

Section 14 - Work Instructions (WI's)

FOREST RENEWAL

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ROAD CONSTRUCTION

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TIMBER HAULING

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SERVICE CONTRACTORS

WDS-WI	018	Disposal of Garbage
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Procedure Name: - Operation Authorization		
WHO Needs To Know: Contractor, Foremen		
WDS-WI -001	Revision #: 2	Last Revised: January 21, 2002
Approver: Superintendent of Planning		

Why This Is Important

- ◆ All forest management activities have to meet legal and company requirements before commencing.
- ◆ Before operations commence a detailed plan along with a public and government review and licensing process has to occur.

What You Need To Do



Obtain the following documents:

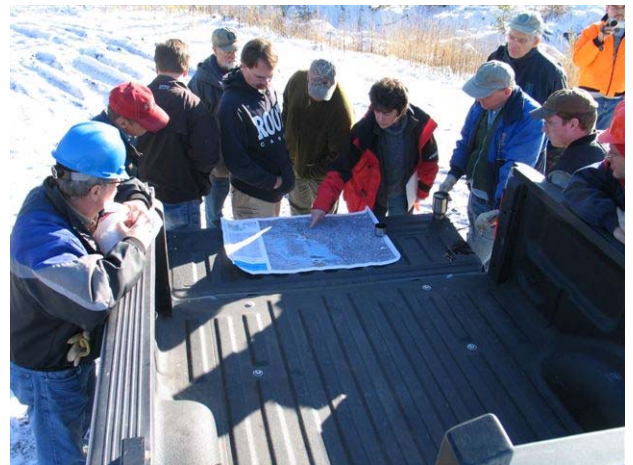
- A Work Permit - issued by Manitoba Conservation (MC) and provided through Tembec including all relevant maps and aerial photographs.
- A Third Party Agreement or Purchase Wood Agreement with Tembec – all timber harvesting operations require a signed 3rd party or purchase wood agreement.
- Contractor Pre-Work Form – issued by Company Supervisors / Tembec representative. This form outlines any special directives regarding your operating area.



Your Company supervisors / Tembec representative reviews these documents with you to ensure you understand them, especially the specific directives to be followed in your operation. **The Work Permit and Pre-Work Form must be maintained on site while any employee is operating.**



Consultations with First Nations Bands are an important part of the public information and review process.



Staff from Manitoba Conservation and Tembec reviewing operations plan.

Procedure Name: - Block Boundaries		
WHO Needs To Know: Contractor, Cut-Foremen, Feller, All Equipment Operators in Cut-block		
WDS-WI-002	Revision #: 1	Last Revised : Feb 20, 2006
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Cut-block boundaries have been designed to respect a wide range of values, such as wildlife habitat and water quality. We need to ensure that harvest designs are being adhered to in all operations.

What You Need To Do

- ⬆ Check with your Supervisor, map, GPS and Work Permit for exact boundary location.
- ⬆ Know where your boundaries are located on the ground.
- ⬆ Have all important boundaries “flagged” with the assistance of your Tembec representative or get his approval of flagging location. “Important boundaries” are ones which protect waterways, heritage sites, cabins or any sites identified on the aerial photograph.
- ⬆ Harvesting near important boundaries should be done during daylight hours, when the operator can clearly see flagged boundaries.



Put flagging tape at eye level of operator and in open areas where it can be seen readily. Leave a long tail to flutter in the wind.



This canoe route required a well-flagged boundary.

Procedure Name: - General Wildlife Guidelines		
WHO Needs To Know: Contractor, Cut-Foremen, Feller, All Equipment Operators in Cut-block		
WDS-WI -003	Revision #: 0	Last Revised: Dec 22, 1999
Approver: Divisional Forester		

Why This Is Important

- ◆ To provide for suitable wildlife habitat to maintain existing wildlife species and population.
- ◆ Cutover areas can provide increased feeding opportunities for many wildlife species but they also need areas to stay cool or warm and somewhere to hide.

What You Need To Do

- ▲ Use the harvest design provided by the Tembec representative as a guide.
- ▲ Maintain available wildlife escape cover in each cut block. This "cover" can be:
 - understory patches;
 - non crop trees;
 - drainage areas or other buffers; or
 - regeneration higher than 2 meters (6 feet)
- ▲ Distance to cover not to exceed 200 meters (650 feet).
- ▲ The distance you can see within cutover not to exceed 400 meters (1320 feet). Anything that blocks your line of sight counts.



Moose feeding on edge of 2 year old cutover.



Black – capped Chickadee – another boreal forest user.

