

Vault ID #	Task/Area where hazards exists	Hazard – what can cause harm	Potential outcome – what can happen	Likelihood	Consequences	Risk Rating (Inherent)	Required Control Measures List the control measures required to eliminate or minimise the risk of illness or injury for each hazard identified	Frequency of Monitoring or Action Date	Personnel Responsible The person required to action the control measure	Eliminate	Type Minimisation Controls	Likelihood	Consequences	Risk Rating (Residual)
Assumptions: Provisions of the Approved Code of Practise will apply to all operations as the minimum required standard and will not be re-visited in the control plans below (inclusive of PPE, emergency items, standard operating procedures, maintenance of plant & equipment to manufacturers specifications, training and supervision practices).									High Risk After Controls: Ops Manager approval required. Manual felling windthrow or new controls GM Approval required.					
4212	Driving <u>inside</u> Forest LVs, or other All (ref code 6451 for HV)	Drivers Terrain Trees Animals Fatigue Mechanical Failure	Head on Rollover Stuck/stranded Fatality Serious-Minor Injury Asset damage	B	5	E	- PP forest road condition (build/maintain) Eng standards - PP forest GIS mapping available (app) - PP contractor pre-qualification, induction & monitoring - PP driving standards & critical rules 50km speed limit - Seat belt worn at all times - Able to stop in ¼ the visible distance - RT & road position call outs - Lights on - PP vehicle purchasing & maintenance standards - Forests competency checks - Hands free mobile device & policy - Fatigue management guidelines & policy, max work hours or min break - Traffic Management practises as per the BPG for private Forestry Roads - Monitoring devices in vehicles, actively managed - Monitoring devices in vehicles	All times All times All times All times All times As required All times All times As required All times All times	Pan Pac Pan Pac Pan Pac Pan Pac / entrants Pan Pac / staff Pan Pac / staff Pan Pac / staff Pan Pac/contractor Pan Pac/contractor Pan Pac Contractor		Eng A A A Eng A A A A A A	D	5	M
5212	Driving <u>outside</u> Forest LVs or other All (ref code 6452 for HV)	3 rd Party Drivers Road conditions Traffic Management Fatigue Mechanical Failure	Head on Rollover Stuck/stranded Fatality Serious-Minor Injury Asset damage	B	5	E	- PP vehicle purchasing & maintenance standards (4wd LVs) - Forests competency check - Hands free mobile device & policy - Drive within the law, adhering to road code - Fatigue management guidelines & policy, max work hours or min break (see fatigue) - Traffic Management practises as per the NZ Roding Authority - Monitoring devices in vehicles, actively managed - Monitoring devices in vehicles	All times All times All times All times All times All times All times All times	Pan Pac / staff Pan Pac / staff Pan Pac / staff Pan Pac/contractor Pan Pac/contractor Pan Pac/contractor Pan Pac Contractor		Eng A Eng A A A A A	D	5	M
5214*	Cutting wind throw – manual This method can only be used if the machine method is not practicable	Struck by the tree Root ball movement Hit by sailor or bouncing spars Chainsaw kickback Unstable soils	Fatality Crushing injuries Fractures Lacerations Amputations Cuts	A	5	E	- Mapping to identify known high risk items ie tomos, areas of windthrow, archaeological sites - If unable to machine fell; - Approval to Harvest via manual falling rests with Operational Manger - Approval to Harvest windthrow via manual falling rests with GM Forests - Complete pre-operational haz id & risk assessment. - Conduct onsite haz id, risk assessment, control plant & tailgate meeting - Establish minimum controls for Manual Felling #6398 - Apply task specific assessment for windthrow, includes; map scale 0.1 h in use, a qualified 2 person felling team, observer must be a certified Snr Feller, Beaufort scale maximum wind conditions to 16-17 knots - Qualified/certified wind throw cutter (Level 4 unit standards) - Qualified/certified level 4 tree faller as observer (harvesting only) - Minimum Approach Distance; 2 tree lengths 5 step tree felling plan - RT communications established - If the above control measures cannot be implemented - leave the tree. Note GPS co-ordinates and advise Supervisor/PP - Advise neighbours/organisations when cutting near assets or infrastructures	By harvest unit All times Before starting/daily All times All times All times All times All times All times All times All times	Pan Pac Pan Pac/ Contractor Contractor Contractor Contractor Contractor Contractor Faller All Faller Faller	X	A A A A A A I A	C	5	H
5215	Environs (hazards) in forests All tasks Plotting PP Planning Monitoring (HS, Env)	Environs (hazards) in forests Steep terrain, Bluffs, cliffs Ground depressions, tomos Undergrowth - gorse, nettle, blackberry Insects Animals	Health impact Infection Anaphylaxis Strain, Sprain Fracture	B	3	H	- PP forest GIS mapping available (app), slope mapping provided - Forestry staff training - Forestry hydration/nutrition training - Assess the path of travel - PPE (sturdy footwear, chaps, gorse capes, gators or other) - Notify Manager, supervisor, foreman of allergies, plan for emergencies - Carry epi pen	All times All times 1 st 3 months All times All times All times As required	Pan Pac Pan Pac All entrants All entrants Pan Pac/contractor Entrants Entrants	X	A A A A A A A	C	2	M
5216	Unauthorised access Security All	Unauthorised access Unsavoury or aggressive persons Fire arms Fires	Interference Violence – acute or long lasting injury Theft Asset damage	D	4	M	- Gates with e-locks (transition) - Gates with keys, key issuing practises (transition) - Induction & authorisation to enter practises - Security patrols (2 up), security trained with body armour & cameras - Landowner agreements, risk mgmt., access practises (exclusion during operating hours) - Hunting permit system (PP forests) - Iwi hunting permit system (lease forests)	All times All times All times All times As required As required All times	Pan Pac Pan Pac Pan Pac Pan Pac/contractor Pan Pac / owner Pan Pac Iwi	X	I, A I, A A A A A A	D	5	M

5218	Weather Security All	Adverse Weather Wind Isolation Road conditions Trees	Fatality, hit by object Serious-Minor Injury, heat stroke, hypothermia, hyperthermia Asset damage	C	3	H	- Weather monitoring & awareness, use of Apps and advisories - Adverse Weather Procedure (FOR-PRO-HS13) - Forest full or part closure - Work & vehicle location – move to protected area - All workers empowered to stop work, reassess	All times As required As required As required	Pan Pac / entrants Pan Pac / entrants Contractors Entrants	X	A A A I I	D	3	M
