELINES FOR USING A CHAINSAW IN A TREE ARE:</p> <ol style="list-style-type: none"> 1. Start the saw on the ground.

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<p>1. Ensure saw is warmed up.</p> <p>2. Support the chainsaw on a branch or positioned on the other side of the tree before starting up.</p> <p>TO CUT THE LIMBS FROM A SAFE POSITION:</p> <p>1. Move around the tree rather than reaching too far.</p> <p>2. Keep the tree between you and the bar.</p> <p>3. Work anti clockwise up tree.</p> <p>4. Always limb to the right.</p> <p>Do not cut in front of your body.</p> <p>Do not cut to the left.</p> <p>Do not over extend or reach.</p> <p>Do not try to reach up too high.</p> <p>WHENEVER YOU NEED TO MOVE WHILST WORKING UP THE TREE:</p> <p>1. Set the chain brake.</p>

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
	<p>Cuts/lacerations Inhalation</p>	<p>mixes.</p> <p>General maintenance of the chainsaw is safer and prolongs the life of the saw. The following points should be undertaken on a regular basis:</p> <ol style="list-style-type: none"> 1. Clean the saw, particularly the air filter, cooling inlets, sprocket cover and chain brake mechanism. 2. Clean the guide bar groove and oil holes. 3. Check the guidebar for straightness, burring and wear of the rails. 4. Turn the guide bar regularly to ensure even wear. 5. Check the sprocket and chain for wear. 6. Check the chain for cracked rivets or side links. 7. Check all nuts, bolts and screws for correct tension. 8. Ensure that all components are in place.
<p>Refuelling chainsaws</p>	<p>Burns Explosion</p>	<p>When refuelling chainsaws the following safe procedures should be followed:</p> <ol style="list-style-type: none"> 1. Stop the motor. 2. Place the saw on clear ground or a firm surface such as a stump or large log. If refuelling in the felling area

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none"> 4. Take care to not spill fuel on hot motor components. 5. Wipe any spilt fuel from the saw. 6. Move at least 3 m away from the fuelling point before re-starting. 7. Do not smoke while refuelling your saw. 8. Do not use glass containers for storage of fuel or oil. Use a properly constructed metal or approved container that does not leak.
Starting chainsaw	Cuts/lacerations	<p>Never drop start a saw. The danger is that the saw will swing in an arc at the end of the cord and cause serious injury.</p> <p>COLD STARTING:</p> <p>When cold starting chainsaw the following procedures are recommended, refer picture:</p> <ol style="list-style-type: none"> 1. Place the chainsaw firmly on the ground. 2. Open the choke. 3. Stand over the saw which should be pointing to your left. 4. Position your left leg back to lower your hips.

Plant and Equipment >> Chainsaws

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Hazards	Possible Consequences	Safe Work Practices
		<p>7. Pull the starter cord with your right hand using short sharp pulls until the motor fires.</p> <p>8. Close the choke and pull the starter cord until the motor is going. Then release the throttle control latch by squeezing the throttle control trigger.</p> <p>WARM STARTING:</p> <p>When warm starting chainsaw the following procedures are recommended - refer picture.</p> <ol style="list-style-type: none">1. Place your left hand in safety mitt if fitted. Keep left arm straight.2. Position saw on left thigh pointing left.3. Step over rear handle and secure saw behind bent right knee.4. Keep the right foot flat on the ground.5. Start with short sharp pulls on the starter cord.6. If the saw does not start, revert to the cold start method. <p>Once the saw is running operators should apply the chain brake before moving off with the saw.</p>

Chemicals >> Agrichemicals

Sources

NZ Safety - Guidelines on Personal Protection for Agrichemical Users

WorkSafe Western Australia - Safetyline - Agrichemicals

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
Chemicals at work	Inhalation Skin Contact Eye Contact Ingestion	<p>Ensure staff are trained in use of particular product and spraying plant e.g. attend Growsafe Courses.</p> <p>Do not work in an enclosed air conditioned cab wearing contaminated clothing. The chemical could be continually recycled through the air conditioner.</p> <p>Follow manufacturer's instructions for mixing and disposal of the product. Refer to labels on containers and wear appropriate personal protective equipment.</p> <p>Choices of protective equipment are specific. Do not substitute equipment and clothing. This can result in severe personal injury.</p> <p>Respirators should be chosen with considerable care. It is possible to select the wrong unit or cartridges, which will give no respiratory protection. In addition, an incorrect fit of a half-face respirator may have the same effect - refer picture.</p> <p>Always wear your respirator while in the exposed environment. Not wearing the respirator for only a few minutes dramatically reduces the protection - refer picture.</p> <p>Mix solutions as much as possible at the storage depot under controlled conditions.</p> <p>Do not pour out or mix chemicals on earth floors as workers could be exposed to contaminated dust at a later date.</p> <p>Stir wettable powders carefully as dust from them can settle on exposed skin and be absorbed into the body.</p> <p>Never put the end of a water filling hose right into the tank as the spray mixture could be siphoned back into the mains supply.</p> <p>Always wash hands after using chemicals before going to the toilet, eating or smoking. Do not eat or smoke whilst decanting, mixing or spraying chemicals, or in the storage area.</p>

Chemicals >> Agrichemicals

Sources

NZ Safety - Guidelines on Personal Protection for Agrichemical Users

WorkSafe Western Australia - Safetyline - Agrichemicals

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
		<p>It is the user's responsibility to ensure that they have adequate information available on any product which may be hazardous to themselves, their employees and other people in the place of work.</p> <p>Always calibrate equipment before applying agrichemicals. Accurate calibration ensures safety of users, crops and environment.</p>
Children swallowing, inhaling or coming into contact with chemicals	Death or Poisoning	Ensure that all chemicals are stored out of reach of children in a clearly marked and locked area.
Exposure to chemicals	Absorption through incorrect laundering	<p>Wear clean clothes daily. If pesticide gets on clothes that are already soiled or dirty, the pesticide will be more difficult to remove than from clean clothes.</p> <p>Discard all clothing heavily soiled with full-strength or concentrated liquid pesticides.</p> <p>Wear chemically resistant gloves to handle pesticide-soiled clothes.</p> <p>Keep pesticide-soiled clothing separate from other family clothes before and during laundering to avoid transfer of residues.</p> <p>Wash pesticide-soiled clothing daily, and as soon as possible after wear to maximise removal of chemicals.</p> <p>Pre-rinse or pre-soak in a separate tub, on the line with a garden hose, or in the pre-rinse cycle of your washer; discard water used for rinsing or soaking.</p> <p>Fill tub again with hot or warm water for washing. Use cold water only for the rinse cycle.</p> <p>Use a heavy-duty detergent, preferably phosphate-based or liquid.</p>

Chemicals >> Agrichemicals

Sources

NZ Safety - Guidelines on Personal Protection for Agrichemical Users

WorkSafe Western Australia - Safetyline - Agrichemicals

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
		<p>Use the longest wash time cycle.</p> <p>If possible, hang clothes on the line to dry in the sun. Sun helps degrade some pesticides.</p> <p>Before laundering family clothes, run the washer through a complete cycle without clothes to rinse pesticide residue out of your machine. Use hot water and detergent.</p>
<p>Spraying with chemicals</p>	<p>Spray Drift Contamination Slipping/Tripping</p>	<p>Do not work in your own or some else's spray drift.</p> <p>All pressure type containers must be de-pressurised before maintenance is carried out.</p> <p>Do not suck or blow through nozzles to clear blockages.</p> <p>When refuelling motorised applicators:</p> <ol style="list-style-type: none"> 1. Stop the motor. 2. Allow the motor to cool down. 3. Do not smoke while refuelling. 4. Wipe excess fuel away when completed. 5. Move at least 3 m away from refuelling site before restarting. <p>Check chemical labels for required application rates.</p> <p>Check for people taking water downstream of your operation and warn them of the proposed spraying.</p> <p>If regularly using pesticides, an annual medical examination is recommended before and after the spraying</p>

Chemicals >> Agrichemicals

Sources

NZ Safety - Guidelines on Personal Protection for Agrichemical Users

WorkSafe Western Australia - Safetyline - Agrichemicals

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
		<p>Shower and wash immediately after spraying.</p> <p>Do not rub face or eyes while working with chemicals.</p> <p>Never use the same equipment to apply herbicides and pesticides.</p> <p>Ensure you have firm footing before moving and spraying.</p> <p>Wear spiked soled boots to avoid slipping.</p>
Storing of chemicals	Explosion Fire	<p>Do not store or transport chemicals in the passenger compartment of a vehicle.</p> <p>Ensure that the storage area can contain an outbreak of fire (prevent fire from spreading) or protect goods contained from fire.</p> <p>All storage areas must have properly placarded signage (HAZCHEM).</p> <p>Storage should be adequately ventilated and not subject to excessive dampness.</p> <p>Storage should be secure and lockable.</p> <p>Ensure suitable fire extinguishing equipment available.</p> <p>Store chemicals only in their original containers and ensure the containers are closed and clearly labelled - refer picture.</p> <p>In general store powders above liquids.</p> <p>Incompatible chemicals, i.e. those that will adversely react if mixed together, must not be stored together.</p>

Chemicals >> Escort Herbicide

Sources

Dupont MSDS

Hazards	Possible Consequences	Safe Work Practices
Exposure to herbicide	Skin and eye irritation	<p>The following are general guidelines when handling Escort. For more detailed information please refer to the Material Safety Data Sheet.</p> <p>HEALTH EFFECTS:</p> <p>Eye contact may cause eye irritation with tearing, pain or blurred vision.</p> <p>Repeated skin contact may cause skin irritation with itching, burning, redness, swelling or rash.</p> <p>FIRST AID:</p> <p>If inhaled remove person to fresh air.</p> <p>If not breathing give artificial respiration.</p> <p>If breathing is difficult give oxygen and seek medical assistance.</p> <p>If contact of the skin occurs, wash skin with plenty of soap and water and seek medical assistance if irritation persists.</p> <p>If contact with eyes immediately flush eyes for 15 minutes with water and seek medical assistance.</p> <p>PRECAUTIONS FOR USE:</p> <p>Keep herbicides away from heat, sparks and flames.</p> <p>Do not store or consume food or tobacco in areas where they may become contaminated with the herbicide.</p> <p>User should wash hands thoroughly before eating, drinking, chewing gum, using tobacco or using toilet.</p> <p>Wear overalls, gloves, eye protection and a protective mask/respirator when using herbicide.</p> <p>In very dusty conditions this material may form explosive mixture in the air.</p>

Chemicals >> Indicate - Bluemarker Dye

Sources

Nufarm MSDS

Hazards	Possible Consequences	Safe Work Practices
Exposure to dye	Skin and eye irritation Inhalation Ingestion	<p>The following are general guidelines when handling Indicate. For more detailed information please refer to the Material Safety Data Sheet.</p> <p>HEALTH EFFECTS:</p> <p>Prolonged and repeated contact may result in irritation to eyes.</p> <p>Temporary discolouration of the skin may occur although no health risks are expected from skin absorption.</p> <p>Prolonged inhalation may result in respiratory traction irritation.</p> <p>Ingestion of large quantities may be harmful.</p> <p>May provoke asthmatic responses in persons with asthma who are sensitive to airway irritants.</p> <p>FIRST AID:</p> <p>Flush eyes with plenty of water for 30 minutes holding eye lids open if necessary. Seek medical assistance.</p> <p>Remove contaminated clothing and footwear, wash affected areas with soap and water. If a large area is affected seek medical assistance.</p> <p>If inhaled remove patient to fresh air, lay down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance.</p> <p>If swallowed give one to two glasses of milk or water and induce vomiting by touching the back of the throat with a finger or blunt object. Never give anything by mouth to an unconscious person. Seek medical assistance immediately.</p> <p>PRECAUTIONS FOR USE:</p> <p>Ensure protective clothing is available and worn. This includes organic vapour/mist respirator, gloves, coveralls, apron, boots, safety goggles and a face shield if splashing hazard exists.</p> <p>Wash protective clothing before storage or reuse.</p>

Chemicals >> Indicate - Bluemarker Dye

Sources

Nufarm MSDS

Hazards	Possible Consequences	Safe Work Practices
		An eye wash facility should be available when this product is being used.

Chemicals >> Fuels, flammable liquids and explosives

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

ACC Fact Sheets

Hazards	Possible Consequences	Safe Work Practices
Contact with skin	Skin irritation	<p>If contact with eyes occurs, flush eyes with water.</p> <p>Use barrier creams to lessen contact with skin and subsequent risk of dermatitis.</p> <p>If liquid splashes onto skin or clothing, remove contaminated clothing and wash affected skin and clothing with plenty of soap and water.</p>
Handling of fuels	Spillage Ingestion	<p>Never use water based extinguishers on petrol as this may cause fire to spread on top of the water.</p> <p>Employees handling and storing fuel need to be adequately trained or supervised to ensure they are fully aware of hazards, precautions and emergency procedures.</p> <p>Prevent run-off into drains and waterways.</p> <p>Wipe up spills immediately.</p> <p>Contain Petrol spillage by using AFFF foam (Aquest Film Forming Foam), sand and earth.</p> <p>Contain Diesel spillage by using sand, sawdust, dirt or kitty litter.</p> <p>Contain Oil spillage by using sawdust, metal dust or kitty litter.</p> <p>If ingested give fluids, 1-2 glasses of milk to dilute and seek medical advice immediately.</p>
Storage of fuels	Explosion Fire	<p>Petrol and other flammable liquids should be stored and conveyed in containers that are:</p> <ol style="list-style-type: none"> 1. Made of metal or other approved material. 2. Constructed so that contents cannot escape in either liquid or vapour form. 3. When made of plastic be approved and marked with the LAB approval number.