Procedure Name: - Leaving Wildlife Trees		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators in Cut-block		
WDS-WI -004	Revision #: 2	Last Revised: March 27, 2003
Approver: Divisional Forester		

Why This Is Important

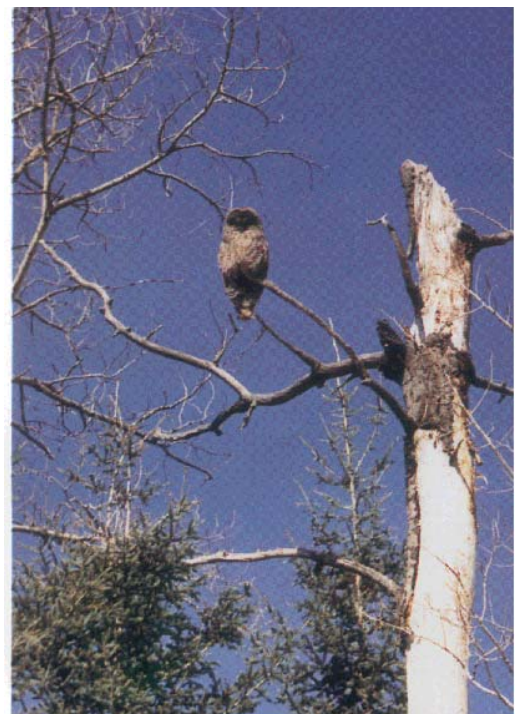
- ◆ Many wildlife species in the boreal forest use snags for nesting, feeding, perching and roosting.

What You Need To Do

- ▲ Leave trees that contain stick nests or cavity nests unless they are a safety consideration for employees working outside of equipment.
- ▲ If possible, leave a clump of residual trees around the nest tree.
- ▲ Leave suitable nesting / roosting trees standing in the cutover, unless they are a safety consideration for employees working outside of equipment (chain saw operators)
 - ◆ Where safe, leave snags and other dead trees standing.
 - ◆ Leave "wolf" Pine (scattered old limby Pine) standing.
 - ◆ Leave scattered mature trees growing in patches of young trees.
- ▲ Avoid equipment damage to leave areas or trees during forwarding and site preparation.



Bald Eagle nesting in "Wolf" Pine



Great Gray Owl using Poplar tree snag in old cutover.

Procedure Name: - Protection of Non Crop Trees		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators in Cut-block		
WDS-WI -005	Revision #: 1	Last Revised: June 8, 2001
Approver: Divisional Forester		

Why This Is Important

- ◆ New forestry practices are attempting to create cutovers that resemble natural disturbances such as fire. Fires leave more standing trees and snags, which fall down over a number of years and helps build healthy, productive soil. Ensuring that non-crop trees are left standing helps to lessen the difference from the natural fire system.
- ◆ Non-crop trees can provide important wildlife habitat while reforestation is taking place.

What You Need To Do

- ⤴ Avoid damage to trees not being harvested.
- ⤴ Skid around not through areas not being harvested.



Good protection of non-crop trees.

Procedure Name: - Protection of Understory		
WHO Needs To Know: Contractors, Foremen, All Equipment Operators in Cut-block		
WDS-WI -006	Revision #: 1	Last Revised: June 8, 2001
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Young trees found in the understory of mature softwood and hardwood forest represent the future stand of timber. These young trees can reduce the amount of planting required in a cut block and also shorten the time frame for the next harvest.
- ◆ Understories provide wildlife cover / habitat.

What You Need To Do



Consult with your supervisor to see if special harvesting requirements have been identified.



- Avoid damage to young trees
- Use “careful” felling and skidding techniques
 - Select skid trails to avoid young trees as much as possible
 - Stay on main skid trails - do not run all over cutover.
 - Don’t destroy a good patch of young trees to harvest a few scattered crop trees.
 - Use “Rub Stumps or Trees” on skid trails to avoid damage to young trees.



Using “careful harvesting” techniques to protect smaller non-merchantable trees



Good protection of understory and non-crop trees

Note: Scattered merchantable spruce and balsam left standing in dense understory patch

Procedure Name: - Protection of In-block Drainage Areas		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators in Cut-block		
WDS-WI -007	Revision #: 2	Last Revised: June 8, 2001
Approver: Superintendent of Planning		

Why This Is Important

- ◆ The protection of water quality and sensitive wet sites are important, as small creeks and drainages lead to larger streams. The vegetation in these areas act as filters holding silt and debris from entering the waterway.
- ◆ Vegetation along or around drainage areas is important wildlife habitat.

What You Need To Do



Check with your Tembec Representative, Contractor, Work Permit and Pre-Work Form for any sensitive sites identified



Avoid drainage areas when possible.