5220	Operating Quad bikes / ATV	ATV & trailer - tip, rollover, loss of control Mechanical failure Steep or unstable terrain Animals	Head on Rollover Stuck/stranded Fire Fatality Serious-Minor Injury Asset damage	C	5	H	- PP forest road condition (build/maintain) Eng standards - PP forest GIS mapping available (app) - Pan Pac competency check - Trailer design with twin axle, braked and maintained - ATV with rollover protection, fail to safe seat belts fitted, helmets supplied - Daily pre-start check - Operate to the conditions & terrain, remain on forestry roads or track as able - Maintain safe working limits, load capacity - Regular cleaning and removal of fine debris - Fire extinguisher fitted, annual checks - PP driving standards & critical rules - Seat belt worn at all times - Able to stop in ½ the visible distance - RT & road position call outs on active roads - Lights on	All times All times All times All times All times All times All times All times All times All times All times All times	Pan Pac Pan Pac Pan Pac Pan Pac/contractor Pan Pac/contractor Operator Operator Operator Operator Operator Operator Operator	X	Eng A A A Eng Eng A A A A A A	D	5	M
5221	All	Alcohol & other substances -workers under the influence	Fatality Serious-Minor Injury Asset damage	C	5	H	- Pan Pac policy, procedure FOR-PRO-HS23 - PP staff education - Pre-employment, Random testing and detection program - Post incident testing	All times As required All times As required	Pan Pac Pan Pac staff Entrants Entrants	X	A A A A	D	5	M
5222	All	Stress & Fatigue	Injury Illness Environmental damage Asset damage	B	3	H	- Fatigue management procedure, (FOR-GUI-HS01) max work hours 13 per day, 70 per week - Employee assistance program - Plan & prioritise workload - Maintain sleep, fitness, recreation as per Forestry training - Maintain Hydration, nutrition as per Forestry training - Report, adjust start times as required	All times As required As required All times All times As required	Pan Pac/contractor Pan Pac/staff Pan Pac /staff Entrant Entrant Entrant	X	A A A A A A	D	1	L
5223		<i>Animals/insects merged into environs of forest</i>					•							
5224	All	External Environment UV light Dust Pollens Weather	Heat stress or stroke, Hypothermia/hyperthermia, Dehydration, Respiratory infections, Melanoma/sun burn, Eye injuries	A	3	H	- First aid kit available - Trained first aiders - Maintain hydration & nutrition as per Forestry training - Wear appropriate clothing & protective gear, carry spares as required - Minor allergies to be treated as needed - Annual skin checks as per PP segregation groups	All times All times All times All times All times Annual	Pan Pac/contractor Pan Pac/contractor Entrant Entrant Entrant Pan Pac & staff	X	A A A A A A	D	1	L
5225	Operating Chainsaws (not otherwise identified)	Incorrect technique - kickback Poor maintenance Untrained Rotating parts Noise Vibration Hazardous Substances Lithium batteries (Fire)	Amputations Lacerations Hearing loss Eye Injuries Nerve damage Fire Asset damage	A	3	H	- Trained operator (NZQA 6916, 6917, 23411) - SBOs completed 6 monthly - Maintain minimum approach distances applicable to the type of use - Chain break applied when idling, moving through the forest - Spark arrestor fitted and tested - Minimum Approach Distance; 2 tree lengths - SDS's on hand and understood - LIPO bags, lithium fire blankets - Anti-vibration gloves recommended	All times 6 monthly All times All times All times All times All times All times All times If required	Pan Pac/contractor Pan Pac/contractor Contractor/operator Operator Operator All Pan Pac/contractor Pan Pac/contractor Pan Pac/contractor	X	A A A Eng A A A	D	2	L
5226	Operating Hand Tools	Hand Tools & batteries (ie slashers, spades, winches, shovels, machetes, water blasters, grinders, grease guns, drills...)	Lacerations Bruises Strains & sprains Fire	C	2	M	- Tool selection for safety, maintained and used as manufactured - Daily checks - Sharp blades protected when carrying, transporting (cut resistant pouches as available) - Maintain minimum approach distances (MADs) of 2-5m during use - LIPO bags, lithium fire blankets	All times All times All times All times All times	Pan Pac/contractor Operator Operator Operator Pan Pac/contractor	X	A A A, I I A	D	2	L
5227	All	Working Alone or Remote	Fatality Serious-Minor Injury Ill health Unsavoury interactions	D	4	M	- No working alone, or - Working alone procedure with check in times 2 forms of reliable communication - Carry e-perb, in reach - GPS installed in vehicles and monitored	All times As required All times All times All times	Contractor Pan Pac / contractor Pan Pac / contractor Entrant Pan Pac / contractor	E	A A Eng Eng, A	D	4	M
5228	Fences – use and installation	Electricity Barb wire Heavy lifting Augers	Electrocution Loss of limb Infection Strain or sprain Eye Injury	C	1	L	- Use gates or stiles, maintain 3 pts of contact - TMP in place when installing or maintaining within 1 tree length of active forestry road - Use all machinery/tools as intended, no working alone with augers - Fit for work, 2 person or mechanised lifting - Situational awareness and judgement - Minimum Approach Distances and PPE (safety glasses) when wire straining	All times As required All times All times All times As required	Entrant Contractor Contractor/operator Contractor/operator Entrant Entrant	E	A A A A A	C	1	L

5238	Overlapping Duties Other operations (working with or in close proximity)	Traffic Machine on person Machine on machine, Dislodged material Hazardous Substances Unauthorised entry	Fatality Serious-Minor Injury (acute or chronic) Unsavoury interactions	C	5	H	- PP contractor pre-qualification, induction & monitoring - PP scheduling and notification - Pre-operational hazard id, risk assessment, control plan - Job planning between crew foremen, operators, PP staff, with agreed control and communication plan, noted in daily tailgate - TMP in place as required - Rule: 2 tree length minimum approach distance for all tree felling	All times All times Before starting/ daily All times As required All times	Pan Pac Pan Pac Contractor Pan Pac/contractors Contractors All	X A A A A A	D	5	M
5239	Forestry Fire Response All	Fire Smoke Heat Stability of terrain Heat impact/fracturing of rocks Trees	Fatality Serious-Minor Injury Crush Smoke Inhalation Burns Hypothermia Asset damage	B	5	E	- FENZ & PP fire plan & fire codes - Authorised persons - Fire Dams in place & maintained - Powerline corridors in place & maintained (MADs - transmission 24m, 4m approach) - PP Fire watch, as required - PP Emergency response instructions - Rapid response equipment & personnel - Fire equipment standards & annual checks, Forestry equipment monthly checks - Machinery turbo or spark arrestors. Deluge fire systems when fitted. - High risk work permitting & restrictions - Fire Season Harvesting Crew Checklist 2 forest exits (from code orange)	Annual All times All times All times As required All times All times All times All times As required All times All times	Pan Pac Pan Pac Pan Pac Pan Pac Pan Pac Pan Pac/contractor Pan Pac/contractor Pan Pac/contractor Pan Pac/contractor Pan Pac/contractor PanPac/contractor	X A A Eng Eng A A Eng, A Eng Eng A A A A	D	3	M