Chemicals >> Fuels, flammable liquids and explosives

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

ACC Fact Sheets

Hazards	Possible Consequences	Safe Work Practices
		<p>Decanting should not be carried out by the gravity flow method.</p> <p>Bonding and grounding wires should be used where flammable liquids are dispensed or where flammable liquids are being transferred from one metal container to another.</p> <p>The transport of flammable liquids in containers mounted on or protruding over the bumpers of any vehicle is prohibited.</p> <p>When it is necessary to carry flammable liquids in vehicles that are also used for transporting passengers:</p> <ol style="list-style-type: none">1. The container or containers must be secured in a properly constructed and vented compartment separate from that used to carry passengers.2. Such a compartment must be accessible only from the exterior and be vented to the exterior. <p>At least two hand fire extinguishers designed for fighting Class B fires should be provided and be of suitable capacity in relation to the quantity of petrol being carried.</p> <p>Flammable liquids must be stored at least 15 m away from any explosives or any fire, forge, furnace or other source of ignition.</p> <p>No person shall smoke within 15 m of any area set aside for the bulk storage of petrol or similar flammable liquids.</p> <p>Ensure that chemicals and fertilisers are stored away from fuels.</p> <p>"No Smoking" and "No Open Flame" signs should be clearly visible.</p> <p>Dispose of any fuel soaked rags in sealed metal containers.</p> <p>No unauthorised persons should be allowed to enter storage area.</p>

Chemicals >> Fuels, flammable liquids and explosives

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

ACC Fact Sheets

Hazards	Possible Consequences	Safe Work Practices
		<p>Ensure the plastic containers are regularly checked. They must be destroyed if they show any signs of damage.</p> <p>Glass containers are prohibited for carrying fuel or oil in the bush.</p>
Use of explosives	Explosion	<p>Only competent persons over the age of 18 years should be in charge of blasting operations.</p> <p>Explosives should not be carried on any vehicle used for transporting petrol or other flammable goods.</p> <p>Explosives and detonation devices are to be carried in separate packages.</p> <p>Persons using explosives should hold a certificate of competency.</p>
Vapour build up in confined space	Inhalation	<p>Ensure adequate air flow when working with fuels to reduce inhalation which may cause nausea and headaches.</p> <p>Activities such as driving a car or operating machinery should be avoided if inhalation of fumes has occurred as the effects of inhaling fumes can be similar to intoxication.</p>

Locations >> Electricity

Sources

Forest Professional - Guidelines for tomorrow's stewards - Dept of Labour Nova Scotia

Hazards	Possible Consequences	Safe Work Practices
Plant and mobile equipment contacting power lines	Electric shock	<p>If you are driving a truck or mobile plant that touches an overhead powerline and remains in contact with it STAY WHERE YOU ARE.</p> <p>Warn other workers to stay away until the power has been disconnected or the contact has been broken.</p> <p>If possible drive the vehicle away from the line.</p> <p>You should only try to leave the vehicle if a fire breaks out or there is other danger.</p> <p>To leave an energised vehicle:</p> <ol style="list-style-type: none"> 1. Jump clear of the main frame making sure you do not touch the tracks or tyres or any other part of the vehicle and the ground at the same time. 2. Fall away from the vehicle and not towards it. If possible land with both feet both together and shuffle away from the vehicle until you are 15 m away from it. 3. Notify the local power authority of the incident.
Rescuing co-workers	Electric shock	<p>If a co-worker contacts an energised wire, tree or vehicle contact emergency services immediately giving exact location of incident.</p> <p>Do not attempt rescue - you could receive a serious or fatal shock. Rescues should be left to emergency services personnel.</p> <p>If the person is thrown out of contact with the energised source you should move the victim to a safe location and administer first aid.</p>
Tree contacting power lines	Electric shock	<p>If after you make your felling cut you realise a tree is going to strike a power line:</p> <ol style="list-style-type: none"> 1. Move quickly out of the work area. 2. Do not try to clear the tree or any cutting equipment or return to the site to retrieve your saw if the tree is touching the line. This could be fatal.

Locations >> Electricity

Sources

Forest Professional - Guidelines for tomorrows stewards - Dept of Labour Nova Scotia

Hazards	Possible Consequences	Safe Work Practices
		Post a guard approximately 15 m from the butt of the lodged tree to warn others of the danger. If you must leave the area unattended mark or flag the area to alert others of the hazard.

Locations >> Land preparation and establishment

Sources

OSH Department of Labour - Approved Code of Practice Safety and Health Operations

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Incorrect planning	Crushing Explosion Electrocution Machinery roll overs	<p>Always check the plan and site for the following:</p> <ol style="list-style-type: none">1. Holes, bluffs, steep slopes, gullies and high stumps.2. Wet areas and streams.3. Power lines. Upper parts of machinery should be at least 4 m away from power lines.5. Water and gas pipe lines. Do not dig or cultivate near them. <p>Always check with the supervisor for location of other forestry operations. Stay at least two tree lengths clear of any felling operation and a safe working distance from other operations.</p> <p>Ensure machinery being used in land preparation is not operated on terrain in excess of manufacturer's slope limit.</p> <p>If the land preparation operation is going to affect a road e.g. debris or working out onto roads then warning signs must be placed on the road either side of the affected area.</p> <p>Where road formation, fire-breaking or service tracking has been carried out, hung up trees, leaning trees and trees whose roots have been disturbed should be felled or brought to the ground prior to the completion of the operation.</p> <p>The weight of rollers used for gravity rolling should not be greater than half the weight of the tractor.</p> <p>You should only approach a gravity rolling operation from ground above or level with the tractor and when the operator has been made aware of by-standers.</p>

Locations >> Loading and unloading

Sources

OSH Department of Labour - Safety Code for Forest Operations Part 3 Logging

Pan Pac Forest Products Ltd - Website

Workplace Safety Board of Tasmania - Log Landing Safety

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Loading and unloading logs	Crushing Slipping/tripping/falling Truck instability	<p>Do not exceed the legal load limits.</p> <p>Measuring or marking should not be carried out while loading or unloading.</p> <p>The outside logs of the load should not be loaded above the top of the stanchions or the stanchion extensions.</p> <p>Logs loaded in the middle of the load should not have more than one third of the diameter of the logs above the top of the stanchions or the stanchion extensions where fitted - refer picture.</p> <p>The top of the load should be evenly crowned so that the load securing device will contact as many logs as possible.</p> <p>Logs should be loaded so that the lower and outside logs overhang the bolster and side arm edges by at least 300 mm - refer picture</p> <p>The minimum overhang may be reduced to 150 mm provided:</p> <ol style="list-style-type: none">Logs are less than 4.6 m and are of uniform length.There is a fixed chassis or frame between the bolsters.There is a tensioned load restraint of equal strength used in addition to other restraints. <p>Logs that are shorter than the distance between the bolsters and the side arms should be nestled between outer rows.</p> <p>Short logs may be placed on top of the load provided the log end not supported by a side arm is secured with a tensioned load restraint of equal strength in addition to other restraints required - refer picture.</p>

Locations >> Loading and unloading

Sources

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Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>Chaining should only occur after loading is completed.</p> <p>Operators should use a "lock on" type switch extension bar for securing load binding twitches.</p> <p>Ensure footing is firm and your body is positioned to the side of the twitch handle when tightening.</p> <p>Steel wire rope and chain used to secure a load should have a combined rated strength at least equal to half the weight of the load they contain.</p> <p>Where this is not practicable the balance should be made up by using a belly strop/chain or load restraining equipment of equal strength.</p> <p>All loose bark should be removed after all load binder chains have been tensioned and before leaving the loading area.</p> <p>Debarked logs, eucalypt logs and all hard to restrain logs should have a tensioned belly load restraint fitted over each section of the load in addition to restraints required by the Approved Code of Practice for Health & Safety in Forest Operations.</p> <p>All chain, wire strop, load binder attachments and anchor points should be maintained in good condition.</p>
Loading and unloading operations	Crushing Truck/trailer instability	<p>Ensure employees are wearing correct personal protective equipment when outside the cab.</p> <p>A satisfactory system of communication and procedures should be arranged between the loader operator and truck driver before loading commences.</p> <p>The truck driver and the loader operator should agree on a safe place for the driver to stand.</p>

Locations >> Loading and unloading

Sources

OSH Department of Labour - Safety Code for Forest Operations Part 3 Logging

Pan Pac Forest Products Ltd - Website

Workplace Safety Board of Tasmania - Log Landing Safety

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>a. Loading/unloading debarked logs.</p> <p>b. Loading/unloading by open sling method.</p> <p>c. There is a risk of short logs falling out when unloading.</p> <p>Always climb down from the truck do not jump.</p> <p>If the truck driver needs to go into the loading zone for any reason (e.g. adjust equipment, make repairs, inspect load etc) they may only do so with the loader operator's approval.</p> <p>No loading activity should occur while the truck driver is in the loading zone.</p> <p>The truck driver should remain a safe distance from log stacks.</p> <p>Restraining devices should not be released until the load is ready to be removed. The exceptions to this are if the log transport is moving slowly (20 kph) to the unloading providing:</p> <ol style="list-style-type: none">1. A designated unchaining area has been allocated.2. The distance being travelled is no greater than 500 m.3. There is no access way by members of the public. <p>At log landings it is permissible to move up to 100 m to a safe area away from the landing before securing the load.</p> <p>Any faulty or defective equipment should be tagged and removed from service until it is either repaired or replaced.</p>

Locations >> Loading and unloading

Sources

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Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>Check your load :</p> <ol style="list-style-type: none"> 1. Before vehicle moves. 2. Prior to travelling on public roads. 3. After you have travelled 25 km and then regularly after that. 4. Whenever you check your tyres. 5. After emergency breaking or an excessively sharp or violent manoeuvre. <p>Unrestrained logs can be transported provided:</p> <ol style="list-style-type: none"> 1. The complete trip is off-highway and in areas of non authorised public access. 2. The maximum speed is no greater than 20 km per hour. <p>The truck driver has the full responsibility for the load and must observe the whole loading procedure to ensure the load complies with all safety and statutory requirements.</p>
Loading and unloading trailers	Crushing	<p>Ensure employees are wearing correct personal protective equipment when outside the cab.</p> <p>A satisfactory system of communication and procedures should be arranged between the loader operator and truck driver before loading commences.</p> <p>The truck driver should follow the instructions of the loader operator for positioning the truck.</p>

Locations >> Loading and unloading

Sources

OSH Department of Labour - Safety Code for Forest Operations Part 3 Logging

Pan Pac Forest Products Ltd - Website

Workplace Safety Board of Tasmania - Log Landing Safety

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>Once trailer is lifted off the truck the loader should hold the trailer no more than 30 cm from the ground.</p> <p>When the trailer is being hooked into the ringfeeder the loader operator should have clear vision of both the draw bar and ringfeeder and the truck driver must also remain in plain view of the loader operator at all times.</p> <p>Trailers and draw bars should be designed so that the draw bar can be hitched and released without the driver having to move under the trailer to do it.</p>
Night loading of trucks	Crushing	<p>The work area should be provided with illumination which will allow workers to safely perform their duties.</p> <p>Light intensity should ensure that both the ground crew and the full length of the logs being handled are clearly visible.</p> <p>The source of lighting should be located and directed so as to create a minimum of shadows and glare.</p> <p>Wear high viz garments with reflectorised strips.</p> <p>Ensure loading machine has adequate lighting to perform the job safely.</p> <p>Have additional lights focussed towards the rear of the loader so you can reverse safely.</p> <p>Regularly check, clean and maintain lights so they always work effectively.</p> <p>Do not start loading a truck until the driver is standing in front of the truck clearly visible in the truck lights.</p>
Standing or folding bolsters or stanchions	Cuts/lacerations Hit by moving object	Chain storage, extension pin removal and stanchion folding operations are not to commence until the truck and trailer are unloaded.

Locations >> Loading and unloading

Sources

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Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>Protective gloves should be worn.</p> <p>Stanchions should be lowered while trailer is on the ground.</p> <p>After standing the stanchion/bolster ensure the locking device is in place.</p> <p>When not in use, extension pins should be carried long end down or in a separate rack.</p> <p>Bolsters and stanchions should be repaired or replaced if they show signs of bending, deformation or wear.</p>

Locations >> Breaking-out sites

Sources

Forest Industries Training Best Practice Guidelines

OSH Department of Labour - Approved Code of Practice Safety and Health Operations

Hazards	Possible Consequences	Safe Work Practices
<p>Other machinery and operations</p>	<p>Hit by falling debris/objects Dislodged stems, rocks, debris Fouled drag</p>	<p>Remain two tree-lengths from any felling operations, or further where there is any risk of sliding logs.</p> <p>Only enter the work area of another machine when signalled to by the machine operator.</p> <p>Do not stand directly below or on an anchor when it is loaded.</p> <p>Reduce the drag size by hooking fewer stems and/or pieces.</p> <p>Instruct the hauler operator to lower the skyline (increase deflection).</p> <p>Always try to hook-on the top stems first, and watch for binds or tail-locking.</p> <p>Unhook stems if necessary if the drag is too heavy.</p> <p>Use standard and recommended signals.</p> <p>If the wrong signal is given, signal "Stop" immediately.</p> <p>Select a safe position to stand, which is at least one tree-length to the side of the skyline and not directly downslope of the chute.</p> <p>Ensure the hauler operator and/or operator(s) of machines clearing the chute or landing area are aware of your presence below the landing.</p> <p>Always watch the drag until it is safely landed or under the control of the hauler operator.</p> <p>Do not signal to increase the pull as rigging or anchor failure may result.</p> <p>Signal "Stop" to the hauler operator.</p> <p>Assess the situation. Instruct the hauler operator to lower the working rope or move the drag away from the landing using the tailrope (if present) - this may be sufficient to avoid the obstacle on the inhaul.</p>

Locations >> Breaking-out sites

Sources

Forest Industries Training Best Practice Guidelines

OSH Department of Labour - Approved Code of Practice Safety and Health Operations

Hazards	Possible Consequences	Safe Work Practices
		<p>Carefully watch break-out and inhaul from a safe position.</p> <p>Be aware of material dislodged at the tailhold end of the span (if standing on the back face, you may be looking at the drag unaware of the hazards behind you).</p>
Terrain and obstructions	Slipping/tripping/falling Hit by falling object	<p>Move carefully across the cutover.</p> <p>Take the safest route when walking in to or out of the hook-on area.</p> <p>Wear spiked boots for added traction if soil type permits.</p> <p>Make sure you are wearing adequate footwear with good ankle support.</p> <p>Ensure secure footing on steep slopes.</p> <p>On rocky sites, avoid dislodging rocks that may fall into the path of co-workers.</p> <p>You must not enter a bight unless there are extra safety precautions in place to avoid injury should an anchor (tailhold, tail block, or corner block) fail.</p> <p>Precautions may include an extra block suitably located on the tail rope, or a high stump, or standing tree.</p> <p>Hook on stems in the order that provides the best access.</p> <p>Wear protective eyewear to reduce the risk of an eye injury unless the wearing of them creates added hazards.</p>
Wire rope and rigging	Hit by falling debris/objects Cuts/lacerations	<p>Do not approach a moving rope or rigging. Wait for it to stop moving.</p> <p>Let the strops hit the ground before signalling the operator to stop lowering the rigging (this avoids getting hit by swinging choker or chain hooks).</p>

Locations >> Breaking-out sites

Sources

Forest Industries Training Best Practice Guidelines

OSH Department of Labour - Approved Code of Practice Safety and Health Operations

Hazards	Possible Consequences	Safe Work Practices
		<p>Cut sprags from strops using side-cutters.</p> <p>Signal the hauler operator to raise the rigging slowly during break-out and tightlining.</p> <p>Assess the risk of debris movement if ropes are fouled beneath debris (broken heads, stem waste etc).</p> <p>Stand in a safe position, at least one tree-length from the break-out position, unless protected by a physical barrier or terrain feature.</p> <p>Do not stand under loaded ropes.</p> <p>Do not approach rigging until it has stopped moving.</p>

Locations >> Layout and lineshift

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Binds or bights	Personal injury Hand injury	<p>Watch for binds when tensioning the ropes.</p> <p>A rope may be able to be lifted over an obstruction by hand. Ensure the rope is completely lowered to the ground before attempting this.</p> <p>Watch for sprags - wear leather gloves.</p> <p>Only stand on the safe side of the rope - DO NOT stand in the bight.</p>
Block, stop, or anchor failure	Personal injury	<p>Inspect blocks and stops before using them. Look for damage or wear - replace if necessary.</p> <p>Do not stand in front of a loaded anchor (in the bight of the rope).</p> <p>Keep blocks clear of debris.</p>
Carrying heavy loads	Back injury	<p>Avoid carrying heavy loads manually. If necessary, use the recommended lifting and carrying stance.</p> <p>Carry loose rigging in a pack to leave your hands free for balance.</p> <p>Rest frequently when carrying heavy loads.</p> <p>Take the safest route (not always the shortest).</p> <p>Avoid climbing over obstacles.</p>
Chainsaw use (when preparing anchors or clearing obstructions)	Cuts/lacerations	<p>Wear the appropriate PPE e.g. protective chainsaw legwear, chaps or trousers.</p> <p>Saws should only be used by experienced/trained workers, or under supervision of a competent person.</p> <p>Ensure correct chainsaw technique is used.</p>
Flying debris	Personal injury	<p>Watch for flying debris when tightlining.</p>

Locations >> Layout and lineshift

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Handling wire rope	Personal injury	Avoid hand injuries from sprags by wearing gloves. Remove sprags with side-cutters. Ensure your footing is stable before pulling rope. Do not stand in the bight on a rope.
Rope Failure	Personal injury	Because of its lighter weight, strawline can move further than other ropes when it fails. Be aware of this when the strawline is loaded. Stand in a safe position. Lay out the strawline in as straight a line as is possible. Avoid excessive weight on the strawline. Ensure all joiners are correctly done up and capable of passing any blocks.