- If drainage area must be crossed -
- when possible, wait until it is frozen solid
 - choose a route with the least impact
 - use corduroy where required and consult with Supervisor for installation and removal instructions
 - restrict number of crossings to the least possible
 - keep landings / skidways at least 30 meters (100 feet) away during unfrozen periods
 - consult with your Tembec Representative for advice.



In block drainage area has been maintained as a protected ecosystem.



Trampling of alders and rutting of this small drainage has caused serious damage to this sensitive ecosystem.

Procedure Name: - Minimizing Soil Disturbance / Rutting		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators in Work Area		
WDS-WI -008	Revision #: 2	Last Revised: July 9, 2001
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Sustainable forestry requires continued soil health and productivity.
- ◆ Severe rutting can negatively impact water drainage, reforestation, and tree growth rates.

What You Need To Do

- ▲ Although some degree of rutting will occur, minimize rutting as much as possible by restricting travel to skid trails, forwarding trails and landings.
- ▲ Schedule operations of soft/wet areas for frozen conditions
- ▲ If rutting starts to occur, move to harder ground or stop operations.
 - Reuse same main trails to avoid damage of additional area.
- ▲ In mechanical harvesting operations use the full reach of equipment booms.
 - Place limbs and slash ahead of harvester in soft/wet conditions to pad travel route
- ▲ In cut and skid operations, use the full extent of main line when harvesting near soft/wet areas
- ▲ Pay special attention to the directions provided, if sensitive areas are identified on the Contractor Pre Work Form and Work Permit for your area.



This operation was shut down too late – serious rutting has occurred.



This Black Spruce swamp should have been winter logged.

Procedure Name: - Protection of Other Values / Users		
WHO Needs To Know: Contractor, Foremen, Fellers, All Equipment Operators in Work Area		
WDS-WI-009	Revision #: 1	Last Revised: June 8, 2001
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Other values and users of the forest can be negatively impacted by your operations.
- ◆ The respect for traditional users of the forest area is required.

What You Need To Do

- ▲ Check with your Supervisor, Work Permit and Pre-Work Form for special areas identified for protection.
- ▲ Be observant for other values that have not been identified such as mining claim posts, snowmobile and trapper trails or cabins and avoid them.
- ▲ Work "with" not "against" your forest neighbors.



Supervisor communicating with local trapper.



Be observant for other values such as this turtle petroform.

Procedure Name: Tembec Harvest Specifications		
WHO Needs To Know: Contractor, Foremen, Fellers, All Harvesting and Processing Equipment Operators		
WDS-WI-010	Revision #: 4	Last Revised: September 30, 2008
Approver: Superintendent of Operations		

Why This Is Important

- ◆ In order to produce fibre of consistent quality for the Pine Falls newsprint mill.

What You Need To Do



Tree Length Specifications

- ◆ All harvested trees will be tree length roadside unless specified otherwise by your Tembec representative.
- ◆ Should slashed wood (merchandising) be required, specifications will be provided by your Tembec representative.
- ◆ Fibre produced for chipping on site will require minimal topping.
- ◆ Fibre produced for forwarding to stockpile sites will require to be topped to the following specifications:
 - ◆ Spruce and fir 5.04 cm (2 inches)
 - ◆ Jackpine 5.04 cm (2 inches)
 - ◆ Aspen 7.6 cm (3 inches)



Cut to Length (Processed) Specifications

- ◆ Bolts to be 2.54 meters (100 inches), 5.08 meters (200 inches) or tree length as prescribed by your Tembec representative.
- ◆ Minimum top diameter for Black Spruce is 6.3 cm (2 1/2 inches).
- ◆ Minimum top diameter for White Spruce, Balsam Fir and Jack Pine is 7.6 cm (3 inches).
- ◆ Minimum top diameter for Aspen is 10.2 cm (4 inches).

- ◆ If heavy branching occurs creating excessive knots, then topping will occur at the point where the total bolt is merchantable.
- ◆ Both ends of the bolt must be sawn square.
- ◆ Bolts with rot greater than 50% are to be butted back in lengths not greater than 60 cm (2 feet).
- ◆ Bolts must be free of forks and other defects.
- ◆ All knots to be trimmed smooth with the surface of the bolt.



Tree length haul



Piles at Roadside

Procedure Name: - Prevention of Wasteful Practices/Utilization Standards		
WHO Needs To Know: Contractor, Foremen, Fellers, All Harvesting, Processing and Equipment Operators in Cut Area		
WDS-WI-011	Revision #: 2	Last Revised: March 27, 2003
Approver: Operations Manager		

Why This Is Important

- ◆ Wasteful practices are not acceptable for sustainable forestry.
- ◆ Annual allowable cuts for a management area are based on set utilization standards

What You Need To Do



Regularly check cutover area and skid trails for:

- Tree length fallen from choker or grapple
- Piles of processed wood



Minimize slashing / processing waste by recovering any merchantable pieces 1.2 m (4 feet) or greater.



