

Safety, Health & Environment Work Method Statement (SH&EWMS)

Project: Loreto School – Kirribilli – Risk Management

Project No: 2011 School year

SH&EWMS No: 001

Work Activity: Tree pruning and removals

ALL PERSONS INVOLVED IN THE WORKS MUST HAVE THE SH&EWMS EXPLAINED AND COMMUNICATED TO THEM PRIOR TO START OF WORKS.

SH&EWMS DETAILS

Brief Description of Work Activity: Risk Management tree works – a variety of arboriculture services – removal, pruning, stump grind and assessments

Location: 85 Carabella st, Kirribilli

Date: 2011

Employer/Contractor: Enviro Frontier Tree Management

ABN: 74 100 414 944

Date to be Reviewed: Dec 2011

Personnel Responsible for Monitoring this Activity:

Peter Dubiez

Codes of Practice / Standards Consulted:

These must be complied with.

- NSW OHS ACT 2000
- NSW OHS REGULATION 2001
- SURVEY REGULATIONS 2008
- DANGEROUS GOODS ACT 1975
- DANGEROUS GOODS REGULATIONS 1999
- PESTICIDES ACT 1999
- ELECTRICITY SUPPLY ACT 1995
- CODE OF PRACTICE CONSULTATION 2001
- CODE OF PRACTICE RISK ASSESSMENT 2001
- NSW – WORKCOVER CODE OF PRACTICE No. 34 – AMENITY TREE INDUSTRY (1998)
- AUSTRALIAN STANDARD - AS 4373 PRUNING OF AMENITY TREES (1996)
- NSW – WORKCOVER CODE OF PRACTICE – WORK NEAR OVERHEAD POWERLINES (2006)
- NSW WORKCOVER GENERAL INDUCTION FOR CONSTRUCTION WORK
- FIRST AID TRAINING

Plant and Equipment Required for this Activity:

5t truck & 12t truck / 30cm and 50cm mulchers/ Chainsaws / Climbing & rigging equipment/light vehicles

Details of Maintenance Checks Required for this Activity:

Maintenance checks required for the tools and equipment listed above will be Pre-start plant checklists completed on trucks, mulchers and chainsaws

Materials Used:

2 Stroke Fuel + oil / hydraulic oil / petrol / diesel

MSDS Required? (Yes / No)

Refer Addendum # 1

Personnel Qualifications Required for this Activity:

Relevant state certification for task has been undertaken or plant being operated

Refer Addendum # 2

Review and Corrective Actions:

SH&EWMS will be reviewed to the Schedule of Task Observations using the Task Observation sheet to ensure the work is being carried out to the statement, corrective action will be noted which are passed to the Supervisor/Foreman to carry out remedial work for close out.

Specific Training Required for this Activity:

All personnel to have completed a Site Induction. Must be trained in this SH&EWMS and have all relevant certification for this task.

Amenity Horticulture training, NSW WorkCover General Induction for Construction Work. Chainsaw Operations training, Current Drivers Licence **Refer Addendum # 2**

Personnel consulted on development of SH&EWMS:

Name:	Signature:	Name:	Signature:

Or accepted by Safety Representative name:

Signature:

Date:

<p style="text-align: center;">1-6 ACCEPTABLE = LOW - MEDIUM</p> <p style="text-align: center;">6-12 ACCEPTABLE WITH STRICT CONTROL MEASURES OR A SHORT DURATION = MEDIUM – HIGH</p> <p style="text-align: center;">12-25 UNACCEPTABLE = HIGH - EXTREME</p>						
Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
				prior to driving onto a site		
	Striking pits and services		M	<ul style="list-style-type: none"> Check for obstacles and excavations such as pits, drains, signal control boxes, fire hydrants etc 	L	
Complete Pre-Start	Untrained or unauthorised people in the worksite	OH&S Act 2000 Sec 8-9, 13, 20 OH&S Reg 2001 Sec 9-13.	H	<ul style="list-style-type: none"> Personnel to swipe on with Blue Glue induction card All personnel are to have the SHEWMS explained to them and sign off on it at pre-start meeting; All personnel are to wear the mandatory site PPE (Hi-visibility vest, Hard hat, medium impact eyewear, steel capped ankle high lace up boots, gloves. All Personnel are to be free from the effects of drugs and alcohol All persons are to be free from the effects of fatigue and be fit for duty 	M	Supervisor Operator
	Unauthorised Operator competency	OH&S Act 2000 Sec 8-9, 13, 20 OH&S Reg 2001 Sec 9-13.	M	<ul style="list-style-type: none"> Certificate of competency must be current and appropriate for the class of work performed 	L	Site Supervisor All Staff

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Working within the school grounds	Personal injury.	Safety & Reliability Management Plan OHS Act 2000 Sec 8, 13-16, 20, 21 OHS Regs 2001 Sec 9-17, 20	H	<p>The competencies required are: Ensure all personnel are inducted</p> <p>The PPE requirements are:</p> <ul style="list-style-type: none"> • Ensure all operatives have sufficient, correct and well maintained PPE to carry out the work. <p>Permit requirements are:</p> <ul style="list-style-type: none"> • Ensure all personnel sign onto the Pre Work briefing. <p>General requirements are:</p> <ul style="list-style-type: none"> • Evaluate work area to determine on site if there are any features or hazards that require a special risk assessment. • Fatigue management requirements to be compiled with and all persons to present for work in a fit, sober and healthy condition to perform their duties. • No tree lopping to be undertaken where there is potential for branches to impact building or pedestrians. All such trees are to be trimmed or removed within suitable working times 	M	Foreman, Safety Representative and All
	Slips/trips/falls due to uneven ground conditions.		H	<ul style="list-style-type: none"> • Step Back and identify any potential hazards. • Ankle length lace up safety boots for ankle stability. • Maintain high level of worksite housekeeping. 	M	All
	Pinched fingers		H	<ul style="list-style-type: none"> • Ensure no hands/fingers are positioned near loads when lifting or lowering. • Wear gloves during all work as required. 	L	All staff

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	Unauthorised entrance to the school. Working unprotected within the school	Safety & Reliability Management Plan School Rules & Procedures	H	<ul style="list-style-type: none"> Protection officer (PO) to be present and control and monitor access Only nominated staff access school grounds Worksite Protection and Pre – Work briefing records to be held by PO. 	M	Protection Officer
Climbing and Tree Dismantling						
Climbing and Tree Dismantling <i>Complete Worksite Hazard Assessment & Control (HAC Sheet)</i>	Incomplete assessment	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Random auditing. Training Worksite HAC Sheet Toolbox Talks Monitor Training Records 	M	Leading Hand
Climbing and Tree Dismantling <i>Manual Handling</i>	Slips and Trips		H	<ul style="list-style-type: none"> Employ manual handling training methods. Stack material appropriately. Cut branches to manageable size. Evaluate terrain Lift using mechanical means Use team lifting 	M	All crew
Climbing and Tree Dismantling <i>Traffic Control</i>	Exposure of operators to traffic or other machinery		H	<ul style="list-style-type: none"> Implement traffic management plans as per state requirements Wear high visibility clothing Appropriate Traffic Control Training 	M	All crew

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Climbing and Tree Dismantling <i>Traffic Control</i>	Material falling out of work zone on to vehicles or pedestrians.	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • Cut branches into small pieces. • Drop away from roadway. • Secure with rope and lower to ground • Correct traffic control • Maintain exclusion zone. • Delineate and divert road and pedestrian traffic away from work area 	M	Climber
Climbing and Tree Dismantling <i>Traffic Control</i>	Reversing hazards		H	<ul style="list-style-type: none"> • All vehicles to be fitted with lights. • Competent person to be in charge of vehicle • Hi visibility clothing to be worn at all times • Minimise reversing • Spotter to be utilised during all reversing 	M	Operator
Climbing and Tree Dismantling <i>Traffic Control</i>	Climatic Conditions		H	<ul style="list-style-type: none"> • Reconsider operations. • PPE (Wet Weather Equipment) • Conduct Step Back risk assessment to reevaluate risks during inclement weather 	M	All crew
Climbing and Tree Dismantling <i>Inspection of ropes, pulleys and slings</i>	Equipment failure	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • Inspect equipment to be used • Check / Test climbing, lowering, flip line ropes, prussik loops etc to ensure the sheath (outer) & core (inner) are not damaged by feeling for soft points in the core, by bending rope to form an eye at different sections in the rope: the two inside points should not lay flat on each other, inspect sheath for burns due to friction, rope is not to be fluffy, check for hardness or broken strands in the sheath, if present the rope is to be discarded, both end's are to be sealed, whipped or spliced. • Store ropes in a dry place free of tangles. • Do not store with cutting equipment, corrosive chemicals, fuel & oil or excessive sun exposure. 	M	Climber

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				<ul style="list-style-type: none"> Ropes are not to be tied or joined together to climb on or for lowering purposes. Training in use of equipment. 		
Climbing and Tree Dismantling <i>Inspect Tree</i>	Flora – trimming or removal of protected / rare species		M	<ul style="list-style-type: none"> Refer to cutting sheet Pre clearing checklist to be signed by leading hand during briefing. Ensure correct identification of species Refer to environmental management plan Contact supervisor or manager for further instructions 	L	Climber
Climbing and Tree Dismantling <i>Inspect Tree</i>	Stinging Insects – Bees, Wasps, Ants, Spiders	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Take appropriate care. Avoid where possible Use appropriate PPE 	M	Climber
Climbing and Tree Dismantling <i>Inspect Tree</i>	Fauna – Birds, Possums, Snakes, Koalas		M	<ul style="list-style-type: none"> As above Consult with Environmental management 	L	Climber
Climbing and Tree Dismantling <i>Inspect Tree</i>	Trees that can cause reactions		M	<ul style="list-style-type: none"> PPE. Take appropriate care. Provide washing facilities. Wear suitable clothing and gloves as required by site rules 	L	Climber
Climbing and Tree Dismantling <i>Inspect Tree</i>	Structural tree defects – Hollow trees Fungal infected trees Dead trees or trees with dead branches.		E	<ul style="list-style-type: none"> Consider alternative methods. Position away from where an impact may be caused by the defect. PPE Erect exclusion zone and tape off area. Conduct Step Back risk assessment to reevaluate 	M	Climber