Locations >> Roading and bridges

Sources

OSH Department of Labour - Safety Code for Forest Operations Part 3 Logging

Hazards	Possible Consequences	Safe Work Practices
Bridging	Bridge collapse	<p>All bridges and their approaches should be designed and built to accepted engineering standards so as to support the expected maximum load giving consideration to the appropriate safety factor and whether the bridge is wooden, steel or concrete.</p> <p>All approaches to and exits from bridges should be constructed to allow vehicles as straight an access way as practicable and have optimum visibility for all users.</p> <p>Approaches to bridges should contain gradual grade changes rather than sudden changes.</p> <p>The running surfaces of bridges should be provided with non-slip materials to prevent vehicle sliding in adverse conditions.</p> <p>An annual inspection should be undertaken of all bridges by a competent person and records of each inspection kept.</p> <p>Bridges that have been affected by forest fires, floods or heavy rain should be inspected as soon as possible thereafter and any defects remedied prior to the bridge being used again.</p> <p>The minimum standards for a timber bridge decking - refer picture.</p> <ul style="list-style-type: none"> a. Width - tracks 2.5 m; roads 2.6 m. b. Decking planks (nailed) - 150 mm x 75 mm. c. Running planks (nailed) - 150 mm x 50 mm. d. Curbed rails and blocks (bolted) - 150 mm x 150 mm or equivalent in round wood. <p>Ensure silt and debris are cleared away from bridge surfaces on a regular basis.</p>
Road access	Vehicle collision Vehicle overturning	<p>Access to work sites should be kept open at all times or machines kept on site that are capable of clearing a way to immediate access in the event of an injury or emergency.</p> <p>All roads, tracks and bridges used for regular access to work sites should be maintained to ensure the safe</p>

Locations >> Roading and bridges

Sources

OSH Department of Labour - Safety Code for Forest Operations Part 3 Logging

Hazards	Possible Consequences	Safe Work Practices
		<p>a. On blind corners laying back of batters or cutting of a narrow bench about 1 m above the water table at the time of construction increases sight distance.</p> <p>b. Ensure sight distances are maintained by cutting back vegetation or removing obstructions.</p> <p>Where surface tracking, fire breaking or road formation has been carried out all hung up and leaning trees and trees whose roots have been interfered with should be felled.</p> <p>Prior to operations commencing in an area such felling work should be carried out by hand felling or machine by competent persons.</p> <p>Adequate provision should be made for passing bays on one lane roadways:</p> <p>a. A passing bay should be located where practicable on level ground and give adequate sight distance in both directions.</p> <p>b. Limits of compacted fill should be marked so that vehicles do not move onto unstable ground.</p> <p>Evacuation routes and procedures in case of emergencies should be incorporated in the initial planning stage.</p> <p>Any unstable part of the road should be rectified and an adequate warning of slips, wash outs or repair work provided by using signs approved by Transit New Zealand - refer picture.</p> <p>All approaches to and exits from bridges should be constructed to allow vehicles as straight an access way as possible and have optimum visibility for all users.</p> <p>Bridge running surfaces should be the same height as the roadway at either end.</p>
Road construction	Vehicle collision Vehicle overturning	<p>Typical cross sections for one way and two way roads - refer picture.</p> <p>Vehicles must match the standard of roading access. Guidelines to road standards required for tracks, one-way and two-way roads - refer picture.</p>

Locations >> Roading and bridges

Sources

OSH Department of Labour - Safety Code for Forest Operations Part 3 Logging

Hazards	Possible Consequences	Safe Work Practices
		<p>In broken and steep terrain it may be necessary to reduce curve radii. Adequate super-elevation allowance must be made to give safety against sliding sideways.</p> <p>Ensure adequate culverts and drains are provided to ensure surface water is carried away.</p> <p>To ensure the safe passage of all vehicles ensure all roads and regularly used tracks have a non slip running surface.</p> <p>Permanent filling must be compacted to recognised engineering standards and be free of log, vegetation, wet material or top soil. This particularly applies to passing bays on one-lane roads.</p> <p>Uncompacted fill tends to increase the apparent road width and the compacted berm edge should be marked with pegs or posts so that vehicles do not move or travel on the uncompacted fill/unstable ground.</p>
Road maintenance	Vehicle collision Vehicle overturning	<p>The following minimum standards should be adhered to:</p> <ol style="list-style-type: none"> 1. All loose material should be removed from water tables and culvert inlets and outlets. 2. Flumes should be checked and cleared where necessary. 3. Cut outs for water disposal and soak pits for ponding should be checked regularly. 4. Traffic control signs should be in place and visible. 5. Temporary signs that are no longer valid should be removed. 6. Ensure that any impeding vegetation or obstructions are removed to maintain maximum sight distances. 7. Unstable parts of the road formation should be rectified. 8. Provide adequate warning of slips and wash outs and also when repair work is being carried out. 9. Road surfaces should be maintained so as to be free of defects.

Locations >> Safety at fires and burnoffs

Sources

Forest Industries Training - Best Practice guidelines for Fire Fighting and Controlled Burn-offs

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
Exposure to radiant heat	Burns	<p>Use shovel blade to protect face from radiated heat if necessary and cover exposed skin.</p> <p>If someone receives a burn:</p> <ol style="list-style-type: none"> 1. Cool the burn with water for 10 minutes. 2. Seek immediate medical help. 3. Watch for and treat for shock, such as maintain open airway, place the person on his/her back with legs elevated, keep them warm, comfortable and calm, and give nothing by mouth.
Exposure to smoke	Inhalation	<p>Stay on the upwind edge of the fire.</p> <p>Have a smoke mask available.</p> <p>Stay close to the ground if in smoke.</p> <p>Move to a safe area to recover.</p>
Fires and controlled burnoffs	Burns Death	<p>Ensure all employees are aware of planned escape routes.</p> <p>An alternative escape route should also be planned in case the original route is cut off.</p> <p>Pay attention to changes in the fire movement. Watch for wind changes and whirlwinds.</p> <p>Do not go into unburnt areas uphill or downwind of the fire.</p> <p>Do not run through flames unless you can see clear ground beyond them.</p> <p>Only fit persons properly trained and prepared or training under adequate supervision should attend fires and burnoffs.</p>

Locations >> Safety at fires and burnoffs

Sources

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OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
		<p>messages otherwise keep voices down.</p> <p>Workers should have established some means of communication if working outside the calling distance of another person.</p> <p>Work at a steady pace, pause to recuperate if required, drink plenty of liquid to replace excessive sweat loss.</p> <p>In the event of a flurry of flames, lie on the ground, clear of vegetation and protect the head with shovel blade. Keep breathing shallow and wear handkerchief over mouth and nose.</p> <p>Ensure persons work at least 3 m apart when using hand tools and increase this distance to the length of the tallest vegetation apart if felling vegetation.</p>
Incorrect clothing	Burns Death	<p>No person should attend a fire or burn off unless they are appropriately dressed. The minimum standard of dress is:</p> <ol style="list-style-type: none"> 1. Lace up steel capped leather work boots (woollen socks). 2. Safety helmet. 3. Heavy cuffless trousers, long sleeved heavy shirt or pullover (all items preferably wool) or fire resistant overalls. 4. Balaclava and gloves to protect against radiant heat. 5. Safety goggles. 6. Dust mask to protect against ash and dust. 7. Full water bottles to prevent dehydration. 8. Small pack to carry extra clothing and some food.

Locations >> Safety at fires and burnoffs

Sources

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OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
		<p>UNACCEPTABLE clothing includes:</p> <ol style="list-style-type: none"> 1. Nylon or synthetic clothing (including chainsaw chaps and clothing). 2. Shorts and short sleeved shirts. 3. Cotton overalls unless worn over heavy trousers etc. 4. Loose fitting or light footwear. 5. Rubber boots. 6. Clothing that restricts normal movement. 7. Protective clothing that may restrict vision.
Out of planned burn area	Burns Uncontrolled fires	<p>Install adequate fire breaks.</p> <p>Have an observer looking for spot fires from a vantage point.</p> <p>Have the fire perimeter manned with trained and equipped staff to stop the spread of fire.</p> <p>Light the fire in a controlled manner.</p>
Power lines	Electric shock Burns	<p>Ensure that fires are not lit under or near power lines as electrical discharge through the smoke may occur.</p> <p>Do not spray water near power lines or electrified railway lines.</p> <p>Look for fallen lines in the burnt area.</p> <p>Confirm lines are dead before attempting to extinguish burning power poles.</p>

Locations >> Safety at fires and burnoffs

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Hazards	Possible Consequences	Safe Work Practices
		<p>area.</p> <ol style="list-style-type: none"> 2. If available use your RT or cellphone to let organisers know where you are and what you are doing. 3. Wind up the windows, close the doors and close any vents. 4. Switch on the vehicle's hazard lights. 5. Keep below the level of the windows and cover yourself with any loose clothing, blankets etc. 6. Do not leave the engine or air conditioner on. 7. DO NOT GET OUT OF THE VEHICLE AND MOVE AWAY UNTIL THE FIRE HAS PASSED OR EASED. 8. IF THE VEHICLE ITSELF IGNITES, IT MAY BE NECESSARY TO ATTEMPT TO ESCAPE ON FOOT.
Trapped on foot	Burns Smoke inhalation	<p>If your planned escape route cannot be used and no alternative exists then you (and crew) must dig in and wait for the fire to pass. Stay calm - refer picture.</p> <ol style="list-style-type: none"> 1. Select an area of little or no unburnt fuel. 2. Find shelter behind any available features (rocks, banks) to reduce the effects of the radiant heat. 3. Dig a shallow trench and loosen the soil in a 1 m side zone around the trench. 4. If available use water to wet down the area. Set up a hose to provide a cover spray over the crew. 5. Ensure other members of the crew are able to do the same. 6. Lie face down in the trench and shield yourself, clothing and helmet. You can also use your shovel to protect your face.

Locations >> Safety at fires and burnoffs

Sources

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Hazards	Possible Consequences	Safe Work Practices
		<p>9. DO NOT RUN UPHILL OR DOWN WIND OF THE FIRE.</p> <p>10. DO NOT RUN THROUGH THE FLAMES UNLESS YOU CAN SEE CLEAR GROUND BEYOND.</p>
Using hand burners	Burns Smoke inhalation	<p>Do not use petrol to start a fire or as an accelerant.</p> <p>When using a handburner the operator must be accompanied by at least one other person.</p> <p>Lighting parties must have some means of communication with other groups.</p> <p>Minimise fuel splash on operator's clothing and ensure replacement overalls are available and used as necessary.</p> <p>Follow the planned lightup pattern. Do not deviate unless instructed to do so.</p> <p>Do not lightup while moving up steep slopes.</p> <p>Light gullies on the way down.</p> <p>Always know your planned escape route.</p>
Vehicles and plant	Burns Smoke inhalation	<p>Leave vehicles parked facing the direction for the escape route.</p> <p>Ensure the doors are closed, windows wound up and the key in the ignition.</p> <p>Park the vehicles in such a position that other vehicles may pass.</p> <p>Avoid bringing vehicles that are towing trailers close to fires.</p> <p>Any vehicle should travel with lights on.</p> <p>Do not approach any machinery until the operator indicates that it is safe to do so as smoke may hinder the</p>

Locations >> Seed collection

Sources

OSH Department of Labour - Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Workplace Safety Board of Tasmania - Draft Code of Practice Forestry

Hazards	Possible Consequences	Safe Work Practices
Failure to wear safety belts	Falling	<p>Safety belts should be worn when working above 5 m in height.</p> <p>Climbers should use a climbing rope, slings or safety line when free climbing and securely attach themselves to at least one anchor point at all times.</p> <p>Safety belts must be suitable for the specified job and have two climbing ropes, one of which must be secured at all times.</p> <p>Anchor points should be sufficient to take the climber's weight.</p> <p>Safety belts should be correctly fitted and adjusted to eliminate slack as poorly fitted or loosely adjusted belts can cause significant bruising or more serious injuries in the event of a fall.</p> <p>When ascending or descending trees the user's arms must be completely free of hand tools.</p> <p>Hand tools should be carried in a properly constructed holder. Do not throw tools to the ground.</p> <p>Keep feet close to the trunk of the tree when on branches.</p>
Seed collection	Hit by falling objects Falling	<p>Ensure a visual inspection is undertaken at the start of seed collection. Hazards common to most types of seed collection are:</p> <ol style="list-style-type: none">1. Power lines.2. Dead or damaged branches.3. Portions of other trees lodged in the tree.4. Steeply sloping branches.