Cut all stumps as close to the ground as possible - 23 cm (9 inches).



Adhere to the following Tembec Utilization Standards

	Black Spruce	White Spruce Balsam Fir Jack Pine	Aspen
Stump Height	23 cm (9")	23 cm (9")	23 cm (9")
Butt Diameter	11.5cm (4 1/2")	13.0cm (5")	15.0cm (6")
Top Diameter	6.3cm (2 1/2")	7.6cm (3")	10.2cm (4")



Tree length fallen from choker cable and not picked up



Stumps too high – a waste of good wood

Procedure Name: - Delimiting, Topping and Debris Disposal		
WHO Needs To Know: Contractor, Foremen, Fellers, Operators of Harvesters, Feller - Bunchers, Delimiters		
WDS-WI-012	Revision #: 2	Last Revised: Sept 27, 2006
Approver: Operations Manager		

Why This Is Important

- ◆ Valuable nutrients for the new forest are contained in the branches and tops of the trees. Spreading this slash out in the cutover assists regeneration and tree growth.

What You Need To Do

- ▲ Delimb all trees at the stump area unless special conditions on your permit allow you to delimb at roadside.
- ▲ Roadside slashing debris piles are to be spread out over the landing and flattened.
 - Never push debris into standing trees
- ▲ Chipper debris from in-bush chipping operations is to be disposed of according to permit conditions.
 - Avoid pushing soil and boulders into chipper debris piles if they are to be burned



Slash well distributed and flattened



Debris piled with dirt and boulders do not burn well



Burnt chipper debris piles

Procedure Name: - In-block Road Location		
WHO Needs To Know: Contractors, Foremen, Bulldozer and Backhoe Operators		
WDS-WI -013	Revision #: 0	Last Revised: Dec 22, 1999
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Best road locations can reduce operating costs and environmental impact.
- ◆ Roads can remove area from forest growth or at least delay renewal and reduce forest growth.

What You Need To Do

- ▲ Check with your supervisor and Work Permit for road locations and identified sensitive areas.
- ▲ Locate roads to optimize skidding distance. Too many roads are worse than too few.
- ▲ Reuse existing roads and landings (if there are any).
- ▲ Minimize the use of loop roads and keep turnarounds as small as possible.
- ▲ Avoid soft or wet areas when possible or install temporary culverts (check with Supervisor prior to removal).
- ▲ Check with your supervisor or Tembec representative if you are not sure of locations.



Good locations of roads in this summer block. Road system will be reused 10-15 years later to harvest residual blocks. Note: Layout to meet wildlife guidelines.



Reusing existing road.

Excessive roads and landings.

Procedure Name: - Locating Landings / Skidways		
WHO Needs To Know: Contractor, Foremen, Bulldozer and Skidder Operator		
WDS-WI -014	Revision #: 2	Last Revised: September 29 , 2006
Approver: Divisional Forester		

Why This Is Important

- ◆ Bulldozing off of topsoil, rutting and compacting of the soil create difficulties for forest renewal and will also reduce tree growth.

What You Need To Do

- ▲ Keep landings / skidways as small as possible and pile heights as high as feasibly possible.
- ▲ Use road right of way when possible.
- ▲ Choose sites that require little or no bulldozing.
- ▲ Avoid patches of young trees.
- ▲ Keep landings at least 30 meters (100 feet) from drainage areas during unfrozen periods.
- ▲ Pile debris so it can be spread over the landing when finished.
- ▲ Do not push debris into standing timber.
- ▲ Keep at least 100 meters (330 feet) from rivers and lakes.
- ▲ Locate landing so skidding approaches are over high ground not through soft wet areas.



When possible Hot Logging reduces landing requirements



Example of light impact landing – no bulldozing and efficient use of road right of way

Procedure Name: - Bulldozing		
WHO Needs To Know: Contractor, Foremen, Bulldozer and Skidder Operator		
WDS-WI -015	Revision #: 0	Last Revised: Dec 22, 1999
Approver: Operations Manager		

Why This Is Important

- ◆ Excessive bulldozing reduces productivity and tree growth.

What You Need To Do

- ▲ Keep bulldozed area to a minimum.
- ▲ Think rehabilitation – save soil and logging debris for spreading back over the landings and spur roads.
- ▲ Spread or compact clearing debris.
- ▲ Use clearing debris in the roadbed, i.e. to pad soft areas when possible.
- ▲ Do not push debris into standing timber.