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
	Weak branch structure			risks prior to commencing		
Climbing and Tree Dismantling <i>Inspect Tree</i>	Falling objects		H	<ul style="list-style-type: none"> • PPE • Monitor the worksite. • Cut in small pieces to manage fall zones • Delineate work area to control entry by unauthorised persons 	M	Climber
Climbing and Tree Dismantling <i>Inspect Tree</i>	Branches that cannot be removed safely with the equipment provided.	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • Use alternative equipment. • Use mechanical means • Employ top down method to cut down trees 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Falling while accessing tree		H	<ul style="list-style-type: none"> • Be attached to the tree at all times by using Two (2) points of attachment. • Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry • Consider EWP use 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Falling while going around a tree obstacle		H	<ul style="list-style-type: none"> • Use climbing rope and polestrap • Preload next attachment before disconnecting the last • Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry • Consider EWP use 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Falling caused by failure of anchor point		H	<ul style="list-style-type: none"> • Ensure anchor point can support rescue load. • Ensure anchor point is above work area or as close as possible to it • Use two (2) points of attachment • Aerial Rescue kit to be easily accessible, minimum 1 person trained in aerial rescue to be on site. 	M	Climber

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				<ul style="list-style-type: none"> Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry Consider EWP use 		
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Losing position and swinging into hazard such as live conductors or tree trunk		H	<ul style="list-style-type: none"> Choose anchor points for ropes that will allow you to swing away from any hazards should you slip or fall, as well as providing the safest working angle and position. Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Slipping down a tree with no suitable overhead support e.g. Palm Trees	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Use artificial anchor points. Consider EWP use 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Climbing rope coming undone, resulting in a fall		M	<ul style="list-style-type: none"> Ensure climbing knots are secure and do not slip under load. Use knots that are easy to tie and untie when required, and that knots incorrectly tied are re-tied. Inspect ropes prior to use. Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry Consider EWP use 	L	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Using a damaged climbing rope which fails, resulting in a fall.		M	<ul style="list-style-type: none"> Store ropes dry, free of tangles. Do not store with cutting equipment, corrosive chemicals, fuel and oil or excessive sun exposure. Ropes that have been spliced, knotted to make a repair or to permanently lengthen shall not be used. 	L	Climber

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				<ul style="list-style-type: none"> All rope ends shall be sealed, spliced or whipped to prevent fraying or unravelling. Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry Consider EWP use 		
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Climbing rope failing by cross friction.		M	<ul style="list-style-type: none"> Ensure ropes do not rub against each other. Adhere to requirements of WorkCover Code of Practice 34 – Tree Amenity Industry 	L	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Falling object.	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> Keep drop zone clear of obstruction and personal. PPE (Helmet) Control entry to authorised persons 	L	All crew
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Climber hurt in tree and unable to get down.		H	<ul style="list-style-type: none"> Carry aerial rescue kit Observer to be trained in aerial rescue. 	M	Leading Hand
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Work positioning harness not sufficient to prevent short fall.		H	<ul style="list-style-type: none"> Not to be used where there is a risk of free fall of more than 600mm. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Falling off ladder.		M	<ul style="list-style-type: none"> Set up a fall arrest system. Maintain 3 points of contact. 	L	

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Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Using metal or reinforced wire ladders		M	<ul style="list-style-type: none"> Ensure ladders have insulated rating 	L	
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Attaching ladder to branch being removed		M	<ul style="list-style-type: none"> Ensure ladder is independently attached to tree. 	L	
Climbing and Tree Dismantling <i>Trimming The Tree</i>	ELECTROCUTION by direct contact with body	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Observer to be present at all times. Observer to watch when approaching minimum clearances. Use insulated gloves. Cotton clothing and helmet Keep prescribed personal clearances. If clearances to HV overhead cannot be maintained then stop work and return during power outage / possession. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	ELECTROCUTION by indirect contact with conductors and the body		H	<ul style="list-style-type: none"> Keep clear from contact between 2 paths to conductors. Use insulated tools and gloves. Wear cotton clothing and helmet. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Wind		H	<ul style="list-style-type: none"> Ensure body and conductors keep clearances. Re assess in windy conditions. 	M	Climber

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Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Falling branches contacting mains		H	<ul style="list-style-type: none"> Use approved restraining methods. Cut small so lengths will not damage or arc conductors. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Branches close to or in contact with mains		E	<ul style="list-style-type: none"> Use insulated tools. Work under Access Permit / Shutout etc. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Branches falling to the ground	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> Keep worksite clear. Cut small enough not to cause injuries. Control branch bounce by cutting technique. Identify potential drop zone as determined by crew (consider height/size of branch, surrounding infrastructure etc.) Cone off/barricade as necessary keeping in mind pedestrians & driveways Notify residents where possible Use additional observer if required – in heavy pedestrian areas. Maintain exclusion zones. 	L	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Branches falling on cutter		M	<ul style="list-style-type: none"> Use approved restraining methods. Cut small so lengths will not damage or arc conductors. 	L	Climber

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Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Wind blowing through branches		M	<ul style="list-style-type: none"> Consider waiting for improved conditions. Use approved restraining methods 	L	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Working on a section of tree that may fall under your weight	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Assess strength of branch. Use independent support. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Chainsaw not attached to lanyard when working above ground and falling to the ground		M	<ul style="list-style-type: none"> Use lanyard and keep area below clear. PPE 	L	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Chainsaw caught in cut branch or rope		M	<ul style="list-style-type: none"> Use a weak link. 	L	
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Chainsaw accelerating between moves		H	<ul style="list-style-type: none"> Apply chain brake between moves. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Risk legs being cut when chainsaw is being raised or lowered		M	<ul style="list-style-type: none"> Cut resistant chaps or trousers to be worn to avoid cuts to legs, as required. 	L	Leading hand

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Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Wet weather causing conductivity		H	<ul style="list-style-type: none"> Only cut branches not in contact with conductors. Consider voltage and branches in close contact. If required, cease work. 	M	Climber
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Broken power lines	Refer SH&EWMS Details	E	<ul style="list-style-type: none"> Control access to the worksite. Contact Control Centre. Do not approach fallen powerlines Advise engineer / foreman immediately 	M	All crew
Climbing and Tree Dismantling <i>Accessing the Tree to Work Position</i>	Unstable branches for anchor points Slipping		H	<ul style="list-style-type: none"> Use two points of attachment Inspect branches 	M	Climber
Climbing and Tree Dismantling <i>Dismantle Tree in Open Space</i>	Falls from height Free falling branches		H	<ul style="list-style-type: none"> Use suitable anchor points Ground crew to be aware Maintain exclusion zone. 	M	Climber
Climbing and Tree Dismantling <i>Dismantle Tree in Confined Space</i>	Falls from height Lack of lowering room		M	<ul style="list-style-type: none"> Use ropes, slings, pulleys Friction drum Cut branches smaller 	L	Climber
Climbing and Tree Dismantling <i>Use of Friction Drum</i>	Lowering of loads Attachment to tree		H	<ul style="list-style-type: none"> Training Check attachment to tree Assess load to be lowered Keep clear of drop zone 	M	Climber

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Climbing and Tree Dismantling <i>Clean up the worksite area. Stack branches in a safe position.</i>	Branches left in tree		M	<ul style="list-style-type: none"> Inspect tree. Remove any branches that are not secured. 	L	Climber
Climbing and Tree Dismantling <i>Clean up the worksite area. Stack branches in a safe position.</i>	Slips and trips	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> Stack material appropriately. 	L	Leading Hand
Climbing and Tree Dismantling <i>Clean up the worksite area. Stack branches in a safe position.</i>	Manual Handling		M	<ul style="list-style-type: none"> Use Manual Handling Techniques Off cuts to be of a manageable size to allow safe lifting 	L	All crew
	Branches unable to be left in a appropriate position		M	<ul style="list-style-type: none"> Remove from the worksite, or erect barricade. 	L	Leading hand
Tree Felling						
Tree Felling <i>Complete Worksite Hazard Assessment & Control (HAC Sheet)</i>	Incomplete assessment	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Random auditing. Training Worksite HAC Sheet Toolbox Talks Monitor Training Records 	M	Leading Hand

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Manual Handling</i>	Slips and Trips		H	<ul style="list-style-type: none"> • Employ manual handling training methods. • Stack material appropriately. • Cut branches to manageable size. • Evaluate terrain • Lift using mechanical means • Use team lifting 	M	All crew
Tree Felling <i>Traffic Control</i>	Exposure of operators to traffic or other machinery	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • Implement traffic management plans as per state requirements • Wear high visibility clothing • Appropriate Traffic Control Training 	M	Leading Hand
Tree Felling <i>Traffic Control</i>	Material falling out of the work zone onto vehicles or pedestrians		H	<ul style="list-style-type: none"> • Ensure tree is restrained. • Fell away from hazard • Halt traffic • Set up a safe work zone in excess of the potential length of the felled section • Use a winch • Maintain exclusion zones. 	M	Climber
Tree Felling <i>Traffic Control</i>	Reversing hazards		H	<ul style="list-style-type: none"> • All vehicles to be fitted with reversing (Non-tonal) beepers and flashing lights. • Competent person to be in charge of vehicle • Hi visibility clothing to be utilised • Minimise reversing • Spotter to be utilised during all reversing activities. 	M	Operator
Tree Felling <i>Traffic Control</i>	Climatic Conditions		H	<ul style="list-style-type: none"> • Reconsider operations. • Wind is a significant hazard 	M	Leading Hand

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Inspect Tree</i>	Flora – trimming or removal of protected / rare species	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> • Refer to cutting sheet • Ensure correct identification of species • Refer to environmental management plan • Contact supervisor or manager for further instructions 	L	Climber
Tree Felling <i>Inspect Tree</i>	Stinging insects – Bees, Wasps, Ants, Spiders		M	<ul style="list-style-type: none"> • Take appropriate care. Avoid where possible. • Use appropriate PPE 	L	Climber
Tree Felling <i>Inspect Tree</i>	Fauna – Birds, Possums, Snakes, Koalas		M	<ul style="list-style-type: none"> • Advise site manager 	L	Climber
Tree Felling <i>Inspect Tree</i>	Trees that can cause reactions		M	<ul style="list-style-type: none"> • PPE. • Take appropriate care. • Provide washing facilities 	L	Climber
Tree Felling <i>Inspect Tree</i>	Structural tree defects – Hollow trees Fungal infected trees Dead trees or trees with dead branches Weak branch structure Leaning trees Adjoining trees		H	<ul style="list-style-type: none"> • Consider alternative methods • Position the away from where an impact may be caused by the defect • PPE. • Ensure clear escape route • Erect exclusion zone and tape off area. 	M	Climber