Locations >> Seed collection

Sources

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Workplace Safety Board of Tasmania - Draft Code of Practice Forestry

Hazards	Possible Consequences	Safe Work Practices
		<p>Workers should only climb if there is visible or audible contact with another person who is able to give or summon help in an emergency.</p> <p>All persons on the ground in the vicinity of picking operations should wear a safety helmet.</p> <p>Avoid collecting seeds when winds are above 30 km per hour.</p> <p>Clothing should be close fitting with nothing loose to catch on branches.</p> <p>Wear light footwear e.g. sandals or basketball boots.</p> <p>Seed collectors should wear head protection e.g. light bump hats.</p> <p>Do not overfill collection bags.</p> <p>Ladders should be regularly checked and any defects repaired before being used.</p> <p>Particular attention should be given to the junction of the styles and the rungs, interlocking joints and chains and pins.</p> <p>When using ladders on sloping ground always work from the uphill side of the tree.</p> <p>Maintain three points of contact when ascending or descending i.e. two hands and one foot or two feet and one hand. Do not jump.</p>

Locations >> Skids/landings

Sources

Forest Industries Training Best Practice Guidelines

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

OSH Department of Labour - Forestry Bulletins

Hazards	Possible Consequences	Safe Work Practices
Working on skids	Slip/trip/fall Vehicle collision Struck by falling object	<p>Ensure skid sites are adequately drained and of sufficient size for the storage of log sorts and for skid workers and machines to work safely on clear ground on the longest logs to be extracted.</p> <p>Work areas should be organised and spaced so that the actions of one worker will not create hazards to another worker.</p> <p>Workers should :</p> <ul style="list-style-type: none">a. Stay clear of log loaders.b. Watch for swinging or suspended logs.c. Watch for the radius of swing of boom loaders.d. Not pass alongside trucks being loaded.e. Try to face operating machines if possible.f. Remain in view.g. Notify machine operator when leaving and/or returning to the skid area. <p>Machine operators approaching the skid area should slow down and note the position of skid workers. Fast approach and turns can cause logs in the drag to swing and either hit workers, move other logs or dislodge logs from the stockpile.</p> <p>To allow strops to be safely removed the drag after dropping the drag on the skid the rope tension should be released and the machine moved forward and stopped.</p> <p>When using boom loaders ensure a gap of at least 1 m is left between the loader counter weights and any log heap or solid objects. This will ensure that persons have a safe position passing behind the loader.</p>

Locations >> Skids/landings

Sources

Forest Industries Training Best Practice Guidelines

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OSH Department of Labour - Forestry Bulletins

Hazards	Possible Consequences	Safe Work Practices
		<p>When loaders are using public or private roads for sorting, stacking or loading logs observe the following:</p> <ul style="list-style-type: none">a. When a public road is involved the only acceptable sign is "Other Hazard" (!) sign with the supplementary "Logging" plate.b. Any conditions laid down by the local road controlling authority should be complied with.c. Where a private road is involved existing signs may be used till they require replacement. They should be replaced with the signs outlined in a. above.d. When there is a danger to road users from trees or flying debris falling or being thrown to the road, the road should be closed or a flagman employed to direct road users. <p>Before operations begin all dangerous trees within reach of the skid should be removed, paying particular attention to trees leaning towards the skid and those disturbed in skid formation.</p> <p>Before operations begin any materials such as rocks, stumps and overhangs should be removed to prevent them falling onto the skid site.</p> <p>Any cast materials such as rocks or stumps should be inspected to ensure they cannot be dislodged when hauling commences.</p> <p>Ensure that any unstable logging debris accumulated around the edge of the skid are removed before workers enter the hazard zone.</p> <p>Waste such as limbs and tops should be removed on a regular basis from the log landing so that such material does not impede the movement of workers or machinery.</p> <p>Logs stacked end-on to a roadway should be stacked in such a manner so that end-on sliding towards the roadway will not occur.</p>

Locations >> Skids/landings

Sources

Forest Industries Training Best Practice Guidelines

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Hazards	Possible Consequences	Safe Work Practices
		<p>trees or the way they are lying on the skid.</p> <p>Chainsaws should not be used for cross cutting on stacked or heaped logs.</p> <p>Ensure a designated area is set aside for the maintenance and sharpening of chainsaws. This area must be clear of skid activity.</p> <p>Ensure workers' vehicles are parked well clear of the skid area.</p> <p>Machine operators should ensure people are clear before blading or straddling logs.</p> <p>To enable strops to be safely removed from the drag after dropping it on the skid, machine operators should release rope tension, move machine forward and stop.</p> <p>Workers should not work under operating ropes unless in an approved protected cab.</p> <p>No load or log should be swung above or within reach of any person.</p> <p>Ensure the plant used for loading and unloading plant operations has adequate lifting capacity.</p> <p>Forked loaders should:</p> <ul style="list-style-type: none">a. support loads with both forksb. be fitted with a log clamp to secure logs and round wood.

Locations >> Working alone

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

HSE - Health and Safety Executive - UK

Alberta Human Resources and Employment - Health and Safety Working Alone - Best Practices

Hazards	Possible Consequences	Safe Work Practices
Working alone	Death/serious injury	<p>Lone workers should not be at more risk than other employees. Employers should therefore identify situations where people working alone are at more risk and should consider the following safe work practices/precautions:</p> <p>Any precautions should take account of normal work and foreseeable emergencies, e.g. fire, equipment failure, illness and accident.</p> <p>Ensure all plant, substances and goods involved in the work procedures can be safely handled by one person.</p> <p>Ensure that employees working alone have no medical conditions that may make them unsuitable for working alone. Consider both routine work and foreseeable emergencies which may impose additional physical and mental burdens on the individual.</p> <p>Ensure any objects that require manual handling can be safely lifted by one person. If not the employee needs to be provided with mechanical handling equipment.</p> <p>Where practicable, avoid operating mobile plant alone in isolated areas. Use the following methods to handle the situation:</p> <ol style="list-style-type: none">1. Work mobile plant in pairs wherever possible.2. Employ an observer to avoid working alone on hazardous work.3. If mobile plant operating alone in isolated areas on non hazardous work it should be equipped with radio, mobile telephone or other aids to summon assistance in the event of an emergency. <p>Ensure that employees are trained in the correct use and safe work practices of plant and equipment used on site.</p> <p>Hazardous equipment should have a dead-man switch to prevent activation of the equipment. The switch should always be in good working order.</p>

Locations >> Working alone

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

HSE - Health and Safety Executive - UK

Alberta Human Resources and Employment - Health and Safety Working Alone - Best Practices

Hazards	Possible Consequences	Safe Work Practices
		<p>and help in situations of uncertainty. Training may be critical to avoid panic reactions in unusual situations.</p> <p>Employers should set the limits to what can and cannot be done while working alone e.g. when to stop work and seek advice from a supervisor and how to handle aggression.</p> <p>Employers should undertake periodic site visits combined with discussions in which health and safety issues are raised.</p> <p>Ensure regular contact is made where employees are working alone by either telephone or radio telephones (RTs).</p> <p>Employees should: sign out before the job, provide information on travelling plan, the location of work undertaken, and an estimated time of return.</p> <p>Ensure checks are made that an employee working alone has returned to their base or home on completion of the task e.g. overdue employee procedure.</p> <p>Employees working alone on new sites should familiarise themselves with all relevant emergency procedures for the specific site e.g. evacuation procedures.</p> <p>Employees should carry the required first aid supplies.</p> <p>Employees should carry the necessary personal protective equipment.</p>

Locations >> Rivers, streams and lakes

Sources

NZ Mountain Safety Council

Hazards	Possible Consequences	Safe Work Practices
Crossing rivers and streams	Drowning	<p>Take extreme care when crossing rivers. If practicable cross rivers in groups with arms linked rather than alone.</p> <p>Always look up river before entering for signs of floating debris and objects.</p> <p>If river is swollen, dirty or debris and rocks are moving within the water do not attempt to cross.</p> <p>Wear tight fitting footwear when crossing waterways. Open gumboots will fill with water quickly and hinder movement.</p> <p>If you are working alone ensure others know your whereabouts and the expected time of your return.</p> <p>When crossing slide your feet along the bottom to feel your way carefully before placing full weight. Use a long stick to feel your way first.</p> <p>Keep well clear of unstable banks and edges.</p>
Exposure and/or submersion in cold water	Hypothermia	<p>If working outdoors wear 3 layers of protective clothing. This should consist of 2 inner layers of insulation e.g. polypropylene, polyfleece, down or wool. If required wear an outer layer for waterproofing and wind protection e.g. Gore-Tex/Nylon.</p>

Locations >> Tree felling sites

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Tree Felling

Hazards	Possible Consequences	Safe Work Practices
Cut up trees	Crushing Death/serious injury	<p>Cut-up trees must not be left unattended and should be brought to the ground as soon as possible or isolated from the operation.</p> <p>No person outside of a protected machine cab should be within two tree lengths of the intended or likely direction of a fall of a cut-up tree.</p> <p>There are two options that should be used to fell cut-up trees.</p> <ol style="list-style-type: none"> 1. Use a machine to assist the fall of the cut-up tree. 2. When a machine is not present: <ol style="list-style-type: none"> a) If practicable bore a single bar width into the centre of the back cut. Insert a wedge into the bore cut and drive it home until the tree falls. b) Make a second series of cuts the diameter of the tree above the original cuts and fell directly to the new lean - refer picture. <p>Cut-up trees must be treated with caution as a change in wind direction or strength may be sufficient to push the tree over.</p>
Hung up trees	Crushing Death/serious injury	<p>Hung-up trees must be brought to the ground immediately or the offending tree isolated from the operation.</p> <p>Do not leave hung-up trees unattended.</p> <p>The faller may only leave the area before the tree has been brought to the ground to seek assistance.</p> <p>Never work under a hang-up.</p> <p>Where practicable, machine assistance should be used for hung-up trees.</p> <p>Under no circumstances should the tree in which the hang-up is lodged be felled manually.</p>

Locations >> Tree felling sites

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Tree Felling

Hazards	Possible Consequences	Safe Work Practices
		<p>In thinning operations a cant-hook, a levering device or posting can be used to dislodge the tree.</p> <p>In clearfell the two options for bringing down a hung-up tree are tree driving or the use of machine assisted felling.</p>
Other felling operations	Crushing Death/serious injury	<p>You must not be within 2 tree lengths of other felling operations unless you are:</p> <ol style="list-style-type: none"> 1. Behind the tree being felled. 2. Positioned up the escape route in full view of the faller. 3. Able to see the top of the tree being felled from a safe position. <p>Other fallers must be aware of your presence.</p> <p>Use clear arranged procedures, techniques and signals.</p>
Tree felling operations	Crushing Cuts/lacerations Slipping/tripping/falling	<p>The following are the steps to be undertaken in basic tree felling operations.</p> <p>STEP 1: ASSESS THE FELLING AREA AND TREES TO BE FELLED</p> <p>Identify hazards, determine if tree can be felled safely and plan the felling cuts and operator's movements.</p> <p>Ensure you notify the person in charge of the felling operation your intention to enter the felling area.</p> <p>When approaching workers engaged in any felling operation ensure they are made aware of your presence by calling out loudly or by some other effective means.</p> <p>Do not enter the felling area until acknowledged or signalled to do so.</p> <p>All felling operations should be under the direct control of a competent person who is fully experienced in the</p>

Locations >> Tree felling sites

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Tree Felling

Hazards	Possible Consequences	Safe Work Practices
		<p>Fellers must maintain the distance of at least twice the height of the material being felled from other operations.</p> <p>All trees within two tree lengths of road and rail traffic should not be felled unless suitable precautions have been taken to warn of oncoming traffic.</p> <p>Precautions should include the posting of warning signs and where necessary the placement of flag men at appropriate safe positions.</p> <p>The only acceptable sign is the "OTHER HAZARD" (!) with the supplementary "TREE FELLING" plate - refer picture.</p> <p>If overhead wires, gas lines or underground cables of any kind are present in the felling area the appropriate authority should be consulted and their requirements complied with.</p> <p>All dead or defective trees which could cause danger to persons using roads, skids or tracks should be felled before operations begin (this includes trees which have been disturbed during road or skid construction).</p> <p>STEP 2: CLEAR AROUND TREE AND PREPARE ESCAPE ROUTE</p> <p>Scrubs, vines and similar obstacles should be cleared from around the tree to be felled to provide an adequate work space and a clear escape route.</p> <p>Prepare an escape route which should be kept clear of tools and other materials that would impede a quick exit - refer picture.</p> <p>STEP 3: MAKE THE SCARF CUT AND THE BACK CUT</p> <p>The scarf and the back cut should be used on all trees above 20 cm in diameter - refer picture.</p> <p>Ensure you have a firm footing before making any chainsaw cuts.</p>

Locations >> Tree felling sites

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Tree Felling

Hazards	Possible Consequences	Safe Work Practices
		<p>Where practical make the scarf cut while standing on the right hand side of the tree in relation to the proposed direction of fall.</p> <p>On occasions when because of lean the opening of the scarf may have to be reduced or enlarged to suit unusual circumstances.</p> <p>Wind-damaged trees without tops should be scarfed deeper than normal but not more than half the diameter.</p> <p>Make the back cut noting the following points:</p> <ul style="list-style-type: none"> a) Where practicable make the back cut using a pulling chain (the bottom of the bar). b) Start the back cut directly behind the centre of the scarf. c) Continue the back cut ensuring the saw is kept horizontal. d) When the bar is far enough into the tree throttle off and insert a plastic or soft metal holding wedge into the centre of the back cut. e) Wear eye protection when inserting wedges, hit wedge squarely and ensure damaged wedges are not used. f) When you are close to the hinge wood slow the back cut, watch for tree top movement. <p>STEP 4: OBSERVE TREE FALLING</p> <p>Once the back cut is completed and the tree is beginning to fall remove saw from the cut. Switch saw off and move into the planned escape route.</p> <p>Watch for falling material and for the tree kicking back or bouncing once it hits the ground.</p>
Weather conditions	Crushing	Stop felling in heavy wind, rain and thunderstorms.

Locations >> Tree felling sites

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Tree Felling

Hazards	Possible Consequences	Safe Work Practices
Windthrown trees (when tree is blown over or broken).	Crushing Death/serious injury	<p>If possible adjust felling direction or move to a more favourable site.</p> <p>Manual felling of windthrown trees is very hazardous and should only be done by experienced fellers. Approach each windthrown tree with caution.</p> <p>The following are general guidelines for felling windthrown trees:</p> <p>Work from the outside of the stand in the direction of the wind throw.</p> <p>Where possible a machine should be used to complete or assist the felling operation.</p> <p>Machines and fallers should generally work close together, having the machine handy to assist if necessary.</p> <p>Use a machine to bring down standing but bent, leaning or partially uprooted trees.</p> <p>Assess how the stem is going to move when the tension is released - upwards and/or sideways.</p> <p>Assess the direction and how far the root plate is going to move when released.</p> <p>Do not stand where there is any danger of the root plate or stem springing back or any branches or slash moving towards you.</p> <p>Assess tree stress carefully and use the approved and appropriate technique.</p> <p>Have a cutter bar that is long enough to complete any cuts from the safe side of the tree.</p> <p>Never stand on trees when they are being cut.</p> <p>No person should work within two tree lengths forward of wind wrenched or damaged trees.</p>
Wrenched trees (still standing)	Crushing	Always assess the forces in the tree before commencing felling.

Locations >> Tree felling sites

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Forest Industries Training - Best Practice Guidelines for Tree Felling

Hazards	Possible Consequences	Safe Work Practices
		<p>Watch for changes in tree lean during and after cutting.</p> <p>Constantly assess the stability of the root plate as it is likely to move when cuts are made making your footing unstable.</p> <p>Do not fell in strong winds as wrenched trees are more susceptible to tree movement.</p> <p>Use machine assistance to eliminate or minimise risk.</p>

Locations >> Tree trimming sites

Sources

Forest Industries Training - Best Practice Guidelines for Tree Felling

OSH Department of Labour - Guidelines for Tree Felling and Cross Cutting

Hazards	Possible Consequences	Safe Work Practices
Elevated stems	Crushing Slipping/tripping/falling	Trim while standing on the top of the stem only where necessary. Do not work from the top of a stem over 1.5 m off the ground. Wear spiked boots. Cut supporting branches progressively to lower the stem to the ground - refer picture.
Ground vegetation/slash	Slipping/tripping/falling	Clear around where you plan to cut to provide: 1. An escape path. 2. Secure footing. 3. Reduced risk of kickback.
Limbing	Crushing Cuts/lacerations	Fatigue and injuries can be reduced by using the following lever limbing method - refer picture. 1. Start with the saw on the right hand side of the stem (working towards the top). Support the weight of the saw on the stem and use the forward running chain. 2. Tilt the saw onto its left side. Rest the cutter bar against the stem and use the forward running chain. 3. Support the saw between your thigh and the stem. Use the backward running change. 4. Move the saw towards the next branch, supporting it against your thigh. Use the forward running chain. 5. Tilt the saw onto its right side and rest the cutter bar or saw body on the stem. Use the forward running chain with your thumb operating the throttle. 6. Support the saw on the stem and use the backward running chain. Move forward and start again at step 1.