Levelling road surface



Unacceptable bulldozed windrow of debris containing usable trees

Procedure Name: - Road and Landing Rehabilitation		
WHO Needs To Know: Contractor, Foremen, Bulldozer, Backhoe and Skidder Operator		
WDS-WI-016	Revision #: 1	Last Revised: Sept 28, 2006
Approver: Silviculture Forester		

Why This Is Important

- ◆ Rehabilitated roads and landings reduce the area lost from forest growth.

What You Need To Do

- Refer to specific rehabilitation plans provided by your Tembec representative.
- Level any rutted areas on the landings to eliminate water pooling.
- Distribute clearing debris back over camp and landing sites.
- Discuss the timing and nature of rehabilitation measures with your Tembec representative.
- Spread road clearing debris and slash over winter roads, landings and campsites in areas that will not be required for future harvest operations.
- Site prepare for planting, seed with Jack Pine or push debris and cone bearing slash on all in-block Class 3b roads, landings and campsites that will not be required for future harvest operations.



This landing has been planted with Jack Pine seedlings



Natural revegetation of road following access removal







Borrow pit provides wildlife habitat

Procedure Name: - Clearing Camp and Service Areas		
WHO Needs To Know: Contractor, Foremen, Bulldozer and Skidder Operator		
WDS-WI -017	Revision #: 1	Last Revised: Sept 22, 2000
Approver: Operations Manager		

Why This Is Important

- ◆ A clean, safe, and carefully located site reduces worker hazards and the potential impact on the environment.

What You Need To Do

-  Select a central site.
-  Avoid sensitive areas identified by your Supervisor, Work Permit and Pre-Work Form.
-  Stay at least 100 meters (330 feet) from lakes, rivers or streams.
-  Clear snags that could fall onto the camp and workers.



Clean & safe camp located away from sensitive sites



A simple safe winter camp site

Procedure Name: - Disposal of Garbage		
WHO Needs To Know: Contractor, Foremen, All Forest Workers		
WDS-WI -018	Revision #: 1	Last Revised: June 8, 2001
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Garbage is unsightly and pollutes the forest environment.
- ◆ Waste products from equipment servicing can contaminate forest soils and reduce productivity.

What You Need To Do

- ▲ All garbage from the camp service area and equipment to be trucked off site to an approved garbage dump or recycling depot – this includes broken choker cables, used tires, oil containers, grease tubes, drums, plastic containers, etc.
- ▲ All personal garbage such as lunch wrappers, drink cans and bottles must be removed from the site.
- ▲ All garbage resulting from road construction, harvesting and forest renewal operations to be trucked to an approved garbage dump.



Cleaning up the campsite



This is not acceptable

Procedure Name: - Storage of Petroleum Products / Spills		
WHO Needs To Know: Contractor, Foremen, Mechanics, All Equipment Operators		
WDS- WI-019	Revision #: 4	Last Revised: Sept 28, 2006
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Petroleum products (oil, fuel, gas, grease and used oil filters) have the potential to cause serious environmental damage.
- ◆ Spillage can result in ground contamination, soil sterilization and contamination of ground water that can flow into streams and lakes.

What You Need To Do

▲ Storage and refueling sites must be at least 100 m (330 feet) from lakes, rivers or streams.

▲ Any fuel or oil spills greater than 50 liters must be contained and cleaned up immediately and reported (within 24 hours) to Tembec – Pine Falls Operations;

Bob Durocher 1-204-367-5226
 Vince Keenan 1-204-367-5224

If contact is not possible then call direct to
 Manitoba Environment
 204-944-4888