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Inspect Tree</i>	Falling objects	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • PPE. • Monitor the worksite. • Control entry to authorised persons • Maintain exclusion zones. 	M	Climber
Tree Felling <i>Inspect Tree</i>	Trees that cannot be removed safely with the equipment provided		H	<ul style="list-style-type: none"> • Alternative equipment • Switching or working under Access Permit • Contact supervisor or Manager for further instructions • Employ top down method to cut down trees 	M	Climber
Tree Felling <i>Training in use of Hauling System</i>	Incorrect set up Underestimating size / lean (if any) weight and wind direction of tree		H	<ul style="list-style-type: none"> • Training in the use of equipment • Identifying trees that can be felled using this method / system. 	M	Climber
Tree Felling <i>Inspect Hauling System and Ropes to be used</i>	Worn or missing components Components not secured		H	<ul style="list-style-type: none"> • Check/inspect all components of hauling system including ropes 	M	Climber
Tree Felling <i>Location / position & strength of anchoring point</i>	Too close to tree being felled Weak / insecure point of attachment No escape route		H	<ul style="list-style-type: none"> • Inspect anchor attachment point • Determine safe distance 	M	Climber

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Pre- Tensioning of Hauling System</i>	Too much tension	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> Monitor tension being applied. Communication between cutter and person applying tension. 	L	Climber
Tree Felling <i>Pre- Tensioning of Hauling System</i>	Too little tension		M	<ul style="list-style-type: none"> Monitor tension being applied. Communication between cutter and person applying tension. 	L	Climber
Tree Felling <i>Set up to cut the Tree</i>	Uneven ground surface		M	<ul style="list-style-type: none"> Inspect worksite, take appropriate care. Correct positioning of feet. 	L	Climber
Tree Felling <i>Set up to cut the Tree</i>	Slips and Trips		M	<ul style="list-style-type: none"> Inspect worksite. Remove potential slip and trip hazards where applicable 	L	All Crew
Tree Felling <i>Set up to cut the Tree</i>	Debris in work zone		M	<ul style="list-style-type: none"> Clear safe work zone of any debris. Identify escape route for an area 45 degrees behind the line of fall of the tree. Monitor the worksite 	L	All crew
Tree Felling <i>Set up to cut the Tree</i>	People in the working zone		M	<ul style="list-style-type: none"> Monitor the worksite. Establish drop zone Control entry to authorised persons Maintain exclusion zone 	L	All crew

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Set up to cut the Tree</i>	Falling branches or other objects	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> PPE. Monitor the worksite. Establish drop zone Control entry to authorised persons 	M	Leading hand
Tree Felling <i>Set up to cut the Tree</i>	Other services, e.g. gas, water, telephone cables		H	<ul style="list-style-type: none"> Inspect worksite. Utilise permit to disturb where appropriate in consultation with Engineer/Foreman 	M	Leading hand
Tree Felling <i>Set up to cut the Tree</i>	Cutting Hazards		H	<ul style="list-style-type: none"> Start chainsaw on the ground. Refer to training & Operators Manual Utilise saws fitted with bump bars and test prior to use 	M	Climber
Tree Felling <i>Set up to cut the Tree</i>	Entanglement in ropes		M	<ul style="list-style-type: none"> Monitor the worksite. Communication between team and one person nominated to control ropes 	L	Climber
Tree Felling <i>Cutting the Tree</i>	ELECTROCUTION by direct contact with body		E	<ul style="list-style-type: none"> Use insulated tools. Observer to watch when approaching minimum clearances. Use insulated gloves. Cotton clothing and helmet Keep prescribed personal clearances. If clearances to the HV feeder cannot be maintained then stop work and return during power out/ possession. 	M	Climber

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Cutting the Tree</i>	ELECTROCUTION by indirect contact	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Keep prescribed personal clearances. Avoid creating electric path by contacting other branches or conductors. Wear Insulated gloves. Winch tree out of clearance space Cut away section of tree inside clearances 	M	Climber
Tree Felling <i>Cutting the Tree</i>	Branches close to or in contact with mains		H	<ul style="list-style-type: none"> Work under Access Permit / Shutout etc. Use insulated tools 	M	Climber
Tree Felling <i>Cutting the Tree</i>	Branches falling on the cutter		H	<ul style="list-style-type: none"> Ensure that branches dislodged during felling do not come back on operator. 	M	Climber
Tree Felling <i>Cutting the Tree</i>	Tree falling in direction other than intended	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Use suitable equipment such as wedges, ropes, winches to prevent tree from falling in the wrong place. A scarf and back-cut should be used when felling trees over 200mm in diameter. Refer Forestry Commission Handbook. 	M	Climber
Tree Felling <i>Cutting the Tree</i>	Wind		H	<ul style="list-style-type: none"> Consider waiting for improved conditions. Use approved restraining methods 	M	Climber
Tree Felling <i>Cutting the Tree</i>	Wet weather causing conductivity		M	<ul style="list-style-type: none"> Only cut trees not inside minimum clearances. Consider voltage and branches in close contact, and if required cease work. 	L	Climber

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Tree Felling <i>Cutting the Tree</i>	Damaged / fallen power lines		E	<ul style="list-style-type: none"> Control access to the worksite. Contact Control Centre. Do not approach fallen powerlines Notify Engineer/Foreman immediately 	M	Climber
Tree Felling <i>Cutting the Tree</i>	Standing in line / too close to fall zone		H	<ul style="list-style-type: none"> Stand at a 90-degree angle away from direction of fall at a safe distance. Maintain exclusion zone. 	M	Climber
Tree Felling <i>Clean up the worksite area.</i> <i>Stack branches in a safe position.</i>	Logs rolling downhill	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Logs to be chocked into position. Cutter to stand uphill of the work. 	M	All crew
Tree Felling <i>Clean up the worksite area.</i> <i>Stack branches in a safe position.</i>	Slips and Trips		M	<ul style="list-style-type: none"> Stack material appropriately. 	L	
Tree Felling <i>Clean up the worksite area.</i> <i>Stack branches in a safe position.</i>	Manual Handling		M	<ul style="list-style-type: none"> Use manual handling techniques. Offcuts to be of a manageable size to allow safe lifting 	L	Leading hand
Tree Felling <i>Clean up the worksite area.</i> <i>Stack branches in a safe position.</i>	Broken branches in adjacent trees		M	<ul style="list-style-type: none"> Clear branches, if appropriate. 	L	Leading Hand

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Wood Chipping						
Wood Chipping <i>Complete Worksite Hazard Assessment & Control (HAC Sheet)</i>	Incomplete assessment	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • Random auditing. • Training (Enviro Frontier Tree Management Wood Chipper Operators training) • Worksite HAC Sheet • Toolbox Talks • Monitor Training Records 	M	Leading hand
Wood Chipping <i>Manual Handling</i>	Slips and Trips		H	<ul style="list-style-type: none"> • Employ manual handling training methods. • Stack material appropriately. • Cut branches to manageable size. • Evaluate terrain • Lift using mechanical means • Use team lifting • Correct PPE 	M	All Crew
Wood Chipping <i>Traffic Control</i>	Exposure of operators to traffic or other machinery		H	<ul style="list-style-type: none"> • Implement traffic management plans as per state requirements • Use vehicle warning lights (Beacons, Strobes) • Wear high visibility clothing • Appropriate Traffic Control Training 	M	PO in consultation with ATS leading hand
Wood Chipping <i>Traffic Control</i>	Flying debris	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> • Establish safe, appropriate worksite • Correct PPE • Control entry to authorised persons • Maintain exclusion zone. 	L	Operator
Wood Chipping <i>Traffic Control</i>	Reversing Hazards		H	<ul style="list-style-type: none"> • All vehicles to be fitted with flashing lights. • Competent person to be in charge of vehicle • Hi visibility clothing to be utilised • Minimise reversing • Spotter to be utilised for all reversing activities. 	M	Operator

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Wood Chipping <i>Traffic Control</i>	Climatic Conditions		M	<ul style="list-style-type: none"> Reconsider operations. 	L	Operator
Wood Chipping <i>Setting up the wood chipper</i>	Failure to conduct PRE OPERATIONAL CHECKS	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Read equipment log and note any outstanding maintenance requests Inspect the equipment as per the Operators Manual and note any vehicle defects in the pink section of the logbook. If in doubt or equipment requires urgent attention due to safety issues contact your Supervisor or the workshop ASAP, Do not use the machine if safety features are damaged or not working. Service the equipment as per the Operating Manual Put out wheel chocks (as required). NB ensure blades are sharp and check anvil clearances follow operating instructions and training to access and adjust the blades and always wear protective gloves when changing or adjusting blades. 	M	Operator
Wood Chipping <i>Setting up the wood chipper</i>	Inappropriate OPERATION	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Warm up and re-inspect operating components as per the operators manual and training Feed from the left side where possible and step back once the branch starts to feed Never use hands, feet or any part of your body to push material through the chipper Do not allow anyone to walk in front of the discharge chute Never open the chipper rotor guards while it is moving 	M	All crew

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Wood Chipping <i>Setting up the wood chipper</i>	Vegetation that can cause reactions		M	<ul style="list-style-type: none"> PPE. Take appropriate care. Provide washing facilities Cutters to notify chippers 	L	Operator
Wood Chipping <i>Setting up the wood chipper</i>	Falling objects		H	<ul style="list-style-type: none"> PPE. Monitor the worksite. Do not work in tree trimming area while operations are in progress Control entry to authorised persons Cutters to cut in small manageable sections when necessary. 	M	Operator
Wood Chipping <i>Setting up the wood chipper</i>	Slips and Trips	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Inspect worksite. Remove potential slip and trip hazards where applicable Create a clear path to carry material to the chipper Where there is a steep slope create a path to a more level loading site 	M	Operator
Stump Grinding						
Stump Grinding <i>Complete Worksite Hazard Assessment & Control (HAC Sheet)</i>	Incomplete assessment	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Random auditing. Training Worksite HAC Sheet Toolbox Talks Monitor Training Records 	M	All crew
Stump Grinding <i>Manual Handling</i>	Slips and Trips		M	<ul style="list-style-type: none"> Employ manual handling training methods. Stack material appropriately. Cut branches to manageable size. Evaluate terrain Lift using mechanical means 	L	All crew