5240	Towing trailers	Trailer operation and security Liquid/live load Insecure loads Hazardous Substances Terrain/road conditions	Loss of control (vehicle/trailer) Roll over Spill Asset damage	C	5	H	- Trailer engineered with trailer brakes and security chain fitted - Daily pre-start check - Loads secured - Hazardous substance controls in place (SDS, fire extinguisher, signage as required) - Drive to the conditions (see 4212/5212), identify suitable turn arounds	All times All times All times All times All times	Pan Pac/contractors Pan Pac/contractors Operators Pan Pac/contractors/operators Operators	X Eng A Eng A A	C	2	L
5265	Tree felling near Powerlines <u>Energised</u>	Electrocution Arc Flash Fire Incorrect technique - kickback Poor maintenance Untrained Rotating parts Noise Vibration Hazardous Substances	Fatality Serious Injury Burns Asset Damage	B	5	E	- Maintain power line corridors free of vegetation - PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping available (app) + location specific mapping with power lines and control point identified - Vegetation clearance by approved arborist as required - Close approach permit approved and active - Phone power provider and confirm control, job start & stop - Emergency response plan in place - Minimum approach distances for people, plant & vegetation; 4m 110kV or 6m >110kV. - Pre-operational hazard id, risk assessment, control plan - TMP as required	All times All times All times As required As required As required All times All times Before starting/ daily As required	Pan Pac Pan Pac Pan Pac Pan Pac Pan Pac/contractor Contractor Pan Pac/contractor Contractor Contractor Contractor	X I A A I A A A I A I	E	5	M
5266	Tree felling near Powerlines <u>De-energised</u>	Electrocution from test pulse Incorrect technique - kickback Poor maintenance Untrained Rotating parts Noise Vibration Hazardous Substances	Serious Injury Burns Asset Damage	D	3	H	- Maintain power line corridors free of vegetation - PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping available (app) + location specific mapping with power lines and control point identified - Vegetation clearance by approved arborist as required - Close approach permit approved, and active - Phone power provider and confirm control, job start & stop - Minimum approach distances for people, plant & vegetation; 4m 110kV or 6m >110kV. - Pre-operational hazard id, risk assessment, control plan - TMP as required	All times All times All times As required As required All times All times Before starting/ daily As required	Pan Pac Pan Pac Pan Pac Pan Pac Pan Pac/contractor Contractor Contractor/operator Contractor Contractor	X I A A I A A I A I			M
5279	Tree Felling Mechanical	Machinery Tree Terrain Maintenance Fire	Fatality Serious-Minor Injury Crush Asset damage	A	5	E	- PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping with slope characteristics available (app) - Pre-operational hazard id, risk assessment, control plan & tailgate - Machinery with protective structures ROPs/FOP/COPs, certified, fit for purpose & maintained - Seat belts must be worn (4pt harness) - Communicate when exiting machine on felling face - Machinery maintenance requires lock out, de-energisation - Rule: minimum approach distance 2 tree length - Rule: minimum approach distance 70m chain shot when processing	All times All times Before starting/ daily All times All times As required All times All times All times	Pan Pac Pan Pac Pan Pac/contractor Contractor Contractor/operator Operator Contractor/operator Contractor/operator Contractor/operator	X A A A Eng Eng, A A I I I	D	5	M

5280	Tree Felling – machine assisted	Struck by the tree, ropes or machine Hit by sailor or bouncing spars Butt rebound Chainsaw kickback Unstable soils Flying debris Noise Fumes Vibration Other persons Roads in the vicinity Working around bluffs Machine tip or pulled over Machine struck by tree or ropes Machine access, exit Maintenance	Fatalities Crushing or puncture injuries Amputations Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains	A	5	E	- PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping with slope characteristics available (app) - Pre-operational & onsite hazard id, risk assessment, control plan & tailgate - Machinery with protective structures ROPs/FOP/COPs, certified, fit for purpose & maintained - Specific engineered attachments for machine assisting. - Establish minimum controls and MADs for Manual Felling #6398 - Qualified/certified machine assisted faller or under direct supervision of a senior cutter or trainer - Qualified machine operator specific to the machine or under direct supervision. Trained in US 1256 - RT communication - Seat belts must be worn, 4pt harness (in the cut over) - Inspect & replace worn or incorrectly constructed wire ropes. - Lock out device must be applied when carrying out machine maintenance & ensure the machine is stabilised	All times All times Before starting/ daily All times All times All times All times All times All times All times All times As required As required	Pan Pac Pan Pac Pan Pac/ Contractor Contractor Contractor Contractor Contractor Contractor All persons Contractor/Operator Contractor Operator Operator/Maintainer	X	A A A Eng Eng A A A A Eng A A A, Eng	D	5	M
5281	Cutting wind throw – machine assisted	Struck by the tree, ropes or machine Hit by sailor or bouncing spars Butt rebound Chainsaw kickback Unstable soils Flying debris Noise Fumes Vibration Other persons Roads in the vicinity Working around bluffs Machine tip or pulled over Machine struck by tree or ropes Machine access, exit Maintenance	Fatalities Crushing or puncture injuries Amputations Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains	A	5	E	- PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping with slope characteristics available (app) - Pre-operational & onsite hazard id, risk assessment, control plan & tailgate - Machinery with protective structures ROPs/FOP/COPs, certified, fit for purpose & maintained - Specific engineered attachments for machine assisting. - Establish minimum controls and MADs for Manual Felling #6398 - Qualified/certified machine assisted faller or under direct supervision of a senior cutter or trainer - Qualified machine operator specific to the machine or under direct supervision. Trained in US 1256 - RT communication - Seat belts must be worn, 4pt harness (in the cut over) - Inspect & replace worn or incorrectly constructed wire ropes. - Lock out device must be applied when carrying out machine maintenance & ensure the machine is stabilised - Apply task specific assessment for windthrow, includes; map scale 0.1 h in use, a qualified 2 person felling team, observer must be a certified Snr Feller, Beaufort scale maximum wind conditions to 16-17 knots - Qualified/certified wind throw cutter (NZQA US1270) - Bar length allows cutting from one side. - If the above control measures cannot be implemented - leave the tree	All times All times Before starting/ daily All times All times All times All times All times All times All times All times As required All times All times All times All times	Pan Pac Pan Pac Pan Pac/ Contractor Contractor Contractor Contractor Contractor Contractor All persons Contractor Contractor Operator Contractor, All Faller Faller Faller	X	A A A Eng Eng A A A A Eng A	D	5	M