Locations >> Tree trimming sites

Sources

Forest Industries Training - Best Practice Guidelines for Tree Felling

OSH Department of Labour - Guidelines for Tree Felling and Cross Cutting

Hazards	Possible Consequences	Safe Work Practices
		<p>If you have identified a hazardous tree, felling of this tree must occur before trimming can start.</p>
Stem or branches	Cuts/lacerations	<p>Assess the degree of tension before making relieving cuts.</p> <p>Cut the compression side first - assess the degree of tension from the tendency to bind.</p> <p>Always cut from the safe side of the stem or branch.</p> <p>When cutting large branches it may necessary to make two cuts, the first being similar to a scarf in tree felling.</p> <p>In general when cutting large branches the following is recommended - refer picture.</p> <ol style="list-style-type: none"> 1. Cut off any light branches or scrub that are in the way. 2. Cut off outer sections of a large limb to reduce weight or tension. 3. Remove the main section of the branch.
Tree movement	Crushing	<p>Assess forces in the stem and branches prior to trimming.</p> <p>Trim only on the safe side of the stem or branch.</p> <p>Do not trim on slopes where the stem may move downhill when cut.</p> <p>If deemed unstable trim only on the up hill side of the stem.</p> <p>If in doubt, do not attempt to trim the tree.</p>

Locations >> Cable logging sites

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Adverse weather	Slip/trips/falls	Wind, rain, and snow can adversely affect cable operations. This is particularly so for breaker-outs and fallers - stop work if conditions become hazardous.
Anchor failure	Crushed Hit by moving object	<p>Ensure the anchor layout is correct to support the tower and working ropes.</p> <p>Ensure that one or two anchors behind the hauler are not taking the entire load unless it is a 2 guyline machine.</p> <p>If using stump anchors:</p> <ol style="list-style-type: none"> 1. Ensure they are correctly notched and rigged. 2. Use only fresh and sound stumps (less than 6 months old). 3. Check the condition of the stumps at the beginning of each run, looking for signs of movement. 4. If in doubt about the strength of a single stump, rig a multiple stumps anchor, or use an alternative anchoring method. <p>If using deadman anchors:</p> <ol style="list-style-type: none"> 1. Use one or two large logs, at least 5 m long. 2. Ensure the trench is at least 4 m deep, with an intact front wall. 3. Ensure the deadman is correctly installed. 4. Paint the stop where it exits the ground. Check for movement of the deadman at the beginning of each run. <p>If using a mobile tailhold:</p> <ol style="list-style-type: none"> 1. Ensure the attachment of the working rope is solid. 2. Ensure the tailhold is secured from moving forward when loaded (angled towards the load, blade or bucket

Locations >> Cable logging sites

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Damage to machine	Crushed Slip/trips/falls	<p>Do not operate a damaged machine that may be hazardous.</p> <p>Check wire rope for damage.</p> <p>Watch for failure of machine controls (e.g. air or fluid leaks).</p> <p>Be aware of block failure.</p> <p>Avoid tower failure by following manufacturer's rigging instructions.</p> <p>Be aware of loader movements around the guylines.</p> <p>Avoid over-spooling (birds nesting) on the drums.</p> <p>Ensure that the machine access is always clear and in good condition.</p>
Incorrect signals	Hit by moving object Crushed	<p>Ensure you use accepted audible and hand signals - refer picture.</p> <p>Ensure there is a clearly understood signalling system and it is functioning correctly.</p> <p>Ensure all workers in the operation are familiar with the signals used in their work.</p> <p>When audible signals are used the following signals should be adopted:</p> <ol style="list-style-type: none"> 1. One long plus one short blast = Start main rope. 2. One short blast = Stop any rope. 3. Two short blasts = Start tail rope. 4. One continuous blast = Emergency. <p>An audible signal should always be made before any major rope movement. The exceptions to this rule are:</p>

Locations >> Cable logging sites

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>Hauling should cease if the communication system in use cannot be clearly heard or seen and understood until the system is fully restored.</p> <p>Only one worker should give signals when stops are set. The only exception to this are "stop" and "emergency" signals.</p> <p>Any worker may give the emergency signal.</p>
Injury from machine maintenance	Skin irritation Hand injuries	<p>Take care when greasing the sheaves and fairlead swivels in the tower.</p> <p>Avoid skin irritation from contact with fuel and oil.</p> <p>Use your tools correctly to avoid hand injuries.</p>
Overloading	Personal injury	<p>Do not hook on drags that will overload the system.</p> <p>Unhook stems if necessary if the drag is too heavy.</p> <p>Ensure the skyline bandbrake is calibrated to slip at the safe working load of the skyline.</p> <p>Alternatively use a rope tension monitor to ensure that the system is not overloaded.</p> <p>Intentionally make the band brake slip at the beginning of each day.</p> <p>Ensure the safe working load of all rope and rigging equipment is at least the same as the safe working load of the working rope. Be aware that different rope constructions may increase or decrease rope strength.</p> <p>Avoid sudden movements in the ropes particularly when breaking out.</p>
Rope/rigging wear or failure	Personal injury	<p>Avoid shock loading.</p> <p>Replace worn or damaged ropes and rigging.</p>

Locations >> Cable logging sites

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Standing in dangerous positions	Crushed Hit by moving object	<p>Ensure rope/rigging strength is matched to the task.</p> <p>Do not stand within two tree lengths of a felling operation.</p> <p>Do not stand within one tree length of a drag being broken out.</p> <p>Do not stand downhill of the drag being broken out.</p> <p>Do not stand directly downhill of the landing while the drag is being landed or unhooked.</p> <p>Do not stand in the bight of a rope unless special precautions have been taken to protect yourself in the event of a block or anchor failure.</p> <p>Do not stand beneath a loaded or moving rope.</p> <p>Do not stand in front of the hauler when the drag is being landed.</p> <p>Do not stand beneath the landing where loader operators dump slash.</p> <p>Do not stand on an anchor stump or mobile tail hold when the working ropes are loaded.</p> <p>Do not stand beneath a load bearing guy line during a break-out and unhook.</p>
Terrain	Foot injury Slip/trips/falls	<p>Move carefully across the cutover to avoid losing your footing.</p> <p>Take the safest route.</p> <p>Wear spiked boots for added traction, unless in rocky terrain.</p> <p>Wear safety protective footwear that provides good ankle support (chainsaw-resistant gumboots are less suitable on steep terrain than lace-up boots).</p> <p>Ensure you have secure footing when working on a steep slope.</p>

Locations >> Cable logging sites

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Tower or machine instability	Hit by moving object	<p>Ensure the tower is correctly guyed to resist the applied forces.</p> <p>Regularly (at least daily) check the condition of the guy line and tail hold anchors.</p> <p>Ensure the hauler is located on stable and level ground.</p> <p>Ensure that the breaking strength of the ropes, rigging and anchors is matched to the breaking strength of the working ropes.</p> <p>Do not overload the cable system.</p> <p>Regularly check the guy lines and tackle for damage or deterioration. Check every time a tower is lowered.</p>
Unexpected stem movement	Hit by moving object	<p>Keep at least one tree length away from the stems that are being broken out.</p> <p>Do not approach stems that you suspect of being unstable.</p> <p>Hook on stems that are stable. As these are broken out they should move remaining unstable stems.</p> <p>Always stand in a position where you can move if necessary and have an escape route planned should evasive action be required.</p> <p>Watch for stems that are not part of the drag moving during break-out.</p> <p>Watch for stems on the landing being moved by incoming drags.</p>
Unplanned rope or rigging movement	Hit by moving object	<p>Ensure the rigging has stopped moving before approaching.</p> <p>When lowering the rigging, signal the hauler operator to stop when the strops hit the ground.</p> <p>Watch for bounce in the rope that could raise or lower the carriage or rigging.</p>
Unprotected moving machine	Caught in moving parts	<p>Shut the machine down before carrying out maintenance checks or repairs on moving parts.</p>

Locations >> Elevated support

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
Chainsaw work	Cuts Personal injury	<p>Wear appropriate personal protective equipment when required, e.g. ear muffs and safety goggles.</p> <p>Pre-warm the saw on the ground.</p> <p>If starting the saw up the tree, ensure the chain brake is activated, hold the saw with a straight arm, and use short sharp pulls.</p> <p>Use the correct cutting techniques. Use wedges where appropriate (see Best Practice Guidelines for Tree Felling for further details).</p> <p>Use compression and tension cuts when trimming heavy branches.</p> <p>Do not cut in front or to the left of your body - adjust your position.</p> <p>Do not use the saw above shoulder height.</p> <p>Complete the felling cuts from a position on the side of the tree (not directly in front or behind the intended direction of fall).</p> <p>When not required, activate the chain brake and lower the chainsaw on its rope so that it is below the level of your feet.</p> <p>When the top begins to fall, activate the chain brake and lower the saw on its rope.</p> <p>Brace for possible tree movement. Place one hand against the tree to avoid hitting it with your face.</p>
Climbing and working up trees	Fall Personal injury Head injury	<p>Tree work should be carried out by a skilled worker, or under the close supervision of a competent person.</p> <p>Use the correct climbing technique.</p> <p>Tree climbing requires two people - both capable of climbing.</p> <p>Employees should be trained in the correct technique for tree rescue.</p>

Locations >> Elevated support

Sources

Forest Industries Training Best Practice Guidelines

Hazards	Possible Consequences	Safe Work Practices
		<p>position behind the tree.</p> <p>The second person (on the ground) must stand in a safe position where the activity up the tree can be clearly seen and to the side of the intended direction of fall.</p>
Equipment failure	Fall Hand injury	<p>Ensure all climbing and rigging equipment is in sound order before using it. Replace if necessary.</p> <p>Only put the irons on when you are about to climb the tree.</p> <p>Ensure all climbing equipment is safe and used correctly (have the harness positioned below your waist).</p> <p>Ensure the climbing spurs are positively engaged before climbing.</p> <p>Ensure there are two sets of climbing equipment - one as a spare.</p> <p>Wear the safety helmet when climbing - you may need a chin-strap.</p> <p>Wear gloves to protect your hands when moving the climbing rope (the must still allow you to adjust the climbing rope adequately).</p>

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
Computers and workstations	OOS Muscle strain Eye strain	<p>Ensure that your workstation is arranged to fit you.</p> <p>Ensure employees new to keyboard work or those returning from an absence of two weeks or more have a suitable period of adjustment before being allocated a full workload of keyboard duties.</p> <p>Ensure operators receive adequate training in appropriate work practices, are supplied with appropriate furniture and equipment and are trained to achieve a suitable working posture.</p> <p>Ensure operators take rest breaks from keying, either 2-3 minutes in each 15-20 minutes, 5 minutes in each 30 minutes or 10 minutes in each hour.</p> <p>Non-repetitive work may be performed during these breaks. These should not involve frequent or rapid movements of the hands or fingers.</p> <p>Encourage the early reporting of any symptoms of occupational overuse.</p> <p>Initiate a work assessment and modification if an operator reports symptoms of occupational overuse.</p> <p>Avoid cradling the place between the head and shoulder. Hold the phone with your hand, use a speaker phone or a headset.</p> <p>Arrange your work area to ensure all materials, equipment and controls can be easily reached without stretching or twisting.</p> <p>Start keyboard work slowly each day to warm up to the task, and cool down by reducing your keystroke rate at the end of each day.</p> <p>Never accumulate work breaks.</p> <p>A good posture is one in which you are comfortable and well supported by properly adjusted furniture. It reduces muscle strain and fatigue - refer picture.</p>

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<ul style="list-style-type: none">a. Shoulders relaxedb. Elbows level with home row of keys and close to sides of bodyc. Wrists straightd. Ample leg roome. Balanced, upright head positionf. Backrest supports the spineg. Avoid pressure at the front edge of the seath. Feet firmly supported. <p>Chairs for most keyboard activities should not have arm rests.</p> <p>For fixed height desks:</p> <ul style="list-style-type: none">1. Chair height - adjust the chair so that your elbow tips are at the same level as the home row (ASDF) of keys.2. Footstool - adjust the height so that your hips are slightly lower than your knees. <p>For adjustable height desks:</p> <ul style="list-style-type: none">1. Chair height - adjust the chair so that your feet are flat on the floor and your hips are slightly lower than your knees.2. Desk height - adjust the desk so that your elbow tips are at the same level as the home row (ASDF) of

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">1. Lumbar support - adjust the height of the back rest to support the lumbar curve (small) of your back. To find your lumbar curve, hold your arms behind your back and comfortably clasp the opposite forearm near the elbow.2. Seat depth - adjust the seat depth so that you are firmly supported by the back rest and can still fit 3 fingers between the front of your seat and the back of your legs.3. Screen:<ol style="list-style-type: none">a. Adjust the top of the screen to the level of your eyes with the centre of the VDU screen no higher than 400mm above the work surface.b. Position the screen at a comfortable viewing distance usually between 400-550mm from the table front edge.c. Users of VDU screens should have their eyes tested prior to starting work with VDUs and every two years afterwards if over the age of 40, or whenever problems are experienced.d. If you use glasses, single strength lenses are suggested. Using bi-focal or multi-focal lenses is not recommended.e. Ensure steps are taken to minimise glare on the monitor screen.f. Apply task lighting if necessary.g. Clean the monitor screen on a regular basis.4. Document holder - the ideal location for source material is adjacent to the screen and at the same visual distance from the user.

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<p>Hold the mouse between your thumb and your fourth and fifth fingers. Your second and third fingers should rest lightly on the mouse buttons.</p> <p>Use a mouse pad as this makes controlling the mouse easier.</p> <p>LAPTOPS</p> <p>When using laptop or notebook PCs in the office, use a full size screen and keyboard.</p> <p>If a PC must be regularly used both in the office and in the field, use a desk docking system.</p>
Lack of workplace exercises	OOS Muscle strain	<p>Exercise to promote blood flow and reverse the effects of muscle tension.</p> <ul style="list-style-type: none"> a. Arm shakes - refer picture. b. Forearm circling - refer picture. c. Forearm turns - refer picture. d. Shoulder rolls - refer picture. e. Circling arms - refer picture. f. Wrist flaps - refer picture.
Photocopying machines/laser printers	Inhalation Skin contact Noise and heat	<p>Purchase a photocopier or laser printer with low ozone emission specifications and/or fitted with an activated carbon filter.</p> <p>Regularly maintain the photocopier, laser printer and filter.</p>

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<p>Use containerised toner systems and automatic shut-down devices on waste toner compartments.</p> <p>Switch off copier and allow components to stand for a few minutes to cool before attempting to remove paper.</p> <p>Use non-metal tongs to remove paper but ensure machine is switched OFF.</p> <p>MUSCLE STRAIN</p> <p>Long periods of photocopying or collating in a badly designed work area can cause physical discomfort and strain.</p> <p>Position photocopiers and collation tables at a comfortable height.</p> <p>Alternate repetitive jobs with other duties.</p> <p>Store boxes of photocopy/printing paper at knee height rather than floor level to make lifting and carrying easier.</p> <p>Checklist for the safe use of office copying machines - refer picture.</p> <ol style="list-style-type: none">1. Equipment should be installed in an adequately ventilated area to facilitate safe removal of any dusts, gases or vapours.2. If installed in an enclosed room, mechanical ventilation may be required.3. There should be adequate space around copiers to allow for good airflow and to facilitate maintenance.4. Equipment should be regularly maintained.5. The working surface of the copier should be at a comfortable height for the operator.