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
				<ul style="list-style-type: none"> Use team lifting 		
Stump Grinding <i>Traffic Control</i>	Exposure of operators to traffic or other machinery		H	<ul style="list-style-type: none"> Implement traffic management plans as per state requirements Wear high visibility clothing Appropriate Traffic Control Training 	M	PO in consultation with ATS Leading hand
Stump Grinding <i>Traffic Control</i>	Material falling out of the work zone onto vehicles or pedestrians	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> Cut branches into small pieces. Drop away from roadway Secure with rope and lower to ground. Set up a safe work zone in excess of the potential length of the felled section 	L	
Stump Grinding <i>Traffic Control</i>	Reversing hazards		H	<ul style="list-style-type: none"> Use observer, at all times. All vehicles to be fitted with flashing lights. Competent person to be in charge of vehicle Hi visibility clothing to be utilised Minimise reversing 	M	All crew
Stump Grinding <i>Traffic Control</i>	Climatic Conditions		M	<ul style="list-style-type: none"> Reconsider operations. Wind is a significant hazard 	L	Operator
Stump Grinding <i>Inspect Area</i>	Vegetation that can cause reactions		M	<ul style="list-style-type: none"> PPE. Take appropriate care. Provide washing facilities 	L	
Stump Grinding <i>Inspect Area</i>	Slips and trips		M	<ul style="list-style-type: none"> Inspect worksite and access for stump grinder and improve access if necessary. See Item 2.0, Manual Handling. 	L	Leading Hand

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Stump Grinding <i>Inspect Area</i>	Flying debris	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Inspect base of stump for gravel, etc. Work the throw direction away from the most probable traffic Fence off area if required. Maintain exclusion zone 	M	All crew
Stump Grinding <i>Inspect Area</i>	Slope		H	<ul style="list-style-type: none"> Work uphill of grinder. 	M	All crew
Stump Grinding <i>Inspect Area</i>	Stinging insects – Bees, Wasps, Ants, Spiders		M	<ul style="list-style-type: none"> Take appropriate care. Avoid where possible. 	L	All crew
Stump Grinding <i>Inspect Area</i>	Fauna – Birds, Possums, Snakes, Koalas		M	<ul style="list-style-type: none"> As above Relocate 	L	Plant operator, Leading hand, All crew
Stump Grinding <i>Inspect Area</i>	Other services – gas, water, telephone cables, underground Power lines near stump.		E	<ul style="list-style-type: none"> Use 1100 to find out location of services or gain direct instruction from owner. Enviro Frontier Leading hand and Operator to be fully briefed. 	M	All crew
Stump Grinding <i>Inspect Services</i>	Services known to be in area		E	<ul style="list-style-type: none"> Expose service location by careful excavation. Do not work to the depth of the service 	M	All crew
Stump Grinding <i>Stump Grinding</i>	Flying debris		H	<ul style="list-style-type: none"> Monitor the worksite. Use physical barriers. Ensure safe work zone. Wear correct PPE. 	M	Leading hand, Plant Operator.

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Stump Grinding <i>Stump Grinding</i>	Loose clothing getting caught in stump grinder		H	<ul style="list-style-type: none"> • Correct PPE. I.E. Tight fitting 	M	Leading hand, Plant Operator.
Stump Grinding <i>Stump Grinding</i>	Broken or loose teeth		H	<ul style="list-style-type: none"> • Examine bolts and teeth before starting Grinder. • Ensure screen in place. • Maintain exclusion zone. 	M	All crew
Stump Grinding <i>Stump Grinding</i>	Broken power lines		H	<ul style="list-style-type: none"> • Control access to the worksite. • Contact appropriate Control Centre • Do not approach 	M	All crew
Stump Grinding <i>Stump Grinding</i>	Roll Over Hazards		H	<ul style="list-style-type: none"> • Assess ground • Where appropriate, use equipment with ROPS 	M	Operator
Stump Grinding <i>Stump Grinding</i>	Vehicle rolling forward or in reverse	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> • Apply Park Brake and chock wheels in the direction of travel. 	L	All crew
Stump Grinding <i>Stump Grinding</i>	Ramps falling while loading or unloading		M	<ul style="list-style-type: none"> • Ensure properly attached to vehicle. • Work up or down the slope 	L	All crew
Stump Grinding <i>Clean Up the Worksite Area</i>	Slips and Trips		M	<ul style="list-style-type: none"> • Ensure tidy site at completion of the job. • Stack material appropriately. 	L	Operator, leading hand

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Stump Grinding <i>Clean Up the Worksite Area</i>	Manual Handling		M	<ul style="list-style-type: none"> Follow Manual Handling instruction Off cuts to be of a manageable size to allow safe lifting 	L	Operator, leading hand, All crew
Use of Chainsaw						
Use of Chainsaw <i>Complete Worksite Hazard Assessment & Control (HAC Sheet)</i>	Incomplete assessment	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> Random auditing. Traffic Control Training Worksite HAC Sheet Toolbox Talks Monitor Training Records 	M	Leading Hand
Use Of Chainsaw <i>Manual Handling</i>	Slips and Trips		M	<ul style="list-style-type: none"> Employ manual handling training methods. Stack material appropriately. Cut branches to manageable size. Evaluate terrain Lift using mechanical means Use team lifting 	M	All Crew
Use Of Chainsaw <i>Training in use of Chainsaw</i>	Untrained Operator		H	<ul style="list-style-type: none"> Training 	M	All Crew
Use Of Chainsaw <i>Inspect Tree / Wood to be cut</i>	Flora – trimming or removal of protected / rare species		M	<ul style="list-style-type: none"> Refer to quotation Ensure correct identification of species Refer to Environmental Management Plan Contact supervisor or manager for further instructions 	L	All Crew

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Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Use Of Chainsaw Inspect Tree / Wood to be cut	Stinging Insects – Bees, Wasps, Ants, Spiders	Refer SH&EWMS Details	M	<ul style="list-style-type: none"> Take appropriate care and avoid where possible 	L	All Crew
Use Of Chainsaw Inspect Tree / Wood to be cut	Slips and trips – Pedestrian Traffic		M	<ul style="list-style-type: none"> Place observer. Barricade if required Notify residents where possible 	L	All Crew
Use Of Chainsaw Inspect Tree / Wood to be cut	Flora – trimming or removal of protected / rare species		M	<ul style="list-style-type: none"> Refer to cutting sheet Ensure correct identification of species Refer to environmental management plan Contact supervisor or manager for further instructions 	L	All Crew
Use Of Chainsaw Inspect Tree / Wood to be cut	Trees that can cause reactions		M	<ul style="list-style-type: none"> PPE. Take appropriate care. Provide washing facilities 	L	All Crew
Use Of Chainsaw Inspect Tree / Wood to be cut	Structural tree defects – Hollow trees Fungal infected trees Dead trees or trees with dead branches Weak branch structure		H	<ul style="list-style-type: none"> Training, “ Pruning in electrical environment” or similar. Consider alternative methods PPE. 	M	All Crew
Use Of Chainsaw Inspect Tree / Wood to be cut	Falling objects		H	<ul style="list-style-type: none"> PPE. Positioning of Crane. Monitor the worksite. 	M	All Crew

<p align="center">1-6 ACCEPTABLE = LOW - MEDIUM</p> <p align="center">6-12 ACCEPTABLE WITH STRICT CONTROL MEASURES OR A SHORT DURATION = MEDIUM – HIGH</p> <p align="center">12-25 UNACCEPTABLE = HIGH - EXTREME</p>						
Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Use Of Chainsaw Inspect Tree / Wood to be cut	Branches that cannot be removed safely with the equipment provided	Refer SH&EWMS Details	H	<ul style="list-style-type: none"> • Alternative equipment • Switching or working under Access Permit 	M	Crane Operator
Use Of Chainsaw Inspect Chainsaw	Faulty. Safety features missing / not working. Lose screws / nuts. Loose chain / blunt chain. Sharpening chain to correct angles. Depth gauges at incorrect height. Burs on cutter bar. Broken clutch springs. Chain brake not working. Chain catcher missing. Spark arrestor missing. Dirty air filter.		E	<ul style="list-style-type: none"> • Inspect chainsaw before use. Report any faults to crew members and your supervisor. • Do not use. • Gloves must be worn when ever sharpening chain or removing the bar and chain. 	M	All Crew
Use Of Chainsaw Starting Chainsaw	Incorrect starting procedure. Chain brake not on.		H	<ul style="list-style-type: none"> • P.P.E. • Start chainsaw on level ground. • Left hand on front handle with thumb wrapped around. • Foot inside / on rear handle. • Chain brake on. • Do not drop start. 	M	All Crew

<p style="text-align: center;">1-6 ACCEPTABLE = LOW - MEDIUM</p> <p style="text-align: center;">6-12 ACCEPTABLE WITH STRICT CONTROL MEASURES OR A SHORT DURATION = MEDIUM – HIGH</p> <p style="text-align: center;">12-25 UNACCEPTABLE = HIGH - EXTREME</p>						
Procedure Break the job down into steps	Potential Safety and Environmental Hazards What can go wrong	Legislative References	Risk Rating	Control Measures	Residual Risk Rating	Person Responsible To ensure management method applied
Use Of Chainsaw <i>Cutting Tree / Wood using Chainsaw</i>	Cutting in confined space / uneven ground.		H	<ul style="list-style-type: none"> • P.P.E. • Cut at a comfortable height below shoulder height. • Good footing do not over reach. • Use two hands when using chainsaw. 	M	All Crew
Use Of Chainsaw <i>Cutting Tree / Wood using Chainsaw</i>	Kick back		H	<ul style="list-style-type: none"> • Be aware of the kick back zone (upper quadrant) nose of guide bar. • Good footing, firm grip on the chainsaw 	M	All Crew

REVIEWS

Review No:	1	2	3	4	5	6	7	8	9
Name & Initials									
Date:									

Review using the tool SH&EWMS Review Checklist and guidance from Knowledge Resource using the Prepare, Review and Accept SH&EWMS

SIGNOFF

We the undersigned, confirm that the SH&EWMS nominated above has been explained and its contents are clearly understood and accepted. We also confirm that our required qualifications to undertake this activity are current. We also clearly understand the controls in this SH&EWMS must be applied as documented; otherwise work is to cease immediately.