5282	Cutting wind throw - machine	Machine tip or pulled over Machine struck by tree or ropes Machine on machine Machine access, exit Maintenance Chainshot Unstable soils Flying debris Noise Fumes Vibration Other persons Roads in the vicinity Anchor failure	Crushing Serious injuries Strains, sprains Lacerations Cuts Asset Damage Haz Substance Spills	A	3	H	- PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping with slope characteristics available (app) - Pre-operational planning & hazard identification - Onsite hazard id, risk assessment, control plan & tailgate - Machinery with protective structures ROPs/FOP/COPs, certified, fit for purpose & maintained - Qualified machine operator specific to the machine or under direct supervision. Trained in US1256/US6945 - Seat belts must be worn, 4pt harness in the cutover - RT communications established (Operators must call up if exiting machines on felling face) - Anchor machine must be anchored as per manufacturers recommendation with e-stop fitted - Lock out device must be applied when carrying out machine maintenance & ensure the machine is stabilised - Approval to Harvest windthrow rests with Operational Manager - Tethered felling machines must not be worked on or maintained under tension. Always walk to a stable area away from the felling site.	All times By harvest unit All times All times All times All times All times All times Every anchor shift All times As required As required	Pan Pac Pan Pac Pan Pac Contractor Contractor Contractor & Operator Operator All persons All persons Operator or Maintainer Pan Pac, Contractor Operator	X	A A A A Eng A Eng A Eng I A Eng	D	2	L

5283	Breaking Out – cables (manual)	Mechanical failure Tailhold failure Person hit by a rope or trees Lifting heavy blocks, lines, or ropes, flying debris, Broken ropes, sprags, Ropes under tension, Anchor failure, Chainsaw operation, Slips, trips, falls,	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains	B	5	E	• PP contractor pre-qualification, induction & monitoring • PP forest GIS mapping with slope characteristics available (app) • Pre-operational planning & hazard identification • Onsite hazard id, risk assessment, control plan & tailgate • Establish breaking out plan with safe retreat position • Range finder • Qualified Head breaker out (US1258), easily identified • Qualified chainsaw operators (US23411) • Implement the documented danger triangle with MSD • Apply Minimum Approach Distances; ◦ No person to stand in the bite of working or loaded ropes ◦ All persons to stand min 15 metres or 2 strop lengths away moving ropes • Establish communication mechanisms with hauler operator to breaker out • Good anchor selection, dig the machine in correctly and apply movement monitoring • Do not overload hauler ropes • Use chainsaw winch to move ropes around • Use correct technique when hooking up. • Emergency & Rescue plan in use	All times By harvest unit All times All times By harvest unit All times All times All times Daily All times All times All times All times Ongoing All times All times	Pan Pac Pan Pac Pan Pac Contractor Contractor Contractor Contractor Contractor Contractor Contractor	X	A A A A Eng A A A A I	D	5	M
5284	Line Shifts	Person hit by a rope or trees Lifting heavy blocks, lines, or ropes, flying debris Broken ropes, sprags Ropes under tension Anchor failure Chainsaw operation, Slips, trips, falls, Tailhold machine pulled over	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains Asset Damage				• PP contractor pre-qualification, induction & monitoring • PP forest GIS mapping with slope characteristics available (app) • Pre-operational planning & hazard identification • Onsite hazard id, risk assessment, control plan & tailgate • Skid design as per ACoP (18m or conventional) • Landing pad build hand over list validation • Crew assignment matches build, adjust as required by contractor • Manual line shifts are to be notified to Pan Pac • Machine to AS/NZS standards with ROPs, FOPs, OPs, COPs. Safety mechanisms in use. • Good anchor selection, dig machine in correctly • Tight lining, no one in the machine • Apply Minimum Approach Distances during tail hold movement; ◦ No person to stand in the bite of working or loaded ropes ◦ All persons to stand min 15 metres or 2 strop lengths away moving ropes • Trained person to select and notch stumps • Training (operators must hold US6916, chainsaw operators US23411, breaker out US1258) • Chainsaw operators PP approved, 6 monthly assessments • Establish comms mechanisms with hauler operator/breaker out	All times By harvest unit All times All times By harvest unit By harvest unit By harvest unit As required All times As required As required As required As required As required Before starting All times	Pan Pac Pan Pac Pan Pac Contractor Pan Pac Pan Pac/ Contractor Pan Pac Contractor Contractor Contractor Contractor All persons Contractor Contractor Contractor, Pan Pac All persons	X	A A A A Eng A A A Eng Eng A I	D	4	M
5285	Breaking out – ground based	Person hit by a rope, trees, machines, flying debris Broken ropes, sprags, Ropes under tension, Chainsaw operation, Slips, trips, falls,	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains	B	5	E	• PP contractor pre-qualification, induction & monitoring • PP forest GIS mapping with slope characteristics available (app) • Pre-operational planning & hazard identification • Onsite hazard id, risk assessment, control plan & tailgate • Establish breaking out plan with safe retreat position • Range finder • Qualified chainsaw operators (US 23411) • Trained operator (US 1256) • Apply Minimum Approach Distances during tail hold movement; ◦ No person to stand in the bite of working or loaded ropes ◦ All persons to stand min 15 metres or 2 strop lengths away moving ropes • Establish communication mechanisms with machine operator to breaker out • Emergency & Rescue plan in use & confirmed with minimum medical supplies in place with Breaker Out	All times By harvest unit All times All times By harvest unit As required All times All times All times All times All times All times	Pan Pac Pan Pac Pan Pac/ Contractor Contractor Contractor Contractor Contractor Contractor All persons All persons Contractor/All persons	X	A A A A A Eng A A A I A A	D	4	M