or local police or fire department

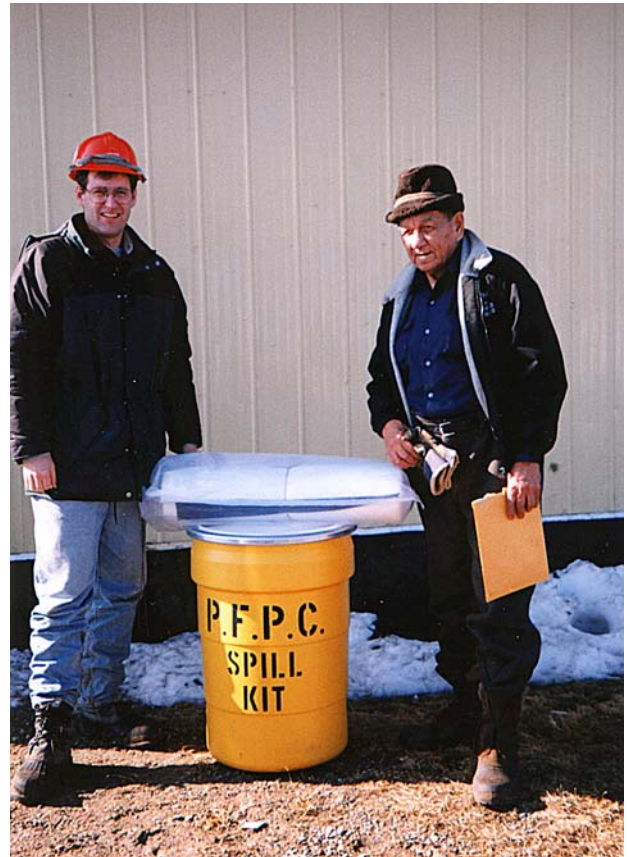
▲ All spills, regardless of size, must be cleaned up and reported monthly to your Tembec representative.

▲ Clean up the liquid portion of all spills using your spill kit.

▲ Dispose of used absorbent materials at an approved garbage dump.

▲ Where possible, spread out the affected soil to allow the spilt material to vaporize.

▲ Maintain a spill containment kit handy to storage and refueling site.



Checking over the spill kit

Procedure Name: - Equipment Servicing		
WHO Needs To Know: Contractor, Foremen, Mechanics, Equipment Operators		
WDS-WI -020	Revision #: 4	Last Revised: September 28, 2006
Approver: Divisional Forester		

Why This Is Important

- ◆ Petroleum products (oil, fuel, gas, grease and used oil filters) have the potential to cause serious environmental damage.
- ◆ Spillage can result in ground contamination, soil sterilization and contamination of ground water that can flow into streams and lakes.

What You Need To Do

- ▲ Check equipment daily for worn and cracked hoses and fluid leaks.
- ▲ Collect all used oils in a safe manner into closed containers.
- ▲ Use spill catchment system – trays, tarps.
- ▲ Use a drain hose or funnel when draining liquids.
- ▲ All used oils, oil containers and filters must be collected and deposited at an approved site.
- ▲ Wash equipment on roads, when possible, and at least 100 meters (330 feet) from lakes, rivers and streams.



Mechanics using a drain hose to safely drain used oil – note containment tray



Felling head ready for maintenance without contaminating soil

Procedure Name: - Safety of Workers and Visitors		
WHO Needs To Know: All Forest Workers		
WDS-WI -021	Revision #: 3	Last Revised: September 30, 2008
Approver: Silviculture Forester		

Why This Is Important

- ◆ Accidents in the forest environment can be very serious. The operator must ensure proper training and procedures are enforced on his work site.

What You Need To Do

⬆ The Workplace Safety and Health Act requires:

- Some form of 2-way communication (i.e. Satellite phone) for immediate contact for medical help on all forest operations, including road construction, harvesting, forest renewal and surveys.
- The use of hard hats and safety toed boots. High visibility safety apparel must be worn in high traffic areas such as stockpile sites.
- Chain saw operators also need safety eyewear, hearing protection, safety pants and safety mitts/gloves.
- Chain saws require safety chain and chain brake in working order.
- Hearing protection while operating equipment without sound proof cabs (greater than 85 decibels).

⬆ Workers receive appropriate training and supervision.

⬆ At least one "first aider" is required on each site. (see WDS-WI-050)

⬆ Must have appropriate First Aid Kit on site.

⬆ All visitors to the operations must wear hard hats and suitable outdoor footwear.

⬆ Supervisors are responsible to inform visitors of hazards and instruct them on safety procedures.



The emergency muster point map should be posted in a visible location.



Ensure proper safety equipment is used for the job at hand



Are visitors a safe distance away before operating equipment?

Procedure Name: - Fire Prevention and Protection		
WHO Needs To Know: All Forest Workers		
WDS-WI -022	Revision #: 1	Last Revised: September 28, 2006
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Forest fires threaten human safety, destroy personal property and can negatively impact all forest users.
- ◆ Excessive forest fires in this region over the past 20 years have seriously impacted forestry operations.