Name	Qualification Required for this Activity	Signature	Date	Time	Employer

Risk Phrase(s)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
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	Ingredients determined not to be hazardous	Not required	100 %
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4. FIRST AID MEASURES

Inhalation Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. If symptoms develop seek medical attention.

Ingestion DO NOT INDUCE VOMITING. Wash out mouth with water. Seek immediate medical attention.

Skin Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.

Eye If contact with the eye(s) occurs, wash with copious amounts of water holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If symptoms persist seek medical attention.

First Aid Facilities Eye wash and normal washroom facilities.

Advice to Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media CO₂, dry chemical, foam and water fog.

Hazards from Combustion Products Under fire conditions this product may emit toxic and/or irritating fumes including carbon monoxide and carbon dioxide.

Specific Hazards Combustible liquid. This product will burn if exposed to fire.

Precautions in connection with Fire Fire-fighters should wear full protective clothing and self contained breathing apparatus (SCBA) operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

Wear appropriate personal protective equipment and clothing to minimise exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unnecessary personnel. If possible contain the spill. Place inert absorbent material onto spillage. Use clean non-sparking tools to collect the material and place into a suitable labelled container. Do not dilute material but contain. Dispose of waste according to federal, Environmental Protection Authority and state regulations. If large quantities of this material enter the waterways contact the Environmental Protection Authority, or your local Waste Management Authority.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Use in a well ventilated area. DO NOT store or use in confined spaces. Build up of mists or vapours in the atmosphere must be prevented. Avoid breathing in spray or mists or vapours. Do not use near welding or other ignition sources and avoid sparks. Do not smoke. When dealing with large quantities, repeated or prolonged skin exposure without protection should be prevented in order to lessen the possibility of skin disorders. It is essential that all who come into contact with this material maintain high standards of personal hygiene ie. washing hands prior to eating, drinking, smoking or using toilet facilities.

Conditions for Safe Storage

Store in a cool, dry well-ventilated area away from heat, sources of ignition, oxidising agents, foodstuffs, and clothing and out of direct sunlight. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Do NOT pressurise, cut, heat or weld containers as they may contain hazardous residues. For information on the design of the storeroom, reference should be made to Australian Standard AS1940 - The storage and handling of flammable and combustible liquids. Reference should also be made to all State and Federal regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards

No exposure standards have been established for this material, however, the TWA National Occupational Health And Safety Commission (NOHSC) exposure standards for oil mist is 5 mg/m³. As with all chemicals, exposure should be kept to the lowest possible levels.

Engineering Controls

Provide sufficient ventilation to keep airborne levels below the exposure limit. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a local exhaust ventilation system is required. Refer to AS1940 - The storage and handling of flammable and combustible liquids and AS2430 - Explosive gas atmospheres for further information concerning ventilation requirements.

Respiratory Protection

If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable for protecting against airborne contaminants. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices.

Eye Protection	Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.
Hand Protection	Wear gloves of impervious material. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.
Body Protection	Wear appropriate clothing including chemical resistant apron where clothing is likely to be contaminated. It is advisable that a local supplier of personal protective clothing is consulted regarding the choice of material.
Other Information	Biological Limit Values: No biological limit allocated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Green liquid.
Melting Point	<-18°C
Boiling Point	Not available.
Solubility in Water	Not applicable.
Specific Gravity	0.89
pH Value	Not applicable.
Vapour Pressure	Not available.
Vapour Density (Air=1)	Not available
Flash Point	>70°C (OC)
Flammability	Classified as a Class C1 (COMBUSTIBLE LIQUID) for the purposes of storage and handling, in accordance with the requirements of AS1940. This product should be stored and used in a well ventilated area away from naked flames, sparks and other sources of ignition.
Auto-Ignition Temperature	Not available.
Flammable Limits - Lower	Not available.
Flammable Limits - Upper	Not available.
Kinematic Viscosity	9.3 cSt @ 100°C

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of storage and handling.
Conditions to Avoid	Heat, direct sunlight, open flames or other sources of ignition.
Incompatible Materials	Strong oxidising agents.
Hazardous Decomposition Products	Thermal decomposition may result in the release of toxic and/or irritating fumes including carbon monoxide and carbon dioxide.
Hazardous Reactions	May react with strong oxidising agents.
Hazardous Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	Note: In accordance with Note L of the NOHSC Designated List of Hazardous Substances, the manufacturer has had this product tested in accordance with IP346. This product contains less than 3% polyaromatics and is therefore non hazardous.
Inhalation	Inhalation of product vapours may cause irritation of the nose, throat and respiratory system.
Ingestion	Ingestion of this product may irritate the gastric tract causing nausea and vomiting. Aspiration of this product may result in chemical pneumonitis.
Skin	May cause redness, itching and irritation.
Eye	May cause eye irritation, tearing, stinging, blurred vision, and redness.
Chronic Effects	Unknown.

12. ECOLOGICAL INFORMATION

Ecological Information	No ecological data is available for this material.
Ecotoxicity	No data is available for this material.
Persistence / Degradability	No data is available for this material.
Mobility	No data is available for this material.
Environment	Do not allow product to enter drains, waterways or sewers.

Protection

13. DISPOSAL CONSIDERATIONS

Disposal Considerations Dispose of waste according to federal, EPA and state regulations. Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near containers. Empty containers may contain hazardous residues. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers. Advise combustible nature.

14. TRANSPORT INFORMATION

Transport Information Not classified as a Dangerous Good, according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

15. REGULATORY INFORMATION

Poisons Schedule Not Scheduled

16. OTHER INFORMATION

Date of preparation or last revision of MSDS MSDS created: February 2005

Contact Person/Point CHEMICAL EMERGENCIES: 1 800 033 111
TECHNICAL ADVICE: 1300 364 169
Health & Safety Advisor
Tel: (02) 9250 5822 or (02) 9250 5900
PLEASE NOTE that although every care has been taken in compiling the above information, it is solely reliant upon data available to us at the date hereof. We believe the data to be correct, however for the reason just stated we are not in a position to warrant its accuracy. With that in mind and given that the full range of possibilities and conditions under which the information may be applied simply cannot be anticipated, YOU ARE CAUTIONED to make your own determinations as to the veracity and the suitability of the information to the particular circumstances that apply, or may apply, to you from time to time. Consistent with that approach it is recommended that where you have a particular purpose which would necessitate a reliance on information of the nature herein you obtain your own independent expert advice particularly structured to the relevant purpose. If this material is printed, circulated, distributed or copied in any manner, it is not to be modified without prior written permission, and further, it is to include the wording of the above disclaimer.

End of MSDS

MATERIAL SAFETY DATA SHEET

DIESEL

Infosafe No. JAC5D**Issue Date** April 2005**Status** ISSUED by CALTEX**Classified as hazardous**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name DIESEL**Company**

Name CALTEX AUSTRALIA LIMITED
Address MLC BUILDING 19 - 29 Martin Place SYDNEY
 NSW 2000

Telephone/Fax Tel:**Number** (02) 9250 5000

Fax:

(02) 9250 5742

Recommended**Use** Fuel, mould oil.**Other Names Name****Product Code**

LOW SULFUR DIESEL
 LOW SULFUR DIESEL UNMARKED
 AUTOMOTIVE DIESEL FUEL
 DIESEL FUEL UNMARKED

Other**Information** The most recent MSDS for this product can be obtained from the Caltex Australiawebsite - 'www.caltex.com.au'.

2. HAZARDS IDENTIFICATION

Hazard**Classification**

Classified as Hazardous according to the criteria of the NOHSC.
 Not classified as dangerous goods according to the ADG Code.

Risk Phrase:

R40(3) Possible risk of irreversible effects.

Safety Phrase:

S16 Keep away from sources of ignition - No smoking.

S2 Keep out of reach of children.

S23 Do not breathe gas/fumes/vapour/spray

S24/25 Avoid contact with skin and eyes.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Risk**Phrase(s)**

R65 Harmful: may cause lung damage if swallowed.

Safety	R40(3) Possible risk of irreversible effects.
Phrase(s)	S2 Keep out of reach of children. S16 Keep away from sources of ignition - No smoking. S23 Do not breathe gas/fumes/vapour/spray S24/25 Avoid contact with skin and eyes. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on

Composition Mixture of diesel fuel, additives and no more than 500ppm sulfur.

Ingredients	Name	CAS	Proportion
	Diesel Fuel	68334-30-5	60-100 %
	Ingredients determined to be hazardous	Not required	Balance

4. FIRST AID MEASURES

Inhalation	Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a facemask if breathing is difficult. If irritation develops, seek medical attention.
Ingestion	DO NOT induce vomiting. Give nothing by mouth to an unconscious person. Seek IMMEDIATE medical attention.
Skin	Remove contaminated clothing and wash before re-use. Wash thoroughly with soap and water. If irritation develops, seek medical attention.
Eye	If contact with the eye(s) occur, wash with copious amounts of water, holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If irritation develops, seek medical attention.
First Aid Facilities	Eye wash and normal washroom facilities.
Advice to Doctor	Treat symptomatically. For further advice, contact the Poisons Information Centre.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 131 126; New Zealand 0800 764 766) or a doctor (at once).