5286	Extraction – ground based (forwarder)	Machinery Terrain Maintenance Fire	Fatality Serious-Minor Injury Crush Asset damage	B	5	E	• PP contractor pre-qualification, induction & monitoring • PP forest GIS mapping with slope characteristics available (app) • Pre-operational haz id, risk assessment, control plan & tailgate • Machinery with protective structures ROPs/FOPs, certified, fit for purpose & maintained • Seat belts must be worn (4pt harness) • Communicate when exiting machine on felling face • Machinery maintenance requires lock out, de-energisation • Work within forwarder load limits, maintain load heights under bolster or headboard • Minimum approach distance; ◦ 1 tree length during loading/unloading of forwarder	All times By harvest unit All times All times By harvest unit As required All times All times All times All times	Pan Pac Pan Pac Pan Pac/contractor Contractor Contractor/operator Operator Contractor Contractor Contractor	X	A A A E E A A A A I	D	5	M

5287	Extraction Cables	Chainshot Tower failure Rope failure Slips, trips, falls Machine failure Flying debris Poor vision Other persons in extraction or operational areas Anchor failure	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains Asset damage	B	5	E	- PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping with slope characteristics available (app) - Pre-operational planning & hazard identification - Onsite hazard id, risk assessment, control plan & tailgate (includes extraction plan) - Skid design as per ACoP (18m or conventional) - Landing pad build hand over list validation - Crew assignment matches build, adjust as required by contractor - Anchor monitoring min daily entered into register. 2-stage where practicable - Seat belts must be worn, 4 pt harness in the cut over - Daily checks and record register - Working rope and rigging register - Maintain safe working loads of ropes - Apply Minimum Approach Distances during tail hold movement; - No person to stand in the bite of working or loaded ropes	All times By harvest unit All times All times By harvest unit As required All times All times As required All times Daily Daily All times All times	Pan Pac Pan Pac Pan Pac Contractor Pan Pac Pan Pac/Contractor Contractor Contractor/all persons Contractor All persons Contractor Contractor Operator All persons	X	A A A A Eng A A A Eng Eng A A A A I	D	5	L
5288	Skid work – mechanised processing	Chainshot Struck by machine Tower failure Rope failure Terrain Machine failure Flying debris Poor vision Noise Other persons in extraction or operational areas Anchor failure	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains Asset damage	L	5	E	<i>Implement the controls for skid work – manual processing #5289</i> - Seat belts must be worn (4 pt harness recommended) - Machine with certified ROPS, OPS & FOPS, with polycarbonate glass to current standards, maintained & in use. - Implement the documented chain shot plan with appropriate signage - Processor location sets the skid plan. Apply minimum approach distances; 70m chainshot zone	All times All times All times All times All times	Contractor Operator Contractor Contractor Contractor	X	Eng Eng A I, A	D	5	M
5289	Skid work – manual processing	Chainshot Struck by machine, trailer, log Tower failure Rope failure Terrain Machine failure Flying debris Poor visibility Chainsaw Noise Other persons in extraction or operational areas High stacks Anchor failure	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Noise induced hearing loss Strains, sprains Asset damage	A	5	E	<i>Implement the operating chainsaw control measures# 6398</i> - PP contractor pre-qualification, induction & monitoring - PP forest GIS mapping with slope characteristics available (app) - Pre-operational planning & hazard identification - Onsite hazard id, risk assessment, control plan & tailgate (includes extraction plan) - Skid design as per ACoP (18m or conventional) - Landing pad build hand over list validation - Crew assignment matches build, adjust as required by contractor - Extraction & skid plan with appropriate machine location, processing plan & systems (including Safe Load Limits) for the setting. Designated work areas to including safe areas for personnel - Cutting plan and value recovery instructions on site and understood - Qualified machine operators specific to machine or under direct supervision. Trained in US1256 - Qualified chainsaw operators (US 23411) or under supervision & training - Establish communication mechanisms with machine operator & ground workers - Skid operator must have an operational RT - Notch bearers where needed (i.e., slope or slippery stems) - De-phasing/multi skids - Start processing at SED - Apply all applicable minimum approach distances	All times By harvest unit All times All times By harvest unit As required All times By harvest unit All times All times All times All times All times All times All times As required As required All times	Pan Pac Pan Pac Pan Pac Contractor Pan Pac Pan Pac/Contractor Pan Pac/Contractor Contractor Contractor Contractor Contractor All persons Operator Contractor Contractor Contractor Contractor	X	A A A A Eng A A A, I A A A A A Eng A A A	D	5	M
5290	Loading/unloading trucks and trailers with logs Includes Binwood and crane loaders	Logs & chains Machinery Chainshot Loss of control Chain throwing strain Other persons nearby Working alone Poor visibility Trips, slips, falls, High stacks Sloped and/or wet terrain Overload	Fatalities Crushing or puncture injuries Amputations Fractures, dislocations Puncture wounds Lacerations Cuts Eye injuries Asset damage	B	5	E	- PP contractor pre-qualification, induction & monitoring - Skid layout provides a safe and controlled loading zone (incl chainshot). Stacks oriented 90 degrees to the loading area, braced (posted) as required if sloping - Loading zone is level and free from obstructions as is practicable - Designated chaining area is provided, recognisable and clear of obstructions - Establish communication between truck driver and loader operator - Driver visible to the loader operator at all times during trailer hook up (lift height to be minimised) - Driver safe zone is agreed - Maintain documented load limit, calibrated scales in use - Minimum approach distance to stacks; 1m 2 tree length to active felling operations	All times All times All times All times All times All times On arrival All times All times All times	Pan Pac Contractors Contractor Contractor Operator/Driver Operator/Driver Operator/Driver LC Contractor/Driver Operator/Driver Operator	X	A I, Eng, A A I A A A, I Eng Eng I	D	2	L