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<p>7. For any chemicals used, MSDSs should be readily available.</p> <p>All photocopiers should be installed in well ventilated areas and positioned so that any fumes emitted are not directed into the breathing zone of the operator or other employees.</p> <p>Photocopiers should be maintained regularly, in accordance with the manufacturer's recommendations. A record should be kept of all maintenance undertaken.</p> <p>All chemicals (developers and toners) used in photocopiers should be clearly labelled as to contents and be used and stored strictly in accordance with the manufacturer's with the manufacturer's recommendations.</p> <p>Those responsible for replenishing photocopiers with chemicals should wear the appropriate Personal Protective Equipment (PPE) as specified by an MSDS and any other PPE recommended by the chemical manufacturer.</p> <p>Photocopiers should be positioned in an area where they do not prevent occupants of the workplace vacating the premises safely and quickly in an emergency.</p> <p>HIGH VOLUME PHOTOCOPIERS:</p> <p>Local exhaust ventilation should be provided.</p> <p>Where photocopiers are provided with an independent ventilation system, a time delay system should be fitted that maintains the operation of the ventilation system to remove all fumes present when the photocopier has shut down after use.</p> <p>A separate room is usually required for high volume photocopiers machines so as to ensure adequate noise insulation as well as providing heat and fume control.</p>
Working in small office	Electric shock	ELECTRICITY:

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<p>Regularly test Residual Current Devices (RCDs) if fitted.</p> <p>If the RCD trips, it is a sign there is a fault. Check the system before using it again.</p> <p>Ensure regular visual inspections of plugs and leads are completed and get them repaired as necessary. Faults to look out for are:</p> <ol style="list-style-type: none">1. Physical damage to the cables, plugs and sockets.2. Signs of overheating. <p>Switch off equipment before unplugging and before cleaning.</p> <p>Do not ignore obvious tell-tale signs such as faulty switching or intermittent stopping. These may indicate an internal fault such as a loose wire which could cause external metal work to become live.</p> <p>SLIPS/TRIPS/FALLS:</p> <p>Clear up spillages quickly.</p> <p>Replace or repair torn floor coverings and worn or damaged stairs.</p> <p>Provide handrails on stairways and ensure stairs are well lit.</p> <p>Do not block passageways or corridors.</p> <p>Use only safety step stools or ladders for climbing up. Do not stand on chairs (especially on swivel chairs).</p> <p>Place telephone cords, cables etc. out of the way of traffic.</p> <p>Apply non-slip floor coating where appropriate.</p>

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<p>ENVIRONMENT:</p> <p>For most offices opening windows should provide adequate air ventilation.</p> <p>Ensure there is adequate light, preferably natural light to avoid problems of visual fatigue.</p> <p>Ensure passageways are well lit.</p> <p>The room temperature should be between at least 17 and 22 degrees Celsius where people work sitting down.</p> <p>NOISE:</p> <p>Select the quietest equipment possible.</p> <p>Ensure proper maintenance for equipment such as lubrication and tightening of loose parts that can cause noise.</p> <p>Locate loud equipment in areas where the effects are less detrimental e.g. place impact printers away from areas where people must use the phone.</p> <p>Use barrier walls or dividers to isolate noise sources e.g. use buffers or acoustically treated materials to absorb noise. Use rubber pads to insulate vibrating equipment.</p> <p>Enclose equipment such as printers with acoustical covers or housings.</p> <p>Schedule noisy tasks at times when it will have less of an impact on other tasks in the office.</p> <p>EMERGENCY PROCEDURES:</p> <p>Exits should be marked and kept clear.</p>

Locations >> Office environments

Sources

Health & Safety Executive - UK - Officewise

How to use your VDU safely - OSH Department of Labour

Safetyline - WorkSafe, Western Australia

Hazards	Possible Consequences	Safe Work Practices
		<p>Establish and ensure all staff trained in emergency evacuation procedures.</p> <p>FILING CABINETS:</p> <p>Drawers should not open onto aisles.</p> <p>Load cabinets from the bottom for stability.</p> <p>Only open one drawer at a time.</p> <p>Drawers should not be left open.</p> <p>Tall filing cabinets/bookcases should be secured or anchored.</p> <p>Modify height and reach - refer picture.</p> <ul style="list-style-type: none">a. Don't overreach.b. Use a step stool.c. Files should not be too big to handle.d. Break down to smaller files.

People >> Hypothermia

Sources

Princeton University - Outdoor Action Guide to Hypothermia and Cold Weather Injuries

Hazards	Possible Consequences	Safe Work Practices
Working in a cold/wet environment	Hypothermia	<p>Signs of hypothermia are a medical emergency: you MUST NOT ignore them - watch for symptoms.</p> <p>If working outdoors wear 3 layers of protective clothing. This should consist of 2 inner layers of insulation e.g. polypropylene, polyfleece, down or wool. If required, wear an outer layer for waterproofing and wind protection e.g. Gore-Tex/nylon.</p> <p>Take special care to properly cover the head as well as the feet, hands and face. 40% of body heat can be lost through your head.</p> <p>Reduce heat loss by applying additional/dry clothing.</p> <p>Try to maintain some form of physical activity.</p> <p>Find shelter from the elements.</p> <p>Give the victim warm, sweet drinks - calories plus heat source.</p> <p>Give no alcohol or caffeine (this is a diuretic-causes water loss increasing dehydration).</p> <p>Keep victim lying down.</p> <p>No rubbing or rapid reheating.</p> <p>Add heat - build a fire or use other external heat source such as a sleeping bag.</p> <p>Use body to body contact. Get into a sleeping bag, in dry clothing with a person who has normal body temperature in lightweight clothing.</p>
Working in adverse weather conditions	Loss of concentration	<p>Keep warm and dry, if possible.</p> <p>Carry a low reading thermometer if required.</p> <p>Eat high energy foods e.g. cheese, bread, barley sugars, chocolate and snack bars.</p>

People >> Hypothermia

Sources

Princeton University - Outdoor Action Guide to Hypothermia and Cold Weather Injuries

Hazards	Possible Consequences	Safe Work Practices
		Allow time for breaks and work or walk at your own pace.
Working in an extremely cold/wet environment	Severe hypothermia	<p>If help is available within the hour:</p> <ol style="list-style-type: none">1. Do not attempt to rewarm the person.2. Keep victim stable.3. Treat with extreme gentleness (rough handling can cause cardiac arrest).4. If person is unconscious put them in the recovery position.5. Seek assistance from emergency services. <p>If expert help is more than one hour away:</p> <ol style="list-style-type: none">1. Attempt to rewarm the person, even if they appear dead.2. Reduce heat loss by providing a shell of total insulation for the patient.3. Make sure the victim is dry and has a polypropylene layer to minimise sweating on the skin.4. The victim must be protected from any moisture in the environment.5. Use multiple sleeping bags, wool blankets, wool clothing.6. Provide fuels and fluids - warm sugar water.7. Do not give any foods that need to be digested.

People >> Contractors

Sources

Health and Safety in Employment Act 1992

Hazards	Possible Consequences	Safe Work Practices
Engaging and working with contractors	Incidents and injuries involving contractors	<p>The principal has a legal obligation to ensure that employees and contractors are not harmed while at work - refer picture for legal definitions.</p> <p>The hierarchy of responsibility under the HSE Act 1992 is - refer picture.</p> <p>DUTIES OF PRINCIPAL:</p> <ol style="list-style-type: none"> 1. The principal agrees to supply the contractor a copy of its emergency procedures and hazard register. 2. The principal agrees to supply a copy of near hit/minor and serious accident reporting forms as and when required. 3. The principal agrees to make available a copy of its health and safety policies and procedures. 4. The principal or the principal's representative will carry out periodic inspection checks of sites. <p>PROCEDURES FOR ENGAGING AND WORKING WITH CONTRACTORS:</p> <ol style="list-style-type: none"> 1. Have a written contract with a contractor who is required by the terms of the contract to work outside of their own place of work. 2. This contract must have a health and safety component and you need to satisfy yourself that any contractors you engage have adequate health and safety programmes and that the requirements of the programme are consistently met. 3. Monitor the health and safety compliance of any contractor who is required by the terms of the contract to work on either your site or outside of the contractor's own place of work. 4. Inform contractors of existing hazards and potential hazards BEFORE they enter your workplace. 5. These contracted people include other tradespeople e.g. electricians, plumbers, painters. <p>DUTIES OF CONTRACTOR:</p> <ol style="list-style-type: none"> 1. The contractor agrees to ensure that all employees working (or other persons engaged) on the contract have

People >> Contractors

Sources

Health and Safety in Employment Act 1992

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">2. The contractor agrees to ensure that all employees working (or other persons engaged) on the contract have seen the principal's health and safety policies and procedures and agree to comply with them, and the HSE Act 1992.3. The contractor agrees to ensure that all employees working (or other persons engaged) on the contract have been shown all emergency procedures, have a full understanding of the hazards they will be exposed to and have been given a full induction.4. The contractor agrees to take all practicable steps to ensure the safety of employees (or other persons engaged) while at work, in terms of Section 6 of the HSE Act 1992 .5. The contractor agrees to where possible identify and eliminate/isolate/minimise hazards in terms of Sections 7-10 of the HSE Act 1992.6. The contractor agrees to operate its own health and safety system.7. The contractor will ensure that its employees and any other persons engaged are given adequate training in Health and Safety, and are supplied with appropriate safety equipment which its staff and others engaged will use at all appropriate times.8. The contractor undertakes to have and maintain an appropriate first aid cabinet/kit in each vehicle coming onto a site owned by the principal. The contractor will allow the agent of the principal to inspect the cabinet/kit at monthly intervals.9. The contractor agrees to complete accident forms supplied and to report on any near hits, in terms of the HSE Act 1992, and to return a copy of these to the principal within 4 days.10. The contractor agrees to inform the principal of the hazards that the contractor will bring on to, or create on the work site.11. The contractor will make available for inspection their safety records over the previous two (2) years.12. The contractor shall not sub-contract without the written approval of the principal.

People >> Stress

Sources

National Institute of Occupational Safety and Health - Agricultural Safety and Health Series: Stress on the Farm

Saskatchewan - Agriculture and Food Managing Farm Stress

University of Kentucky College of Agriculture Cooperative

Hazards	Possible Consequences	Safe Work Practices
Deterioration in health and inefficiency in the workplace	Headaches Lack of concentration Physical and emotional weakness Poor digestion/eating habits Poor management decisions Tiredness	<p>Talking about problems is a good way to relieve stress. Choose someone you can be honest with, and then share your problems and discuss solutions with them.</p> <p>Recognise stress indicators. This might be a tightening of the neck and shoulders, stomach problems, or changes in behaviour or relationships. The body is equipped with a complex system that gives warning signs when the stress level is too high.</p> <p>When feeling stressed, evaluate the cause. Eliminate those that are minor and the ones which you have the ability to control.</p> <p>When dealing with a major problem, try to break it down into smaller parts. Pick out one job and concentrate on getting it done. Once that task is completed, go on to the next one.</p> <p>Schedule the time realistically. Don't try and squeeze more work into a day than can be completed.</p> <p>Take occasional short breaks from work. A few minutes will provide a refreshing start to the job.</p> <p>Learn how to relax. Sit back in a chair and concentrate on relaxing tense muscles.</p> <p>Develop other interests that will help you forget about your problems for a while. Go to a movie or get involved in sports or hobbies.</p> <p>Exercise. Regular physical activity makes a person feel better and eases tension at the same time.</p> <p>Eat well. A balanced diet is good for physical and mental health. Food is fuel for the body. The better the input, the better the output.</p> <p>Sleep and rest. Make sure to get enough sleep and rest to refresh the mind and body.</p> <p>Balance work and play. Besides being just plain fun, recreation can help a person enjoy work more.</p>

People >> Noise

Sources

OSH Department of Labour - Noise Guidelines

WorkSafe Western Australia - Safetyline - Noise Management in the Construction Industry a Practical Approach

Workers Health Centre Granville NSW Australia - Loud Noises Dangerous to your Health

WorkSafe Western Australia - Safetyline - Working Quiet 1 and 2

Hazards	Possible Consequences	Safe Work Practices
Ignoring early warning signs	Hearing damage Loss of hearing	<p>Danger signals are:</p> <ol style="list-style-type: none">1. Do you have to shout to be heard at work?2. Is your hearing dulled after work?3. Do you have ringing in your ears?4. Do you have trouble following a conversation in a crowded place?5. Have your friends and family complained that you have the TV or radio turned up too loudly? <p>Health effects from excessive noise are:</p> <ol style="list-style-type: none">1. Ringing in the ears can be very distracting and cause severe difficulties in concentration or sleep.2. Noise can affect the sense of balance causing dizziness.3. Noise is a source of stress, stress can lead to tiredness, irritability and headaches.4. Noise can raise blood pressure putting strain on the heart.5. Noise affects the eyes, causing loss of clarity and colour perception and impaired night vision. Fine close work becomes difficult as noise causes the pupils of the eyes to dilate.6. Noise increases the risk of incidents and injuries by masking sounds of approaching danger or warnings.7. Noise also increases the risk of incidents and injuries through its effect on balance and concentration.