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Use carbon dioxide, dry chemical or foam. DO NOT use water spray directly on the fire as this may spread the fire. Water or foam may cause frothing. Use water spray to cool fire exposed containers.
Hazards from Combustion Products	Oxides of carbon.
Specific Hazards	Combustible liquid. Avoid all sources of ignition, heat and open flame. May emit toxic fumes under fire conditions. Fire-exposed containers may rupture/explode.
Hazchem Code	None Allocated
Precautions in connection with Fire	Self-contained breathing apparatus (S.C.B.A) and full protective clothing should be worn to reduce the risk from exposure to combustion products and oxygen deficiency.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Remove all sources of ignition. Increase ventilation. Evacuate all unnecessary personnel. Wear full protective equipment including air supplied respirator, and clothing to minimise exposure. If possible contain the spill. Place inert absorbent material such as vermiculite, sand onto spillage. Use clean non-sparking tools to collect the material and place into a suitable labelled container. Prevent contamination of groundwater or surface water. If large quantities of this material enter the waterways contact the Environmental Protection Authority, or your local Waste Management Authority.
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7. HANDLING AND STORAGE

Precautions for Safe Handling	Repeated or prolonged contact with this material should be avoided in order to lessen the possibility of skin disorders. It is essential that all who come into contact with this material, maintain high standards of personal hygiene i.e. washing hands prior to eating, drinking, smoking or going to the toilet. Build-up of mist in the working atmosphere must be prevented. Ensure ventilation is adequate. Prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.
Conditions for Safe Storage	Classified as combustible liquid for storage and handling purposes. Store in a cool, dry, well-ventilated area, out of direct sunlight. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Avoid sparks, flames and other ignition sources. Store away from incompatible materials. For information on the design of the storeroom reference should be made to Australian Standard AS1940 - The storage and handling of flammable and combustible liquids. Reference should also be made to all Local, State and Federal regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Other Exposure Information Engineering Controls	No value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC). However, Caltex recommends a daily 8 hour TWA Exposure Standards of 100 ppm of total hydrocarbons. Provide sufficient ventilation to keep airborne levels below the exposure limit. Where vapours or mists are generated and exposure standards are exceeded, the use of respiratory protection, or a local exhaust ventilation system is recommended.
Respiratory Protection	Avoid breathing of vapours/mists. Where ventilation is inadequate and vapours/mists are generated, the use of an approved respirator with filter complying with AS/NZS 1715 and AS/NZS 1716 is recommended; however final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715- Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716- Respiratory Protective Devices.
Eye Protection	If possibility of eye contact exists safety glasses with face shield should be worn as described in Australian Standard AS/NZS 1337- Eye Protectors for Industrial Applications.
Hand Protection	Impervious PVC or rubber gloves should be worn to minimise skin contact.
Footwear	Safety boots with non-slip soles as required.
Body	Any routine contact with this material should require the use of protective clothing

Protection	such as an apron made of neoprene, nitrile, or n-butyl rubber suitable for the application.
Other Information	Biological Limit Values: No biological limit allocated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light brown oil, with a slight characteristic odour.
Boiling Point	200 - 400°C
Solubility in Water	Insoluble.
Specific Gravity	0.85
pH Value	Not Applicable
Vapour Pressure	< 1 mmHg
Vapour Density (Air= 1)	>1 (cf Air = 1)
Viscosity	3.0 cSt @ 40°C
Flash Point	>61.5 deg C
Flammability	Classified as a Class 1- Combustible liquid. Avoid all sources of ignitions, heat or sparks. May emit toxic fumes under fire conditions.
Auto-Ignition Temperature	350°C
Flammable Limits - Lower	Not available.
Flammable Limits - Upper	Not available.

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of storage and handling.
Incompatible Materials	Strong oxidising agents.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	<p>Middle distillates have caused skin cancer in laboratory animals following lifetime application to the skin. Brief or intermittent skin contact is not expected to cause adverse effects if it is washed thoroughly. Avoid prolonged or repeated contact or breathing of vapour or mist.</p> <p>U.S. NIOSH has recommend whole diesel exhaust be regarded as a potential occupational carcinogen, based on findings of carcinogenic response in laboratory animals exposed to whole diesel exhaust. The excess risk has not been estimated. Avoid exposure to diesel.</p> <p>NOTE: Exhaust from fuel oils and gas oils may present similar exposure potential and should also be avoided.</p>
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This product has been classed as a Carcinogen Category 3 Substance- R40 Possible risk of irreversible effects. That is, substances which cause concern for humans owing to possible carcinogenic effects but in respect of which the available

information is not adequate for making a satisfactory assessment.

A substance is included in Category 3 if there is some evidence from appropriate animal studies that human exposure can result in the development of cancer, but this evidence is insufficient to place the substance in Category 2.

Inhalation	Mists and vapours generated may cause irritation of the upper respiratory tract. Inhalation of high concentration may lead to headache, dizziness, nausea, vomiting, drowsiness or narcosis.
Ingestion	Harmful, may cause lung damage if swallowed. Ingestion of this product will irritate the gastric tract causing nausea and vomiting. Aspiration into the lungs may result in chemical pneumonitis.
Skin	May cause irritation to the skin that may result in redness, itchiness and swelling. Repeated or prolonged contact may dry and defat the skin, resulting in skin irritation and possibly lead to dermatitis.
Eye	May cause irritation in contact with the eyes, which can result in redness, stinging and tearing.
Chronic Effects	Possible risk of irreversible effect. Prolonged or repeated skin contact may cause skin irritation leading to dermatitis. Repeated or prolonged inhalation of high vapour concentrations can cause drowsiness and lead to narcosis or death.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Not available
Persistence / Degradability	Not available
Mobility	Not available
Environment Protection	Prevent the material from entering the environment. This substance may present environmental risks common to oil spills.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations	Dispose of waste according to federal, E.P.A, State and local regulations. Assure conformity with all applicable regulations.
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14. TRANSPORT INFORMATION

Transport Information	Not classified as Dangerous Good according to Australian Code for the Transport of Dangerous Goods by Road and Rail (6th Edition).
U.N. Number	None Allocated
Proper Shipping Name	None Allocated
DG Class	None Allocated
Hazchem Code	None Allocated
Packing Group	None Allocated

15. REGULATORY INFORMATION

Poisons Schedule	S5
Packaging & Labelling	Labelling requirements of the Standard for Uniform Scheduling of Drugs and Poisons do not apply to a poison that is packed and sold solely for industrial, laboratory or manufacturing purposes; however is labelled in accordance with the National Occupational Health and Safety Commission's 'National Code of Practice

for the Labelling of Workplace Substances'.

**Hazard
Category**

Harmful

16. OTHER INFORMATION

**Date of
preparation or
last revision of**

MSDS Review: March 2005

MSDS

MSDS Superseded: November 2002

Contact

CHEMICAL EMERGENCIES: 1 800 033 111

Person/ Point

TECHNICAL ADVICE: 1300 364 169

Health & Safety Advisor

Tel: (02) 9695 3607 or (02) 9250 5900

PLEASE NOTE that although every care has been taken in compiling the above information, it is solely reliant upon data available to us at the date hereof. We believe the data to be correct, however for the reason just stated we are not in a position to warrant its accuracy. With that in mind and given that the full range of possibilities and conditions under which the information may be applied simply cannot be anticipated, YOU ARE CAUTIONED to make your own determinations as to the veracity and the suitability of the information to the particular circumstances that apply, or may apply, to you from time to time. Consistent with that approach it is recommended that where you have a particular purpose which would necessitate a reliance on information of the nature herein you obtain your own independent expert advice particularly structured to the relevant purpose. If this material is printed, circulated, distributed or copied in any manner, it is not to be modified without prior written permission, and further, it is to include the wording of the above disclaimer.

End of MSDS

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Material Safety Data Sheet

Hydraulic Oil 68

Infosafe No. AC99Z**Issue Date** May 2006**Status** ISSUED by CALTEX**Not classified as hazardous**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name Hydraulic Oil 68**Product Code** 1281**Company****Name** CALTEX AUSTRALIA LIMITED**Address** MLC BUILDING 19 - 29 Martin Place SYDNEY
NSW 2000**Telephone/Fax** Tel: (02) 9250 5000**Number** Fax: (02) 9250 5742**Recommended Use** High quality hydraulic and lubricating oil. For use in hydraulic systems of mobile and stationary plant.**Other Names** None Listed**Other Information** The most recent MSDS for this product can be obtained from the Caltex Australia website - 'www.caltex.com.au'.

2. HAZARDS IDENTIFICATION

Hazard NON-HAZARDOUS SUBSTANCE.**Classification** NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC.

Dangerous goods classification according to the Australia Dangerous Goods Code.

Risk Phrase(s)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information**on** Paraffinic distillates and additives that may include extreme pressure agent, detergent dispersant, pour point depressant, antifoam and antiwear agent.**Composition****Ingredients**

Name	CAS	Proportion
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Ingredients determined not to be hazardous	Not required	100 %
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4. FIRST AID MEASURES

Inhalation Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. If symptoms develop seek medical attention.**Ingestion** DO NOT INDUCE VOMITING. Wash out mouth with water and give plenty of water to drink. Seek medical attention.**Skin** Wash affected area thoroughly with soap and water. If symptoms develop seek medical attention. Injection of oil under the skin may result in serious injury. Seek

medical attention at once.

Eye

If contact with the eye(s) occurs, wash with copious amounts of water holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If symptoms persist seek medical attention.

First Aid**Facilities**

Eye wash and normal wash room facilities.

Advice to

Treat symptomatically.

Doctor

High pressure equipment can small, often bloodless, puncture wounds where the material may have been injected deep into the extremity. Within 24 hours, there is usually extensive swelling, discolouration and intense pain in the in the affected part. Requires immediate treatment at a surgical emergency centre; else disfigurement or amputation of the affected part may occur.

5. FIRE FIGHTING MEASURES

Suitable

Use water spray, dry chemical, foam, or carbon dioxide. Water or foam may cause frothing. Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapours and to provide protection for persons attempting to stop the leak.

Extinguishing Media**Specific Methods**

For fires involving this material, do not enter any enclosed or confined space without AS/NZS 1716 approved Self-contained breathing apparatus (S.C.B.A.) to protect against the hazardous effects of combustion products or oxygen deficiency.

Specific Hazards

Combustible liquid. This product will burn if exposed to fire.