6299	Walking hauler or machinery to skid site and onto transporter	Machinery movement (tracking) Transporter Road condition Steep slopes or terrain Working at Height (access/egress) Ramp failure Unstable surfaces	Fatalities, serious injuries	B	5	E	• Preplan and establish safe operating procedure specific to each site • Establish communication between hauler and transport operator • Site Specific hazard identification, risk assessment in place • Safety observer (person guiding the equipment onto the transporter) • Take place on a flat area large enough to prevent machine roll over should machine slide of transporter. • Machinery to be operated by person experienced in the operation of that specific machine or directly supervising its operation. • Transporter driver or experienced person to guide machinery driver during loading process. • Transporter deck to be set as wide as possible. Where deck width is required to be narrow further risk assessment is required to ensure this can be completed safely. • Minimum Approach Distances apply. People and property are to be kept clear of the loading zone. ○ 6 m safe zone ○ 1.5 times height of the load/machinery • Traffic management appropriate to the loading area is required. • Where loading/unloading occurs on a sealed and/or public road steps are to be taken to protect road surface. • All roads and tracks need to be of a suitable slope and width for the machines weight. • Any structures that maybe crossed must be approved for the weight loading. • Remote control to raise back ramps. • Safe egress from machinery to the ground when on transporter where practicable. Otherwise, 3-points of contact when ascending/ descending deck	Before start All times Before start All times All times All times All times All times All times All times All times All times All times All times All times All times All times All times All times All times	Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor/Operator Contractor Contractor	X	A A A A I A A A Eng A I A A Eng Eng, I A Eng A	C	5	M
6301	Installation of Deadman Engineering (overlapping duties)	Deadman hole (approx. 4 m) Manual handling of Deadman rope or strop, Worker v machine, Machine tip over, Unstable material underfoot Malfunction or instability	Fatality Fractures, Crushing injuries Sprains, strains Serious injuries Asset	C	5	H	• Skid design (ACoP, 18m) & Engineering sign off • Hauler set up plan in place & instruction • Strops & logs to be checked & approved • No one present in hole (elim) • Establish communication methods for worker & machine operation • Trained/competent operators • No persons to stand within the swing arc of machine boom • Visual inspection completed from the sloped side of the hole (WAH) • Deadman strops shall be as a minimum 15 metres long & pulled up evenly • Auth Person must observe & approve • Manage overlapping duties	Before start Before start All times All times All times All times All times All times All times All times All times All times All times	Pan Pac Contractor Contractor Eng Eng Eng All persons All persons Contractor, Eng Contractor, Eng Contractor, Eng	X	A A Eng A A A I A Eng A A	E	5	M
6304	Hauler Operations Set Up, Down tower >Relocation >Set up	Hauler tip over Hauler unstable or bogged, Mechanical or hydraulic failure, Loss of Control (boom), Working at Height, Stabilising ram failure, Heavy pads	Fatalities Serious injuries Strain or Sprain Hazardous Substances Asset damage	B	5	E	• PP contractor pre-qualification, induction & monitoring • PP forest GIS mapping with slope characteristics available (app) • Pre-operational planning & hazard identification (incl tracks) • Onsite hazard id, risk assessment, control plan & tailgate (includes extraction plan and tracks) • Skid design (ACoP, 18m) & sign off • Monitoring Programme in place with SOP • Manual line shifts apply #5284 • Daily planning, certification documents, incl maintenance avail for monitoring • Machinery to AS/NZS standards with ROPs, FOPs, Ops, COPs, fall restraints as required • Anchor selection & install approved, inspected daily • Stabilising pads inspected daily • Maintenance plan & safe systems of work for all machinery (incl dogs). Engineering design is for neutral positioning during uncoupling (do not proceed if pins are loaded) • No person may stand in tower failure zone, rope zone during tower up or down or in pinch points • Machine must only operate on terrain where full traction & control is maintained. • Establish a drop zone • Working at Height - workers current in working at height US, rescue procedure/plan & safety helmets with chin strap • Gloves for rope work • Ropes ○ Rope attachment points in use as per Manual (i.e. tower down) ○ Chain the guy rope or put in the grapple hook when pulling out – Machine operator must have visual contact with person operating guy winch or 1 person relaying between them. Operator must be able to determine tension in guywire & when to stop applying tension to prevent overloading. Machine must only operate on terrain where full traction & control is maintained. ○ Machine to be operated at idle when hand fleeting loose rope onto drum to ensure low speed ○ Do not stand in the bight of a rope. • Ensure tower dogs are inserted correctly before running any guy ropes • When guiding tensioned rope onto a drum maintain distance from rope drum to avoid pinch points, watch for kinks & or sprags, • Rewinding – tension must be released from ropes, follow correct sequence • Before retrieving any ropes, all workers are in a safe zone at least 15m from any moving ropes	All times By harvest unit All times All times All times Before start Before start All times All times All times All times All times All times All times All times All times All times As required As required Before Start As required As required All times All times	Pan Pac Pan Pac Pan Pac Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor All workers		A A A A Eng A A A, Eng A, Eng A, Eng A, Eng A A A I A PPE A A A A A	5	D	M