What You Need To Do

- ⬆ Immediately report any forest fire to Manitoba Conservation at 1-800-782-0076 or your nearest Manitoba Conservation Office.
- ⬆ Have all the fire equipment specified on your work permit and contractor pre-work form on site and ready for use.
- ⬆ All operations during the fire season must take special precautionary actions and preparedness for fire fighting.
- ⬆ Operations to cease or modify hours of work during high – extreme fire hazard times as directed by Tembec Representative.
- ⬆ Keep equipment in good mechanical condition – especially mufflers and brakes.
- ⬆ Keep equipment clean – especially in engine compartment – wash equipment frequently.
- ⬆ Fire extinguishers as detailed in the work permit are required at the campsite and on each piece of equipment.
- ⬆ Have your camp in a safe location during fire season – such as gravel pit or other area cleared to mineral soil.
- ⬆ Reduce fire hazard by spreading brush piles and slash.
- ⬆ Welding should only take place on bare mineral soil or frozen ground.



Procedure Name: - Clearing Road "Right of Way" and Pits		
WHO Needs To Know: Foremen, Contractors, Fellers, Equipment Operators		
WDS-WI -023	Revision #: 1	Last Revised: June 8, 2001
Approver: Operations Manager		

Why This Is Important

- ◆ Failure to follow the approved road construction plan may cause environmental impacts that are difficult to correct.

What You Need To Do

- Review the Work Permit, maps, aerial photographs and Road Development and Access Management Plan (if applicable) with your Tembec Representative for conditions and specifications.
- Salvage all merchantable timber, meeting Tembec Utilization Standards (WDS-WI-011).
- Check with your Tembec Representative for the proper locations of landings if necessary.
- Perform the harvesting and clearing of the right of way during frozen periods, whenever possible.
- Dispose of clearing debris as specified in the Work Permit.
- Reduce right of way width within waterway buffers. Check with your Tembec representative before you begin clearing.
- Do not stump the right of way at water crossing locations. Have your Tembec Representative identify the unstumped area.
- Do not push debris into standing timber.
- Normal clearing widths are
 - Class I – 45 meters (150 feet)
 - Class II – 40 meters (130 feet)
 - Class III - 30 meters (100 feet)
 - Class IV – 20-30 meters (65 – 100 feet)



Winter clearing of road right of way



Reduce right of way clearing width near water crossings to minimize the potential of soil erosion

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CURRENT UNTIL 09/30/10 SEE SUPERVISOR IF OUT OF DATE

Procedure Name: - Location and Management of Borrow and Gravel Pits		
WHO Needs To Know: Foremen, Contractors, Fellers, Equipment Operators		
WDS-WI -024	Revision #: 1	Last Revised: June 8, 2001
Approver: Operations Manager		

Why This Is Important

- ◆ To find the best material available to reduce the number of pits.
- ◆ Properly rehabilitated pits can provide aquatic nesting and feeding sites for wildlife.

What You Need To Do

- ▲ Check with your Tembec Representative and the Work Permit for pit locations and specifications.
- ▲ Locate pits within the road right of way when possible. Ensure that material removal does not affect the desired 1:2 slope on the road bed. (rise:run)
- ▲ Use ditching to obtain fill for the grade.
- ▲ Reduce the amount of borrow required by using clearing debris in the road bed especially in deep fills or on wet sites.
- ▲ Maintain pits and access routes in a safe condition until finished with the pit and it has been rehabilitated – sides sloped, clearing debris spread over the pit area and pit access blocked or other techniques specified on your work permit.



Scraper – combining ditching with fill for grade construction.



Gravel pit buffered from Class I Road.

Procedure Name: - Providing Drainage / Ditching		
WHO Needs To Know: Foremen, Contractors, Equipment Operators		
WDS-WI -025	Revision #: 2	Last Revised: September 30, 2008
Approver: Superintendent of Operations		

Why This Is Important

- ◆ Draining surface and subsurface water away from the roadbed is necessary to create a stable all-weather haul road and to maintain adjacent water table levels.

What You Need To Do

- ▲ Combine ditching with grade construction by using excavated material for fill when suitable.
- ▲ Direct drainage off the right of way with off-take ditches to the forest area.
- ▲ Avoid erosion on approaches to waterways by using off-take ditches, rock weirs, or clearing debris.
- ▲ Provide cross grade drainage with culverts, as required, to drain water away from the grade.
- ▲ Slope ditches to 1:2, where possible, to reduce erosion. (rise:run)
- ▲ Maintain an even ditch depth sufficient to provide drainage during spring run off and heavy rains.
- ▲ Place culverts so the bottom is at the same elevation as the ditch.
- ▲ Select culvert length to ensure ends are not blocked by slope fill.



Drainage ditch along Class II Road.



Lack of ditching for surface water run off in this Class III B Road will limit its usefulness.