Hazchem Code

None Allocated

6. ACCIDENTAL RELEASE MEASURES

Other**Information**

Remove sources of ignition. Stop the source of the leak or release and contain spill if possible. Ventilate area. Use respirator and protective clothing to minimise exposure. Cover spill with a generous amount of inert absorbent. Collect and place in a labelled disposable container. Scrub contaminated area with detergent and water using a stiff broom. Pick up liquid with additional absorbent and place in a labelled disposable container. Prevent contamination of groundwater or surface water. This material may present environmental risks common to oil spills. If large quantities of this material enter the waterways contact the Environmental Protection Authority, or your local Waste Management Authority.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Repeated or prolonged contact with this material should be avoided in order to lessen the possibility of skin disorders. It is essential that all who come into contact with this material maintain high standards of personal hygiene ie. washing hands prior to eating, drinking or going to the toilet. Build-up of mists in the working atmosphere must be prevented.

Misuse of empty containers can be hazardous. Do not cut, weld, heat or drill containers. Residue may ignite with explosive violence if heated sufficiently. Do not pressurise or expose to open flame or heat. Keep container closed and bung in place.

Conditions for Safe Storage

Store in a cool, dry, well ventilated area away from sources of ignition. This product should be stored away from foodstuffs and strong oxidising agents. Minimum feasible handling temperatures should be maintained. Periods of

exposure to high temperatures should be minimised. Water contamination should be avoided. For information on the design of the store-room reference should be made to Australian Standard AS1940, The storage and handling of flammable and combustible liquids. Reference should also be made to any relevant Commonwealth, State or Territory regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	No value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC). However, Exposure Standards for oil mist are listed below. SUBSTANCE TWA STEL ppm mg/m ³ ppm mg/m ³ Oil mist, mineral - 5 - 10
Engineering Controls	Ensure sufficient ventilation to keep airborne concentrations below exposure limits. Local exhaust ventilation and/or enclosure of the work process is preferred in these cases.
Respiratory Protection	Where vapours, mists or spray is generated and exposure standards are exceeded, select and use respirators in accordance with AS/NZS 1715/1716. The use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels for each individual circumstance.
Eye Protection	If possibility of eye contact exists safety glasses with side shields or goggles should be worn as described in Australian Standard AS/ANZ 1337 - Eye Protectors for Industrial Applications.
Hand Protection	Impervious PVC or rubber gloves should be worn to minimise skin contact.
Body Protection	Any routine contact with this material should require the use of protective clothing such as an apron made of neoprene, nitrile, or n-butyl rubber suitable for the application.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear mobile liquid with a mineral oil odour.
Melting Point	Not available
Boiling Point	Not available
Solubility in Water	Negligible
Specific Gravity	0.89
Vapour Pressure	Not available
Viscosity	67.6 cSt @ 40°C
Flash Point	235°C
Flammability	Classified as a Class C2 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS1940. This product should be stored and used in a well ventilated area away from naked flames, sparks and other sources of ignition.
Flammable Limits - Lower	Not available
Flammable Limits - Upper	Not available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of storage and handling.
Incompatible Materials	Strong oxidising agents.
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide, aldehydes and ketones.
Hazardous Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	The main constituents in this product are in accordance with Note L of the NOHSC Designated List of Hazardous Substances, the manufacturer has had the main constituents tested in accordance with IP346 and contain less than 3% polyaromatics.
Inhalation	Inhalation of vapours or mists generated at elevated temperatures may cause respiratory system irritation and other pulmonary effects.
Ingestion	May cause irritation of the gastrointestinal tract with nausea, vomiting and diarrhoea if more than several mouthfuls are swallowed.
Skin	May dry and defat the skin, resulting in skin irritation and possible dermatitis. Injection of oil under the skin may result in serious injury. Seek medical attention at once.
Eye	Eye contact may cause mild irritation with stinging, blurring and tearing.
Chronic Effects	Prolonged or repeated contact may result in skin irritation leading to dermatitis.

12. ECOLOGICAL INFORMATION

Environment Protection	This material must not be allowed to enter drains, sewers or waterways.
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13. DISPOSAL CONSIDERATIONS

Waste Disposal	Dispose of waste according to federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.
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14. TRANSPORT INFORMATION

Transport Information	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
U.N. Number	None Allocated
Proper Shipping Name	None Allocated
DG Class	None Allocated
Hazchem Code	None Allocated
Packing Group	None Allocated

15. REGULATORY INFORMATION

Poisons Schedule	Not Scheduled
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16. OTHER INFORMATION

Contact CHEMICAL EMERGENCIES: 1 800 033 111

Person/Point TECHNICAL ADVICE: 1300 364 169

Health & Safety Advisor

Tel: (02) 9695 3607 or (02) 9250 5900

PLEASE NOTE that although every care has been taken in compiling the above information, it is solely reliant upon data available to us at the date hereof. We believe the data to be correct, however for the reason just stated we are not in a position to warrant its accuracy. With that in mind and given that the full range of possibilities and conditions under which the information may be applied simply cannot be anticipated, YOU ARE CAUTIONED to make your own determinations as to the veracity and the suitability of the information to the particular circumstances that apply, or may apply, to you from time to time. Consistent with that approach it is recommended that where you have a particular purpose which would necessitate a reliance on information of the nature herein you obtain your own independent expert advice particularly structured to the relevant purpose. If this material is printed, circulated, distributed or copied in any manner, it is not to be modified without prior written permission, and further, it is to include the wording of the above disclaimer.

Literature REGULATIONS SPECIFICALLY APPLICABLE TO THE CHEMICAL PRODUCT:

References COMMONWEALTH OF AUSTRALIA: Respirators must follow AS1715/1716 standard for approved respirators.

NEW ZEALAND: Respirators must follow NZS 1715/1716 standard for approved respirators.

INTERNATIONAL (ALL COUNTRIES): In the absence of local approved authorities, follow U.S. NIOSH/MSHA, U.K. BSI, Australian AS1715/1716, or New Zealand NZS 1715/1716 standards.

AUSTRALIA POISON SCHEDULE: Not applicable.

NZ DANGEROUS GOODS CLASS: Not applicable.

NZ TOXIC SUBSTANCES SCHEDULE: Not applicable.

End of MSDS

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Shell Chainsaw Bar Oil

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Code 100C0107

Infosafe No. ACMFS AU/eng/C

Issued Date 14/06/2005

Product Type/Use Machine oil.

Other Names Name Code

181864

Shell Chainsaw Bar Oil 140000000227

Supplier Telephone Numbers

Emergency Tel.

Shell Company of Australia Ltd.
Level 2, 8 Redfern Road, 1800 651 818
Hawthorn East, Victoria 3123 Telephone/Fax Number

(ABN 46 004 610 459) Tel: 03 9666 5444 Fax: 03 8823 4800
AUSTRALIA

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description

Highly refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

3. HAZARDS IDENTIFICATION

Hazards Identification

NON-HAZARDOUS SUBSTANCE.

NON-DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC.

Dangerous goods classification according to the Australia Dangerous Goods Code.

Human Health Hazards

No specific hazards under normal use conditions. Prolonged or repeated exposure may give rise to dermatitis.

Used oil may contain harmful impurities.

Safety Hazards

Not classified as flammable, but will burn.

Environmental Hazards

Not classified as dangerous for the environment.

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Shell Chainsaw Bar Oil

Shell Chainsaw Bar Oil

FIRST AID MEASURES

Symptoms and Effects

Not expected to give rise to an acute hazard under normal conditions of use.

Inhalation

In the unlikely event of dizziness or nausea, remove casualty to fresh air. If symptoms persist, obtain medical attention.

Skin

Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under

191964

the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.

Eye

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion

Wash out mouth with water and obtain medical attention. Do not induce vomiting.

Advice to Doctor

Treat symptomatically. Aspiration into the lungs may result in chemical pneumonitis. Dermatitis may result from prolonged or repeated exposure. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function.

5. FIRE FIGHTING MEASURES

Specific Hazards

Combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

Extinguishing Media

Foam and dry chemical powder. Carbon dioxide, sand or earth may be used for small fires only.

Unsuitable Extinguishing Media

Water in jet. Use of halon extinguishers should be avoided for environmental reasons.

Protective Equipment

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Avoid contact with skin and eyes. Wear PVC, Neoprene or nitrile rubber gloves. Wear rubber knee length safety boots and PVC Jacket and Trousers. Wear safety glasses or full face shield if splashes are likely to occur.

Environmental Precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Inform local authorities if this cannot be prevented.

Clean-up Methods -Small Spillages

Absorb liquid with sand or earth. Sweep up and remove to a suitable, clearly marked container for disposal in accordance with local regulations.

Shell Chainsaw Bar Oil

Shell Chainsaw Bar Oil

Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Dispose of as for small spills.

7. HANDLING AND STORAGE

Handling

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Avoid prolonged or repeated contact with skin. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Prevent spillages. Cloth, paper and other materials that are used to absorb spills present a fire hazard. Avoid their accumulation by disposing of them safely and immediately. In addition to any specific recommendations given for controls of risks to health, safety and the environment, an assessment of risks must be made to help determine controls appropriate to local circumstances.

Storage

Keep in a cool, dry, well-ventilated place. Use properly labelled and closeable containers. Avoid direct sunlight, heat sources, and strong oxidizing agents.

Storage Temperatures

0°C Minimum. 50°C Maximum.

Recommended Materials

For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials

For containers or container linings, avoid PVC.

Other Information

Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits

Substance Regulations Exposure Duration

Exposure Limit Units Notes

Oil mist, mineral NOHSC:1003 TWA 5 mg/m³

NOHSC:1003 STEL 10 mg/m³

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environ

NOHSC:1003

ment [NOHSC:1003(1995)] -3rd Edition

Exposure Controls

Use local exhaust ventilation if there is a risk of inhalation of vapours, mists or aerosols.

Respiratory Protection

Not normally required. If oil mist cannot be controlled, a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be used.

Hand Protection

PVC or nitrile rubber gloves.

Eye Protection

Wear safety glasses or full face shield if splashes are likely to occur.

Body Protection

Minimise all forms of skin contact. Overalls and shoes with oil resistant soles should be worn. Launder overalls and undergarments regularly.

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Shell Chainsaw Bar Oil

Shell Chainsaw Bar Oil

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour Amber.

Physical State Liquid at ambient temperature.

Odour Characteristic mineral oil.

pH Value Data not available.

Vapour Pressure Expected to be less than 0.5 Pa at 20°C.

Initial Boiling Point Expected to be above 280°C.

Solubility in Water Negligible.

Density circa 884 kg/m³ at 15°C.

Flash Point circa 218°C (COC).