6305	Running ropes/rigging; Running out pulling ropes, straw lines and setting up backline blocks	Moving rope under tension, Machinery Sprags in rope Tower failure	Fatalities Crushing injuries Serious injuries Sprags in hands Strains & sprains	B	5	E	- Use drone prior to running out the line - Onsite hazard id, risk assessment, control plan & tailgate - Operation specific hazard identification, risk assessment, control plan & SOP in place - Be aware of falling debris/objects. - Establish communications between hauler operator and workers - Chain the guy rope or put in the grapple hook when pulling out – Machine operator must have visual contact with person operating guy winch or 1 person relaying between them, Operator must be able to determine tension in guywire and when to stop applying tension to prevent overloading. Machine must only operate on terrain where full traction and control is maintained. establish communication - Work gloves must be worn - Grommets in all guy rope shackles and tailhold blocks - Ensure your footing is stable before pulling rope. Do not stand in the bight of a rope. Replace badly worn rope. - Do not hold onto rope by the eye, this will avoid injury if the rope twists. - All other work on landings within the radius of the guywires will stop during tower or guyline shifts. - Correct stump selection and notching - Qualified head breaker out and operator	When required Prior starting All times All times All times All times When pulling guy ropes out Handling ropes All times All times All times All times All times All times All times All times	Contractor Contractor Contractor Workers Contractor Contractor Workers Contractor Contractor Contractor Contractor Workers Workers	X	A A A A A A PPE A A A I A A	D	5	M
6311	Removal of dogs	Person falling from the tower to release the dogs if they get jammed, jammed fingers, falling objects from height hitting someone on the ground, harness anchor point (step) fails	Fatalities Serious injuries Crushed hands or fingers	B	5	E	- Fall restraint protection, maintenance/replacement programme - Operation specific hazard identification, risk assessment & SOP in place - Establish a drop zone - Maintenance of dogs - Tower maintenance certification – include inspection of steps - Workers to complete working at height unit standard training - Rescue procedure/plan and safety helmets with rated chin straps	All times Before start All times All times All times Annual All times	Contractor Contractor Contractor Contractor Workers Contractor Contractor	X	A A I Eng Eng A A	E	5	L
6315	Machinery maintenance	Rotating parts Heat Fluids/air under pressure Hazardous Substances Work area/surface Other operations Working alone Work at heights Heavy parts Crushing, entanglement	Fatalities Permanent injury – i.e. amputation, loss of sight Loss of consciousness Crush, entanglement Hypothermia	5	C	E	- No working alone where high-risk activity (entanglement/WAH etc) exists consider a 2- person working plan - Monitoring by SBO as required - SOP or Take 5 risk assessment - Machinery de-energised -lock out tag out, isolations in place - Segregation of work area & mobile workshop - Manual & SOPs available - Machine in maintenance mode where available - Trained, competent maintainers with current fall restraint training/equipment in fall prevention if WAH required - SDS available, Haz Sub PPE and spill kit as required	All times As required All times As required All times All times All times All times As required All times	All persons Contractor Contractor All persons Contractor Contractor Contractor Contractor Contractor	Elim X	E A A I I A Eng A A	5	D	M
6385	Maintenance – P&E	Rotating parts Heat/Cold Pressurised liquids/air Work area/surface Other operations Isolation Fall from height	Fatality Serious injury Crush Entanglement Fall from height Loss of consciousness Hypothermia Asset damage	C	5	E	- Pre-start risk assessment/Take 5, follow company policy and any applicable permit to work process. - Machine in maintenance mode where available - Machinery de-energised, isolations - Operator trained for maintenance tasks - Safe manual handling - Manual & SOPs available, - SDS available, Haz Sub PPE and spill kits as required - Cleaning supplies available - Reassess if energy is unable to be released, protective gloves must be worn (min requirement).	All times All times As required All times All times All times All times All times All times	All persons Contractor/maintainer Maintainer Operator All persons Contractor Contractor Contractor Contractor/maintainer	X	Eng I I A A A A, PPE A A	5	D	M
	Roadside debris removal – high risk All	Trees under tension Slope instability above windblown trees with rootballs above or over felling area suspended & loaded	Tree roll, rebound Fatality Serious-Minor Injury Crush	B	5	E	- PP Manager approval required - Mechanised removal required as first options - Pre-operational falling hazard id, risk assessment, control plan & tailgate - Forest protective structures (ROPs, FOPs &/or cab protection - TMP for temporary roadside felling in place - Qualified experienced felling operator with observer. - Spark arrestor fitted and tested	All times All times All times All times All times All times All times	Pan Pac Pan Pac/contractor Contractor Contractor Contractor Contractor/operator Operator	X	A Eng A Eng A A Eng	E	5	H
	Roadside debris removal – medium risk All	Trees perched, not loaded Not under large amounts of tension or suspended	Fatality Serious-Minor Injury Crush	B	3	H	- Take 5 hazard id, risk assessment & tailgate - Saw or chainsaw maintained and fit for purpose - TMP for temporary roadside felling in place - Operator experienced with chainsaw, previously held PP approval to fell - Cut to manageable size pieces, able to tow to the water table - Work on safe side, uphill - Spark arrestor fitted and tested	All times All times All times All times All times All times All times	Pan Pac/contractor Contractor Contractor Contractor Contractor/operator Contractor/operator Operator	X	A A A A A A Eng	D	3	M
	Roadside debris removal – low risk All	Trees not perched or loaded	Serious-Minor Injury Crush	B	2	M	- Take 5 haz id, risk assessment & tailgate - Silki saw maintained - TMP - Cut the top off or to manageable size pieces, able to tow to the water table - Work on safe side, uphill	All times All times All times All times All times All times	Pan Pac/contractor Contractor/operator Contractor/operator Contractor/operator Contractor/operator	X	A A A A A A	D	2	L

6387	UAV (drone) use	Airplane flight paths, Environ – water, roads, sun strike, bird contact Craft signal decomposition/loss Contact with powerlines Competence/distraction Fire	Moderate to Minor Injury Asset Loss Breach of regulatory air space	C	3	H	- Engineered fail-to-safes; low battery return to home, auto warning low temperature, low battery or high sunlight, CSC command to kill, over charge protection - Operators CAA 101 certified, compliant with 101 conditions - Flight Planning to include max height 400ft, min height 120ft AGL, airspace, NOTAMs, LFZs, powerlines, notification to roading authority when operating near or over roads 1:1 charging with surge protection - LIPO bags, Lithium fire blankets and ABE extinguisher in place	Manufacture + pre-start All times All times All times All times	Pan Pac Operator Operators Pan Pac Pan Pac/operators	X E A	E A A	D	3	M
6398	Tree Felling - manual	Tree Fall Risk: Hit by object	Fatality Crushing, puncture Amputations Eye injury Hearing loss Burns	A	5	E	- PP contractor pre-qualification, induction & monitoring - Site specific hazard id, risk control and tailgates 5 step felling plan adhered to - Minimum approach distance: 2 tree length	Bi annual All times, 6mth All times All times	Pan Pac Contractor Operator Entrants/Operators	X A A A	A A A A	D	5	M