People >> Noise

Sources

OSH Department of Labour - Noise Guidelines

WorkSafe Western Australia - Safetyline - Noise Management in the Construction Industry a Practical Approach

Workers Health Centre Granville NSW Australia - Loud Noises Dangerous to your Health

WorkSafe Western Australia - Safetyline - Working Quiet 1 and 2

Hazards	Possible Consequences	Safe Work Practices
		<p>New ear cushions are required on grade 4 ear muffs every 12 months.</p> <p>Ear muff cushions mould to the shape of the original wearer. This cushion plays a key role in the protection level of the ear muffs. It is therefore recommended employees only wear ear muffs that have been issued to them.</p> <p>When positioning the ear muffs ensure that hair (long or thick hair) does not affect the cushion's ability to seal against the operator's head.</p> <p>Ensure the side arms of safety glasses do not reduce the effectiveness of ear muffs. This can be achieved by purchasing glasses having bent side arms.</p>
Maintenance of machinery and plant	Hearing damage Loss of hearing	Regularly maintain power tools and machinery and keep the components well oiled and change old or loose parts, vibrating mounts, silencers etc - refer picture.
Noise exposure	Hearing damage Loss of hearing	Whenever noise exceeds the noise exposure standard of 85 dB(A) over an 8 hour period and a peak noise level of 140 dB, an employer must take steps to reduce the noise - refer picture.
Noise levels around plant and machinery	Hearing damage Loss of hearing	<p>Eliminate the source e.g. fit any noise dampers that are available.</p> <p>Maintain mufflers and silencers to ensure maximum efficiency.</p> <p>Minimise the noise exposure e.g. people can swap between noisy and quiet jobs.</p> <p>Always wear personal hearing protection when necessary.</p> <p>Laying out the site to separate noisy activities from quieter ones.</p>

People >> Noise

Sources

OSH Department of Labour - Noise Guidelines

WorkSafe Western Australia - Safetyline - Noise Management in the Construction Industry a Practical Approach

Workers Health Centre Granville NSW Australia - Loud Noises Dangerous to your Health

WorkSafe Western Australia - Safetyline - Working Quiet 1 and 2

Hazards	Possible Consequences	Safe Work Practices
		<p>Reducing noise from identified noise sources by exchanging equipment and or processes for a quieter alternative or by engineering control methods to quieten the existing process or equipment.</p> <p>If noisy areas are identified they should be well sign posted so employees and contractors can avoid entering them unnecessarily.</p> <p>Utilise tailgate meetings to provide feedback on effectiveness of noise control measures and personal hearing protection.</p>

People >> Visitors

Sources

OSH Department of Labour Approved Code of Practice for Safety and Health in Forest Operations

Hazards	Possible Consequences	Safe Work Practices
Visitors on site	Personal injury	<p>Visitors to a forestry work site should have prior approval of the person in charge to ensure that they are:</p> <ol style="list-style-type: none">1. Designated a safe area, or2. Guided so that they are not harmed in the place of work. <p>Persons in charge of the place of work should stipulate the minimum requirements for protective clothing and equipment for visitors.</p> <p>Persons under the age of 15 are not permitted in the vicinity of any forestry operation while work is being carried out unless:</p> <ol style="list-style-type: none">1. They have permission from the person in charge.2. They are under the constant supervision of a responsible person. <p>No person should visit a forest operation whilst under the influence of drugs and alcohol.</p>

People >> Dehydration and nutrition

Sources

Camelbak Hydration Systems Commercial Catalogue 2000

Forest Industries Training Best Practice Guidelines for Tree Planting

Worksafe Safety Board of Tasmania and Workplace Standards Tasmania

WorkSafe Western Australia - SafetyLine - Heat Stress

Hazards	Possible Consequences	Safe Work Practices
Contributing characteristics to heat stress	Heat stress	<p>You have a higher risk of heat stress if:</p> <ol style="list-style-type: none"> 1. You are not physically fit. 2. You are overweight. 3. You have a chronic illness like heart disease or diabetes. 4. You drink alcohol or take drugs (either illegal drugs or prescription drugs). 5. You are dehydrated from diarrhoea. 6. You wear heavy or tight clothing. 7. You are not used to working in the heat - it can take between 4-7 days to become acclimatized. 8. You wear some kind of personal equipment on the job. <p>Eat well. A balanced diet is good for physical and mental health. Food is fuel for the body. The better the input, the better the output.</p>
Intense physical activity in adverse conditions	Dehydration Heat stress	<p>Schedule heavy work and tasks which require use of personal protective equipment for cooler times during the day.</p> <p>Provide shade where possible, at least for rest periods.</p> <p>Provide frequent rest breaks to allow people to cool down.</p>

People >> Dehydration and nutrition

Sources

Camelbak Hydration Systems Commercial Catalogue 2000

Forest Industries Training Best Practice Guidelines for Tree Planting

Worksafe Safety Board of Tasmania and Workplace Standards Tasmania

WorkSafe Western Australia - SafetyLine - Heat Stress

Hazards	Possible Consequences	Safe Work Practices
		<p>Organise systems for employees to report heat related discomfort.</p> <p>Increase air movement for example use extraction and ventilation equipment where appropriate.</p> <p>Provide ready access to cool drinking water.</p> <p>Anticipate conditions that will increase the need for water, including high temperature, humidity, protective clothing and difficulty of work.</p> <p>Drink before, during and after physical labour to replace body fluid lost in sweating - refer picture.</p> <p>Drink every 15-20 minutes to ensure proper hydration - by the time you're thirsty you are already dehydrated.</p> <p>Keep water within easy reach.</p> <p>Drink cool water - it is absorbed more quickly by your body.</p>
Nightshift nutrition	<p>Sleepiness</p> <p>Indigestion</p> <p>Heartburn</p> <p>Constipation</p>	<p>The activity of the digestive system is reduced at night. Indigestion, heartburn and constipation may occur. Extra food eaten at night may be stored as fat rather than used up to provide energy. You might:</p> <ol style="list-style-type: none"> 1. Try having two meals at the regular times and a light meal in the middle of the night shift. 2. Consider having the largest meal of the day after the day-sleep. 3. Take a meal at or before 1.00 a.m. The effects of a meal may be to decrease alertness in the second part of the night shift so it is better to eat before you become fatigued.

People >> Dehydration and nutrition

Sources

Camelbak Hydration Systems Commercial Catalogue 2000

Forest Industries Training Best Practice Guidelines for Tree Planting

Worksafe Safety Board of Tasmania and Workplace Standards Tasmania

WorkSafe Western Australia - SafetyLine - Heat Stress

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none"> 2. Eat high protein foods like lean meat, chicken, eggs, milk, and cheese at night. 3. Eat at the start of a break and rest to allow digestion. 4. Eat light meals, high in carbohydrates, based on rice, pasta or bread, that are easy to digest. Avoid meals heavy in calories or with a high fat content because they take longer to digest and may make you feel drowsy. 5. Snack on fresh fruit and milk products and avoid spicy and fried foods. 6. Limit the amount of coffee towards the end of your shift, and avoid coffee in the last few hours prior to sleeping as coffee can keep you awake when you are trying to sleep at home. 7. Always eat a high-carbohydrate snack straight after work. 8. Drink less caffeine and high sugar drinks.
<p>Unsuitable clothing for hot environments</p>	<p>Heat stress</p>	<p>Suitable work clothing for hot environments:</p> <ol style="list-style-type: none"> 1. Wear light coloured clothing that reflects radiant heat. 2. Wear loose clothing of loosely woven natural fibre, where such clothing is not a safety hazard, as these assist with the evaporation of sweat. 3. Fit wide brimmed attachments on helmets to protect from direct sunlight. 4. Wear broad brimmed hats that shade head, neck face and ears.

People >> First aid

Sources

OSH Department of Labour - Approved Code of Practice - Forest Establishment and Silviculture

Hazards	Possible Consequences	Safe Work Practices
Working in forestry	Burns Cuts/lacerations Eye damage Slipping/tripping/falling	<p>At all bush undertakings, first aid treatment for the injured should be in the hands of a person who by training or experience is the most qualified to do so.</p> <p>A holder of a current first aid certificate issued by St. John, Red Cross, or an instructor recognised by OSH should be present in each gang.</p> <p>A first aid kit or box should be kept in each vehicle and at each work area. Vehicle kits or boxes can be substituted for those required at each work area, provided the vehicle remains at the work site.</p> <p>Every box or kit should be kept fully stocked to the minimum requirements and shall be stored so as to ensure that the contents are protected against contamination by dust, heat, moisture or any other source - refer picture.</p> <p>All chainsaw and brushcutter operators should carry on their belt a first aid kit consisting of at least two large sterile wound dressings. This kit must comply with the requirements for protection against contamination.</p> <p>A suitable stretcher should be readily available for use in an emergency.</p> <p>No seriously injured person shall be moved until a careful assessment of the extent of injuries has been made.</p> <p>If it appears to the person making the examination that there is a risk of complication of the injury, the patient shall be made as comfortable as possible until qualified medical advice is available.</p> <p>Where there is no radio or telephone communication available, a vehicle should be kept available at all times while work is in progress for use as a means of transporting or obtaining assistance for injured workers.</p> <p>Where a worker suffers any injury, the employer or person in charge shall take immediate action to ensure adequate or necessary medical assistance is provided as soon as possible.</p>

People >> Manual handling

Sources

Forest Industries Training - Best Practice Guidelines for Silvicultural Pruning

ACC Fact Sheet

The Forest Professional - Guidelines for the Stewards of Tomorrow's Forests

Hazards	Possible Consequences	Safe Work Practices
Carrying blocks	Back/muscle strain Slipping/tripping/falling	Heavy blocks should be lifted with a stable stance and with the knees bent. Blocks should be picked up so they can be easily positioned on your back between your shoulder blades. Ensure there is some clothing between the block and your skin. Lean forward slightly when carrying block to ensure that your back and shoulders are taking the weight. This assists the block to be held in place with one hand on the open yoke and leaves the other hand free to keep your balance while walking.
Handling wire rope	Cuts/lacerations Slipping/tripping/falling	Avoid hand injuries from sprags by wearing suitable protective leather gloves. Remove sprags with side cutters. Ensure your footing is stable before pulling wire rope.
Incorrect use of chainsaw	Back/muscle strain Cuts/lacerations	When operating a chainsaw hold the saw firmly with both hands. Place left thumb under the handle - this reduces the chance that the saw will be wrenched from your hands if a kickback occurs - refer picture. The chainsaw operator's wrists should be straight. Bent wrists cause unnecessary muscle strain and your arms will become tired. Allow the saw to reach full speed before cutting and maintain the speed whilst cutting. Operate the saw between knees and hip for best control. Do not put yourself off balance by over stretching - refer picture. Keep close to the saw as this will put the least strain on your back - refer picture.

People >> Manual handling

Sources

Forest Industries Training - Best Practice Guidelines for Silvicultural Pruning

ACC Fact Sheet

The Forest Professional - Guidelines for the Stewards of Tomorrow's Forests

Hazards	Possible Consequences	Safe Work Practices
		<p>distribute its weight.</p> <p>Bend your knees not your back.</p>
Lack of sleep/rest	Fatigue	<p>Build short frequent rest breaks into your daily work routine.</p> <p>Take at least two evenly spaced 30 minute rest breaks during the working day.</p> <p>Go to bed earlier at night to replace the sleep you lose in the morning due to early starts.</p> <p>Once early starts have finished allow time for your body to recover.</p>
Lifting and handling	<p>Back/muscle strain</p> <p>Cuts/lacerations</p> <p>Slipping/tripping/falling</p>	<p>Avoid lifting excessive weights.</p> <p>Do not lift heavy items alone. If practicable lighten loads and make more than one trip if required.</p> <p>All lifting should be carried out with a straight back, holding the load close to your body and using your leg muscles and not your back - refer picture.</p> <p>Try to find easier ways to handle heavy loads. Use smaller, easily handled quantities of fertilisers etc. Use balanced lifting equipment, hydraulic lifting devices for mechanical distribution of materials.</p> <p>Carry loose rigging in a pack to leave your hands free for balance. Take the safest route (not always the shortest).</p> <p>Check to ensure there are no trip hazards in front of you or along your designated path before you lift the object.</p> <p>Ensure you are able to see over or around the load before attempting to carry.</p>

People >> Manual handling

Sources

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Hazards	Possible Consequences	Safe Work Practices
		<p>Start each day with a 10-15 minute warm up and then a few stretches.</p> <p>Start the day slowly until muscles are warmed up properly.</p> <p>If starting a new task, allow time for the body to get used to it before working at full speed.</p> <p>Do some stretches at the end of each working day.</p> <p>When returning to work after a period of absence e.g. leave or illness ensure you give your body time to readjust to the physical demands of the job.</p> <p>Avoid working in awkward postures, particularly those that are frequently repeated.</p> <p>Re-arrange work layout to reduce bending, twisting and reaching movements.</p> <p>Watch out for sharp edges, and wear gloves to protect your hands when necessary.</p> <p>If operating machinery adjust the seat (and controls) to suit your needs.</p>
<p>Poor nutrition</p>	<p>Fatigue</p>	<p>Start each day with a high carbohydrate breakfast like porridge, cereal, toast, bananas, pasta or potatoes.</p> <p>Eat high protein foods such as lean meat, chicken, eggs, milk and cheese at night.</p> <p>Eat at the start of a break and rest to allow digestion.</p> <p>Always eat a high carbohydrate snack straight after work.</p>

People >> Occupational diseases

Sources

HSE - Health and Safety Executive - UK

OSH Department of Labour - Guidelines for the Control of Occupational Acquired Leptospirosis

Hazards	Possible Consequences	Safe Work Practices
Exposure to leptospirosis	Leptospirosis	<p>Forestry related work is considered a high risk occupation which accounts for 24 leptospirosis cases annually per 100,000 employees.</p> <p>Forestry workers commonly contract leptospirosis because the risk of their work involves being cut or scratched e.g. pushing through branches and using saws and pruners.</p> <p>Infection can enter through the membranes of the eyes, nose or mouth, therefore:</p> <ol style="list-style-type: none">1. Cover all cuts and broken skin with waterproof plasters before and during work.2. Ensure you have an adequate supply of clean water to wash your hands before eating, drinking or smoking.3. Practice good personal hygiene but avoid harsh scrubbing of hands as it may cause breaks in the skin.
Exposure to tetanus through cuts/lacerations	Tetanus	<p>You get tetanus by having a cut or wound that becomes infected. The tetanus bacteria produce spores that are resistant to drying and they can survive in soil, street dust and dried fecal material. Tetanus is not spread person to person.</p> <p>Tetanus causes painful muscle spasms, typically affecting the jaw and neck but can also involve the muscles required for breathing. Other common signs of tetanus are irritability, restlessness, drooling, neck stiffness, sweating and fever.</p> <p>Ways to minimise the risk of becoming infected with tetanus are:</p> <ol style="list-style-type: none">1. Ensure employees are up to date with tetanus vaccinations. Boosters shots are required for adults every 10 years.2. Promptly clean minor wounds with plenty of soap and water.3. Seek prompt medical attention for any puncture injury, especially if the wound is contaminated with dirt or fecal matter.

People >> Occupational overuse syndrome (OOS)

Sources

National Occupational H&S Commission - Commonwealth of Australia - Overuse

Hazards	Possible Consequences	Safe Work Practices
Repetitive tasks	OOS	<p>Ensure good work organisation e.g. involve staff in planning and setting work schedules.</p> <p>Avoid understaffing, time pressure, insufficient rest breaks or fluctuating workloads.</p> <p>When returning to work after a period of absence e.g. leave or illness ensure you give your body time to readjust to the physical demands of the job.</p> <p>Watch for sudden increases in work rate; they show up deficiencies in tool design, work methods and work stations.</p> <p>Wear gloves to reduce jarring through the wrists.</p> <p>Avoid awkward postures; bent or deviated hand positions, twisted or bent work postures, sustained postures, repetition of similar movements, overhead work or high gripping forces.</p> <p>Use correct techniques e.g. roll pruners rather than use brute force.</p> <p>Work station should be designed correctly (fit, reach and see work easily).</p> <p>Watch for poorly designed hand tools. Ensure regular maintenance of tools is carried out.</p> <p>Try to ensure regular job or task rotation to avoid repetitive movements.</p> <p>Take regular breaks and try to do simple stretches and exercises to relax the muscles you use a lot in the job or task you are performing.</p> <p>Eliminate environmental factors as much as possible such as excessive or distracting noise, cold environment, localised vibration.</p> <p>Be aware of behavioural factors such as tendency to take on too much work, inability to relax, poor body awareness.</p>

People >> Vibration - hand and arm

Sources

HSE - Health and Safety Executive - UK

Hazards	Possible Consequences	Safe Work Practices
Hand-arm vibration	Loss of grip Numbness Painful wrist Sensory nerve damage	<p>Look for alternative ways of working which eliminate the vibrating equipment altogether.</p> <p>Mechanise or automate the work or change the way of working.</p> <p>Make sure your employees use the most appropriate equipment for each job (inappropriate equipment may take longer to do the job).</p> <p>Minimise the time individuals use the equipment e.g. job rotation.</p> <p>Break up periods of continuous equipment use by individuals (introduce other tasks).</p> <p>Design the job so that poor posture (which may cause strain on hands and arms) is avoided.</p> <p>Maintain tools to the manufacturer's specifications to avoid worsening vibration:</p> <ol style="list-style-type: none"> 1. Replace vibration mounts before they are worn out. 2. Ensure rotating parts are checked for balance and replace them if necessary. 3. Keep tools sharp. <p>Introduce a purchasing policy specifying low vibration performance for new equipment.</p> <p>Ask the manufacturer to add anti vibration mounts to isolate the operator from the vibration source.</p> <p>It is important to keep up your blood circulation while working so:</p> <ol style="list-style-type: none"> 1. Keep warm at work, especially your hands. Wear warm gloves and extra clothing if you work in the cold. Your blood circulation slows down when you work in the cold. 2. Don't smoke or at least cut down just before and while you are at work. Smoking affects blood flow. 3. Exercise your hands and fingers to improve blood flow. <p>Employers should train employees in the following:</p>

People >> Vibration - hand and arm

Sources

HSE - Health and Safety Executive - UK

Hazards	Possible Consequences	Safe Work Practices
		<ol style="list-style-type: none">2. The health effects of hand-arm vibration.3. Risk factors (e.g. high levels of vibration, daily length/regularity of exposure).4. How to recognise and report signs of injury.5. Ways to minimise risk including:<ol style="list-style-type: none">a. Changes to working practices to reduce vibration exposure.b. Correct selection, use and maintenance of equipment.c. How to use tools to reduce grips, force, strain etc.d. Maintenance of good blood circulation at work e.g. by keeping warm, exercising fingers and not smoking.