Flammable Limits -Upper 10% V/V (typical) (based on mineral oil).

Flammable Limits -Lower 1% V/V (typical) (based on mineral oil).

Auto-Ignition Temperature Expected to be above 320°C.

Kinematic Viscosity circa 108 mm²/s at 40°C.

Evaporation Rate Data not available.

Vapour Density (Air=1) Greater than 1.

Partition co-efficient, n-octanol/water Log Pow expected to be greater than 6.

Pour Point Data not available.

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Materials to Avoid

Strong oxidizing agents.

Hazardous Decomposition Products

Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment

Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the toxicology of similar products.

Acute Toxicity -Oral

LD50 expected to be > 2000 mg/kg.

Acute Toxicity -Dermal

LD50 expected to be > 2000 mg/kg.

Acute Toxicity -Inhalation

Not considered to be an inhalation hazard under normal conditions of use.

Eye Irritation

Expected to be slightly irritating.

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Shell Chainsaw Bar Oil

Shell Chainsaw Bar Oil

Expected to be slightly irritating.

Respiratory Irritation

If mists are inhaled, slight irritation of the respiratory tract may occur.

Skin Sensitisation

Not expected to be a skin sensitizer.

Carcinogenicity

Product is based on mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Other components are not known to be associated with carcinogenic effects.

Mutagenicity

Not considered to be a mutagenic hazard.

Reproductive Toxicity

Not considered to be toxic to reproduction.

Other Information

Prolonged and/or repeated contact with this product can result in defatting of the

skin, particularly at elevated temperatures. This can lead to irritation and possibly dermatitis, especially under conditions of poor personal hygiene. Skin contact should be minimised. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed. Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

12. ECOLOGICAL INFORMATION

Basis for Assessment

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility

Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence / Degradability

Not expected to be readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation

Contains components with the potential to bioaccumulate.

Ecotoxicity

Poorly soluble mixture. May cause physical fouling of aquatic organisms. Product is expected to be practically non-toxic to aquatic organisms, LL/EL50 >100 mg/l. (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

Other Adverse Effects

Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential. Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.

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Shell Chainsaw Bar Oil

Shell Chainsaw Bar Oil
DISPOSAL CONSIDERATIONS
Waste Disposal

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Recycle or dispose of in accordance with prevailing regulations, by a recognised collector or contractor. The competence of the contractor to deal satisfactorily with this type of product should be established beforehand.
Do not pollute the soil, water or environment with the waste product.

Product Disposal

As for waste disposal.

Container Disposal

Recycle or dispose of in accordance with the legislation in force with a recognised collector or contractor.

14. TRANSPORT INFORMATION

Transport Information

Not dangerous for transport under ADG, IMO and IATA/ICAO regulations.

ADG UN Class

None Allocated

ADG Packing Group

None Allocated

ADG Hazchem Code

None Allocated

IMDG Hazard Class

None Allocated

IMDG Packing Group

None Allocated

15. REGULATORY INFORMATION

EC Symbols None.

EC Risk Phrase Not classified.

EC Safety Phrase Not classified.

EINECS All components listed or polymer exempt.

AICS (Australia)

All components listed.

National Legislation

National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011]

List of Designated Hazardous Substances [NOHSC:10005].

Approved Criteria for Classifying Hazardous Substances [NOHSC:1008].

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment

[NOHSC:1003].

Australian Dangerous Goods Code.

Standard Uniform Scheduling of Drugs and Poisons.

Packaging & Labelling

Safety data sheet available for professional user on request.

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OTHER INFORMATION

References

For detailed advice on Personal Protective equipment, refer to the following Australian Standards :HB
9 (Handbook 9) Manual of industrial personal protection.
AS/NZS 1337 Eye protectors for industrial applications.
AS/NZS 1715 Selection, use and maintenance of respiratory protective devices.
AS/NZS 1716 Respiratory protective devices.

Poisons Schedule

NS.

Restrictions

This product must not be used in applications other than recommended without first seeking the advice of the SHELL technical department.

Technical Contact Numbers

(03) 9666 5444.

Further Information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute a guarantee for any specific property of the product.

... End Of SDS ...

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Training Matrix – Addendum No. 2

Job description	Chipper Operator	Chipper Offsider	Ground Labour	Traffic Controller	Notifier	EWP Observer	EWP Cutter	Supervisor	Tree Climber	Tree Climber Groundsman/	Groundline Vegetation Control	Other Contract Management
Enviro Induction	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WorkCover OHS Induct Training	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First Aid	1 on site	1 on site	1 on site	1 on Site	No	1 on site	1 on site	Yes	Yes	Yes	1 on Site	No
Resuscitation (CPR)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LV Release & Rescue	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Aerial rescue (tree climber)	No	No	No	No	No	No	No	No	Yes	Yes	No	No
Manual Handling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Crane & Plant ISSC26 (5099)	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Traffic Controllers	1 on site	1 on site	1 on site	Yes	No	1 on site	1 on site	Yes	1 on site	1 on site	No	No
Worksite traffic control	1 on site	1 on site	No	Yes	No	1 on Site	1 on site	Yes	1 on site	1 on site	No	No
Chainsaw Level 1 & 2	1 on site	1 on site	1 on site	no	no	Yes	Yes	Yes	Yes	Yes	Yes	No
Operate Other plant training	yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RTC2706A Apply chemicals under supervision	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No
RTC 3704A Prepare & apply chemicals	No	No	No	No	No	No	No	Yes	No	No	No	No
Spikeless Tree Climbing	No	No	No	No	No	No	No	No	Yes	Yes	No	No

PERSONAL PROTECTIVE EQUIPMENT MATRIX

Minimum Equipment Required	Helmet	Ear Protection	Eye/ Face Protection	Dust Protection	Protective Clothing (Uniform)	Gloves	Cut Resistant Clothing	Sun Screen	Boots
Truck Driving			✓		✓	✓		✓	✓
Chipper Operation	✓	✓	✓	✓*	✓	✓		✓	✓
Labouring	✓	✓	✓		✓	✓		✓	✓
Chainsaw Operator	✓	✓	✓		✓	✓	✓	✓	✓
Tree Climbing	✓	✓	✓		✓	✓	✓	✓	✓
Load Lowering	✓	✓	✓		✓	✓		✓	✓
EWP Operation	✓	✓	✓		✓	✓		✓	✓
Stump Grinding	✓	✓	✓	✓*	✓	✓		✓	✓
Crane Truck	✓	✓	✓		✓	✓		✓	✓

*Where applicable, refer to Hazard Assessment

Equipment	Use	Type	Comments
Helmet	Tree Climbing	Fall protection	Inspect and replace harness every 2 years Inspect and replace shell every 3 years
Helmet	Ground work	Industrial site helmet	Inspect and replace harness every 2 years Inspect and replace shell every 3 years
Ear Protection	>60 dB	Muffs	Clean regularly, replaced when worn Use hygiene kits when required
Ear Protection	<60 dB	Ear Plugs	Single use only
Eye Protection	All tasks	Glasses	Safety glasses with UV protection AS 1337
Face Protection	Stump grinding	Face Shield	Use risk assessment to determine use
Dust Mask	Dust control	Dust mask	Single use only
Protective Clothing	Roadside	High visibility	Do not cover with other clothing. No Red / Green or Yellow to be worn inside Rail Corridor
Cut resistant Clothing	Chainsaw protection	Chaps or Pants	Replace if damaged
Sunscreen	Sun protection	SPF 30+	Apply regularly
Boots	All tasks	Steel toed preferred	Use risk assessment to determine needs.
Gloves	All tasks on RLA including management	Leather riggers – ops crew Lightweight – management	Gloves are standard RLA requirement for all personnel

Important note: All equipment must be maintained to manufacturer's recommendation.

CLIMBING EQUIPMENT MINIMUM STANDARDS MATRIX

Product	Use	Type	Minimum Breaking Strain	Minimum WLL	Minimum Number req'd	Minimum Size	Comments
Rope	Climbing	Synthetic	3000kg	300kg	2 x working height	11mm dia.	Inspect daily
Friction Knot	Climbing	Synthetic	3000kg	300kg	2	8mm dia	Rapid wearing inspect daily
Karabiners	Personal Load	Steel/ Alloy	3000kg	600kg	2	N/A	Must be locking type
Harness	Restraint	Work position	AS2626	Personal Use	1	N/A	Arborist style
Pulley	Personal Load	Rescue/ work	2000kg	400kg	1	40mm	Not for load lowering
Sling	Personal Load	Rope or webbing	AS1352.2	2400kg	1	>14mm	Pre sown
Lanyard	Tool restraint	Break away	Weak link (100kg)	N/A	1	1.2m	Inspect daily
Flip line	Work positioning	Rope or wire	Proof load 75kn	300kg	1	1.2m	Fall not to exceed 600mm
Pole strap	Work positioning	Webbing	Proof load 75kn	300kg	1	2m	Note date or withdrawal
Ascenders	Climbing up	Alloy / steel	N/A	400kg	1	11 – 13mm rope dia.	Training req
Descenders	Climbing down	Alloy / steel	N/A	400kg	1	11 – 13mm rope dia	Auto locking

Important Notes;

- Equipment must be maintained in accordance with manufacturer's specifications.
- WLL of equipment must be known before use.
- Damaged or worn equipment must be replaced before work continues.
- Do not use climbing equipment for rigging.

MINIMUM STANDARDS FOR RIGGING EQUIPMENT						
Product	Use	Type	Minimum Breaking Strain	Minimum WLL	Minimum Number req'd	Comments
Pulley	Lowering Loads	Single rope Stainless steel	9000kg	1800kg	2	Must take >13mm rope
Sling	Lowering Loads	Synthetic	7000kg	1000kg	2	Rope or Webbing type
Shackle	Lowering	Steel	10,000kg	2000kg	2	Ensure pin is located correctly
Rope	Lowering Loads	Synthetic	3000kg	300kg	Two x working height	Inspect Daily
Lowering Device	Load control	Engineered	N/A	N/A	1	Trained operators only

Important Notes;

- Equipment that is used for Rigging and load bearing can not be used for Personal load under any circumstances
- Equipment must be maintained in accordance with manufacturer's specifications.
- WLL of equipment must be known before use.
- Damaged or worn equipment must be replaced before work continues.