6429	Operations Moving crew support and storage containers	Container	Fatality Serious-Minor Injury Asset Damage	B	4	H	- Use only engineered lifting points with certified lifting devices and equipment - Cabin lifting points have a maintenance programme in place - Pre-start inspections - Minimum approach distance 1.5 times height of container and load, 6m clear zone	Manufacture + as req As required Pre-operational All times	Contractor Contractor Contractor Contractor/all persons	X E A A I	A A A I	E	4	L
6438	All	Interpersonal Interactions - Bullying - Harassment	Acute or long term impact mental health Medical treatment Time off Resignation Hospitalisation	C	3	H	- Training and awareness programmes - Well-being Programme & Co-ordinator - Workplace Culture and Policies, ‘the way we work’ - Workplace HS&E committees with HSRs - Workplace support programmes & peer support - RT protocols	Bi-annual, refresher All times All times Monthly/Quarterly All times All times	Pan Pac Pan Pac Pan Pac Pan Pac Pan Pac Staff/all entrants	X A A A A A A	A A A A A A	D	3	M
6458	Vehicle Rescue	People in vicinity Vehicles Terrain	Fatality Crushing Loss of control Rollover Asset damage	B	4	H	- Take 5, operational plan - Rescue controller agreed and in charge - Equipment suitable for the task; tow vehicle heavier than vehicle being rescued - Rated strops, dampening ropes (bag) in place - Identify chain shot area and apply minimum approach distances (segregation of personnel) - TMP as required by the location	Pre-operation Pre-operation Pre-operation Pre-operation All times As required	Contractor Contractor Contractor/operator Contractor/operator All persons Operator	X A A E E I I	A A E E I I	D	4	M
6464	Transporting Machinery	Hauler or transporter tip over or falling off roads/tracks, hauler falling off transporter while being loaded/unloaded, operator falling from hauler once hauler is on transporter	Fatalities, serious injuries, Property damage	5	B	E	- Roading as per Forest Engineering Manual - Skid as per PP Standard, signed off - Forest & Harvest planning (incl retirement) - Corduroy as required - PP to be notified of Hauler transport - Qualified contractor with appropriate machinery & forest comms - Driver & Pilot licensed & certified for the task - Permit application as required - Rated & inspected anchor points & equipment - Task assessment (i.e. take 5) each operation - Trailer adjustments height/width agreed, JSA if narrow deck setting &/or public road is the only option - Route assessment approval, clear forest road arranged - Safety observer (person guiding the hauler) - Experienced operator - Segregation, safe zone established - TTM as required - Management of overlapping duties	Before start Before start Before start As required Before start All times All times As required All times All times All times All times All times All times All times All times As required All times	Pan Pac Pan Pac Pan Pac Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors Contractors	X Eng Eng A Eng A A A A Eng A Eng A A A I A A	Eng Eng A Eng A A A Eng A Eng A A A I A A	5	D	M
Environmental														
6435	Harvesting Operations Maintenance (storage, transportation, decanting, mixing)	Hazardous Substances	Soil, water, air contamination Consent breach Social License	B	2	H	- Resource consent applications to be completed where activities cannot comply with NES- CF or RMA - Whirinaki container storage with bunding (as able), isolated site, annual inspection - Isolate from sensitive sites. Minimum approach distances (MADs); - Fuel storage 10m from ALL waterways, wetlands - Environmental Monitoring EV11, EV10 - NES-CF and/or Resource consent adherence - Env Management Plan for business - Substitution as available - Store only in compliant containment (signage, extinguishment & bunding) away from drains, water courses, all containers labelled. - Trained personnel, with correct controls & PPE (all) - SDS’s available and understood - Safe disposal of all Hazardous Substances, containers and cartridges as per the SDS (use of haz chem bags where required) - Emergency planning and equipment available - spill/first aid kits, fire equipment	All times All times All times As required As required All times As required All times All times All times All times All times	Pan Pac Pan Pac Pan Pac/Contractor Pan Pac Pan Pac Pan Pac/Contractor Pan Pac/Contractor Contractor Pan Pac/Contractor Pan Pac/Contractor Pan Pac/Contractor	X Eng I A A A S Eng A A A	A Eng I A A A A Eng A A A	B	2	M

Type of Minimisation Controls Key: (S = Substitution, E = Engineering, I = Isolation, A = Administration, PPE = Personal Protective Equipment, X = latest amendment)
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6461	Travel in & outside Forest	Dust Debris Sediment (fords & river crossing)	NES-CF breach Disturbance to neighbours Eco system damage (freshwater) Loss of social license	B	2	H	• Ford design incls; Consent conditions and monitoring • Maximum axle crossings (20 per day) or consent application must be approved • Crossing formation, requires metalled approaches • Forest & county road speed limits • Log truck debris check before entry to public roads • Truck wash • Dust suppression agents	All times All times All times All times As required As required	Pan Pac Pan Pac Pan Pac All Log Cartage Pan Pac, Log Cartage Pan Pac	X	A Eng A A Eng Eng Eng	D	2	M
6462	Extraction	Harvesting Related Earthworks; Deadman Harvest extraction Earthworks temp crossings Backline tracks		B	2		• Harvest planning incls; identification of specifics of the site & PP required controls • Resource consent applications to be completed where activities cannot comply with NES-CF or RMA • GIS Maps identify known items • Job prescription with monitoring • NES-CF and/or Resource consent adherence • Slash traps (man made and natural) • Sediment controls (include machine tracking rehab, cut outs, sediment traps, slash cover, compaction, water bars) • Post harvest audit EV10 • Env. Management Plan for business • Minimum approach distances (MADs); ◦ Waterways >3m buffer 10m, <3m buffer 5m ◦ Wetlands 5m • Slash/debris removal practises SED 10cm x 1.8 • Benches • Extraction suspension over waterways, ◦ Maximise deflection (if wetted channel over 3m, requires full suspension) ◦ Shovel logging to corridors • Environmental training	All times As required All times All times All times All times As required All times As required All times As required As required All times	Pan Pac Pan Pac Pan Pac Pan Pac Pan Pac / Contractor Pan Pac / Contractor Contractor/Operator Pan Pac Contractor Contractor/All Contractor Contractor Contractor All	X	A A A Eng A A A A A I A Eng Eng A	D	2	M