People >> Shiftwork

Sources

Worksafe Safety Board of Tasmania

Hazards	Possible Consequences	Safe Work Practices
Effect on home life	Fatigue Health effects	<p>LIFE AT HOME</p> <p>Just as your body follows a rhythm, so does your social and family life. The shiftworker is out of step.</p> <p>When you are awake, everyone else is sleeping, when you are at work, everyone else has free time. School age children may only see their shiftworking parents for short periods.</p> <p>Try to:</p> <ol style="list-style-type: none"> 1. Talk to your family ahead of time about problems that result from shiftwork and look for solutions. 2. Adjust to the household routine where possible. Give your partner or children the opportunity of making suggestions about how you can fit in with their activities. 3. Take pre-school children to a playgroup on the mornings before you sleep, or arrange with friends with small children to swap child minding duties on sleeping days. 4. Take over some household duties on days off. One of the advantages of shiftwork is that you will be home during the day. <p>PLANNING YOUR SOCIAL LIFE</p> <p>Normal social interactions with family and friends are so important that people may cut down their sleep time in order to take part in customary social activities. This can affect work performance. When on shiftwork you should:</p> <ol style="list-style-type: none"> 1. Plan to make the most of your time off. Let your friends know when you are free. 2. Use your free daytime, when others are working, for activities you like to do by yourself or do some of the jobs that might otherwise interfere with social occasions. 3. See if there are others on shiftwork who will join you in day time sport or other activity.
Lack of roster sytem	Fatigue	DEVISING AN EFFECTIVE ROSTER:

People >> Shiftwork

Sources

Worksafe Safety Board of Tasmania

Hazards	Possible Consequences	Safe Work Practices
		<p>needs.</p> <p>When organising a roster, safety factors should include:</p> <ol style="list-style-type: none">1. A work cycle that is no more than six 8-hour shifts or four 12-hour shifts. Avoid work cycles of more than seven continuous days.2. Moving with the clock. Studies show it's easier and safer to go from the morning shift to the afternoon shift to an evening shift and to repeat the same cycle.3. The effects of shiftwork are similar to jet lag and it is easier for people to delay sleep than to go to bed earlier.4. Limiting the number of nights worked in succession for safety reasons. Rotating rosters with shift changes every two or three days is preferable to seven-day rotating rosters or fixed shifts.5. Allowance for two free weekends in four.6. Evaluating the length of shift according to workload. Avoid long shifts when there is excessive heat, cold, noise, vibration, manual handling or exposure to hazardous substances.7. Occupational exposure levels are calculated as an average over an eight-hour day. When working longer shifts, exposure levels will need to be reassessed.8. Avoiding overtime before or after a night shift, a 12-hour or double shift or when there is heavy mental and physical strain involved.9. Reviewing work practices for night shiftworkers to incorporate as many safety checks as possible to overcome the tendency for reactions to slow down. This helps prevent accidents.10. Scheduling rest breaks during night shift to help workers maintain alertness. Try to have tasks involving interaction with other team members and plenty of movement to help them stay alert.11. Sedentary monotonous work performed in a comfortable and quiet environment is not conducive to staying awake.

People >> Shiftwork

Sources

Worksafe Safety Board of Tasmania

Hazards	Possible Consequences	Safe Work Practices
		<p>13. Having a minimum of 11 hours between shifts, preferably 12 hours.</p> <p>14. Making sure there is adequate changeover time allowed between each shift to allow briefing between workers. Systems for transfer of information and communication should be established and maintained.</p> <p>15. Trying to give workers at least one week's notice of their roster, longer if possible.</p> <p>16. Avoiding rostering someone to work alone at night. If this is impossible, those working alone should have a way of communicating with colleagues to allow social contact. Provide them with access to help should they be injured or threatened.</p> <p>17. Outside areas, walkways and workplace car parks should be clearly signposted, well lit and secure. Appropriate security arrangements should be made for shiftworkers, particularly when working after dark or over weekends.</p>
<p>Poor eating habits</p>	<p>Fatigue</p>	<p>YOU ARE WHAT YOU EAT</p> <p>The activity of the digestive system is reduced at night. Indigestion, heartburn and constipation may occur. Extra food eaten at night may be stored as fat rather than used up to provide energy. You might:</p> <ol style="list-style-type: none"> 1. Try having two meals at the regular times and a light meal in the middle of the night shift. 2. Consider having the largest meal of the day after the day-sleep. 3. Take a meal at or before 1.00 a.m. The effects of a meal may be to decrease shift alertness in the second part of the night shift so it is better to eat before you become fatigued. <p>WHAT TO EAT</p> <ol style="list-style-type: none"> 1. Eat light meals, high in carbohydrates, based on rice, pasta or bread, that are easy to digest. Avoid meals heavy in calories or with a high fat content because they take longer to digest and may make you feel drowsy. 2. Snack on fresh fruit and milk products and avoid spicy and fried foods.

People >> Shiftwork

Sources

Worksafe Safety Board of Tasmania

Hazards	Possible Consequences	Safe Work Practices
Working shifts	Health effects Disrupted sleep patterns Fatigue	<p>MANAGING ODD HOURS</p> <p>To avoid the build-up of fatigue while you are on night shift, you should get as close to your average amount of sleep as possible. The following hints may help:</p> <ol style="list-style-type: none"> 1. Try curtains with backing or blinds to reduce the light levels. 2. Sleeping in cool conditions helps in getting to and staying asleep. An air conditioner may help. 3. Reducing noise: <ol style="list-style-type: none"> a. With heavy curtains and sound insulation on the doors and windows. b. The hum of an airconditioner may mask minor noises from the outside. c. Let close neighbours know when you will be sleeping in the daytime so they can avoid mowing or noisy car repairs. 4. Maintain a regular sleep schedule. A minimum of four hours sleep is desirable, but try to allow at least seven hours in bed. Rest without sleep is still beneficial for the body. 5. Try different sleep times in the daytime to find which suits best - straight after work, before the next night shift or part of both. 6. Try relaxing between work and bed. Some shift workers prefer to go straight to bed while others find it better to read or watch television first. 7. Don't get upset if you can't sleep straight away. Read the paper or watch television. Remember, rest in itself is important. 8. Don't drink too much liquid before going to bed. 9. Avoid coffee in the last few hours prior to sleeping.

People >> Shiftwork

Sources

Worksafe Safety Board of Tasmania

Hazards	Possible Consequences	Safe Work Practices
		<p>11. Be cautious with the use of sleeping tablets. They may help for a few days but should not be used in the long term.</p> <p>Heavy smokers have difficulties in going for long periods without a cigarette, especially during the day.</p> <p>Craving for a cigarette may wake you up. If you give up smoking you will sleep poorly until your body adjusts, but then your sleep will improve.</p> <p>OTHER HELPFUL HINTS:</p> <ol style="list-style-type: none">1. Have a short sleep of between one to four hours before your first night shift to help reduce sleepiness at work.2. Have a short sleep on reaching home, when coming off night shifts into days off, and go to bed earlier that night. A good sleep at night is the quickest way of getting the body clock back to normal.3. Don't take on any extra work that could reduce the time available for sleep, especially when you are on night shift.4. Organise your social life, particularly at weekends, so you still get adequate sleep. <p>FATIGUE AFTER YOUR SHIFT</p> <p>Fatigue and sleepiness on the job are the major problems but fatigue after the shift is over is also important. Remember to:</p> <ol style="list-style-type: none">1. Be particularly careful when driving home after the night shift. Never drive if you've worked a double shift.2. Keep your mind active by listening to the radio.3. Be wary of using the car heater as you may become drowsy in a warm car. <p>PHYSICAL FITNESS</p> <p>General physical fitness is important:</p>

People >> Shiftwork

Sources

Worksafe Safety Board of Tasmania

Hazards	Possible Consequences	Safe Work Practices
		<p>2. Join a gym or sports club so you can make use of their facilities on your days off.</p> <p>3. See your doctor if you are on regular medication (e.g. insulin for diabetes) or have a chronic recurring illness such as asthma, for advice before beginning shiftwork.</p> <p>4. Adapting to shiftwork is easy for some, others never adjust. Using commonsense rules for diet and physical fitness should help. Family understanding and co-operation can also reduce the upsets that seem to go with the shiftworker's lifestyle.</p> <p>WHO TO SEE FOR HELP</p> <p>If you find you are having difficulty adjusting to shiftwork, discuss the problems with:</p> <ol style="list-style-type: none">1. Your supervisor or manager.2. Occupational health nurse or doctor.3. Staff counsellor or employee advisory service. <p>They may help you find a solution.</p>

People >> Skin cancer

Sources

OSH Department of Labour, Farming Bulletin

WorkSafe Western Australia, Safetyline, Agriculture Skin Cancer

Saftek, Safety on the Farm Skin Cancer, Topic 5

Workcover Corporation of New South Wales

Hazards	Possible Consequences	Safe Work Practices
<p>Working outdoors increases exposure to ultraviolet radiation from the sun</p>	<p>Melanoma Skin Cancer Cataracts of the eye</p>	<p>Ensure sunscreen is broad spectrum and has a minimum SPF rating of 15+ and is applied to exposed skin including face, neck, arms and back of hands.</p> <p>Re-apply sunscreen regularly, especially if you are sweating.</p> <p>When applying sunscreen wipe it onto the skin, do not rub it into the skin.</p> <p>Lips should also be protected with sunscreen or lipstick with SPF rating of 15+ providing broad-spectrum protection.</p> <p>Remember the advice to SLIP SLOP SLAP.</p> <p>Wear sunglasses to help protect your eyes against the ultraviolet rays.</p> <p>Make use of shade areas wherever possible in the high risk hours.</p> <p>Have wide brimmed attachments on helmets to protect from direct sunlight.</p> <p>Wear loose fitting clothing where such clothing is not a safety hazard, which allows you to remain cool while still protecting you from the sun.</p> <p>Lighter coloured fabrics are cooler and reflect more of the sun's radiation.</p> <p>Shade protection added where possible e.g. canopies fitted to mobile plant that previously had no cover.</p> <p>Check your skin every few months for irregularities eg moles, in particular, those areas that are most often exposed to the sun.</p> <p>Seek doctor's advice if you have: unusual skin conditions that don't heal in 4 weeks, sore ulcers or scaly</p>

People >> Skin cancer

Sources

OSH Department of Labour, Farming Bulletin

WorkSafe Western Australia, Safetyline, Agriculture Skin Cancer

Saftek, Safety on the Farm Skin Cancer, Topic 5

Workcover Corporation of New South Wales

Hazards	Possible Consequences	Safe Work Practices
		<p>Photosensitising substances and medicines have the potential to increase absorption of UV radiation. Examples of medicines are cycline based antibiotics- Minocycline; some vitamins and some diurectics.</p> <p>Coal tar is an example of a substance which increases the skin's response to solar radiation.</p>

People >> New and young workers

Sources

Health & Safety Conference (NZISM) - September 2001

Hazards	Possible Consequences	Safe Work Practices
<p>Lack of experience, training and a sense of immortality/invincibility</p>	<p>Muscle strain Falls Electrocution Exposure to chemicals Dust Crushing Amputation Eye Injuries</p>	<p>In general most serious injuries occur to employees who are new, young or inexperienced and have less than six months experience.</p> <p>Pointers for employers when employing new workers:</p> <ol style="list-style-type: none"> 1. Induction should include verbal explanation, observation of the task and actually doing the task in a safe working environment with supervision. Just telling them or showing them is not the most effective way of training. Include in an induction: <ol style="list-style-type: none"> a. Any hazards associated with the job and the appropriate controls b. The safe way to do the job. c. A copy of the health and safety policy and procedures. d. Emergency exits, procedures and equipment. e. Facilities including toilets, meal rooms and first aid facilities. f. Explain safety signs, symbols and safety controls. g. Where to get personal protective equipment and how to use it safely. h. The procedures and forms for reporting a near hit. 2. Relationship building is important. Young workers may not have the confidence to say "I don't understand what you want me to do", or "I'm not comfortable doing it yet". This is the value of having them try the activity with supervision. 3. Positive and constructive reinforcement is needed all the way through. 4. Continually review and revisit. Don't assume that they got it all immediately. It takes time and repetition to commit something to long term memory. 5. Try reviewing it again within the next shift to satisfy yourself to know what they are doing. This should be

People >> New and young workers

Sources

Health & Safety Conference (NZISM) - September 2001

Hazards	Possible Consequences	Safe Work Practices
		<p>work practices are being followed.</p> <p>7. Supervise and enforce. They need more enforcement than a self directed adult. For them if they can get away with not wearing their PPE once they will do it again. Follow through with warning systems and consequences.</p> <p>8. Listen to them when they say they don't understand or when they think the process can be done better. This engages them in the work and the place of work, creates a feeling of importance and validation and caring about doing their work well.</p>

People >> Drugs and alcohol

Sources

Forest Industries Toolkit - Alcohol and Drug Free Workplace

Hazards	Possible Consequences	Safe Work Practices
Drugs and alcohol in the workplace	Serious injury Death	<p>A Drug and Alcohol Policy is designed to promote a drugs and alcohol use free workplace.</p> <p>Alcohol and Drug Use Statistics:</p> <ol style="list-style-type: none">1. 70% of abusers are employed.2. Abusers are 5 times more likely to cause accidents involving themselves and/or co-workers.3. 40% of industrial fatalities are caused by impaired employees. <p>The Forest Industry Toolkit - Alcohol and Drug Free Workplace is a specific guide to alcohol and drugs in the workplace and produced by NZ Forest Owners Association, Forest Industries Council, ACC Injury Prevention and Forest Industries Training.</p> <p>The toolkit is available from:</p> <ol style="list-style-type: none">1. New Zealand Forest Owners Association Inc., 4th Floor 85 The Terrace Wellington, Ph 04 4734769, Website: www.nzfoa.nzforestry.co.nz2. Forest Industries Training, Forest Research Campus, P.O. Box 6216, Rotorua, Phone 07 3487250, Email: forestindustries@training.org.nz, Website: www.training.org.nz