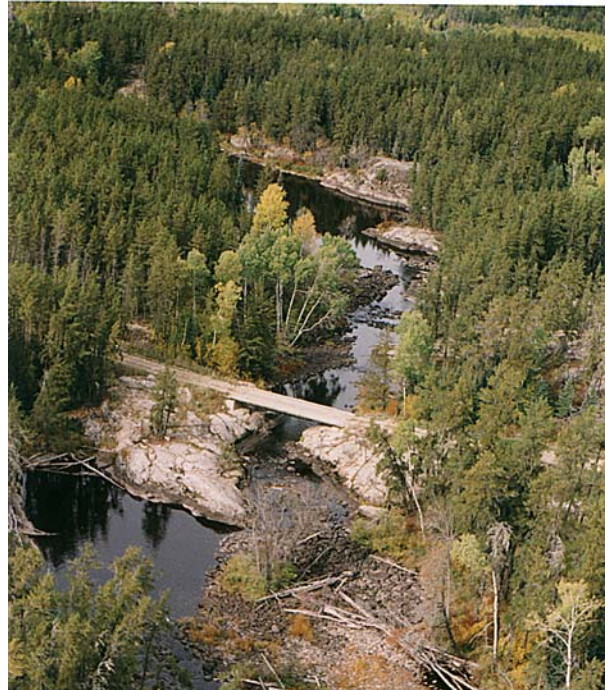
Procedure Name: - Waterway Crossings		
WHO Needs To Know: Foremen, Contractors, Equipment Operators		
WDS-WI -026	Revision #: 4	Last Revised: September 28, 2006
Approver: Operations Manager		

Why This Is Important

- ◆ Water quality, fish, wildlife, and public use may be affected, if these procedures are not followed.

What You Need To Do

- Refer to the Tembec Annual Operating Plan Watercourse Crossing Data Form for approved specifications and any Department of Fisheries and Oceans (DFO) response letter while consulting with your Tembec Representative.
- Cross streams at right angles when possible.
- Maintain an undisturbed (non-bulldozed) area close to the crossing to reduce erosion. Check with your Tembec Representative.
- Install culverts and bridges in dry, low water level conditions to reduce silting and impact to fish habitat.
- Maximum culvert length not to exceed 25 meters (80 feet).
- Backfilling shall not restrict more than 1/3 of the stream width.
- Match the culvert gradient with that of the stream bottom.
- Imbed round culverts into the stream bottom by 10 percent.
- Position culverts where there are no sudden increases in water velocity above, below or at the crossing location.
- Position culverts on a straight section of the stream so that discharge is not directed at an unstable bank.
- Avoid using frozen backfill and compact backfill to avoid washouts.








Good example of a low impact bridge:

- Good location
- High above water
- Level approaches
- Narrow right of way

UNCONTROLLED DOCUMENT

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Procedure Name: - Waterway Crossings		
WHO Needs To Know: Foremen, Contractors, Equipment Operators		
WDS-WI -026	Revision #: 3	Last Revised: November 9, 2004
Approver: Operations Manager		

- 
 Use a slope of 1:2 (rise:run) around the culvert to minimize culvert length and rip rap the area to reduce the risk of erosion.
- 
 Use a slope of 1:3 (rise:run) in the floodplain to reduce the risk of erosion.
- 
 Immediately re-vegetate the slope of the roadbed between the high water mark and the culvert rip rap or bridge.
- 
 Re-vegetate the road surface between the high water marks if gravelling will not take place within 1 week of the culvert/bridge installation.
- 
 Winter crossings should only contain snow and ice or temporary crossing materials that must be removed as soon as possible.



Minimal clearing for bridge approach

Effective Sedimentary Control Measures for the Installation of Water Crossings

- 
 Use temporary control measures as necessary to control erosion, ex: silt fences, silt screen, straw bales, mats, check dams and sediment traps (Refer to Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat).
- 
 Use long term control measures such as revegetation, rip-rap and slope modifications. Minimizing the soil disturbance at the crossing site will enhance the control measures put in place.
- 
 Use control measures as indicated on the Tembec Annual Operating Plan Watercourse Crossing Data Form and DFO's Response Letter.



Procedure Name: - Waterway Crossings		
WHO Needs To Know: Foremen, Contractors, Equipment Operators		
WDS-WI-026	Revision #: 3	Last Revised: November 9, 2004
Approver: Operations Manager		

Effective Stream Crossing Techniques that will Reduce Sediment during Installation of Water Crossings



Dam and Pump Technique (Culverts)

- Contains sediment and allows for a dry installation of culverts where better control of the work environment is achieved



Temporary By-Pass (Culverts)

- Effective sediment control technique where the diversion method can handle larger flows



Good example of the Dam and Pump Technique where the sediment is contained and water is pumped allowing for a dry installation

Procedure Name: - Alternate Strip Site Preparation		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -027	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

Why This Is Important

- ◆ Alternate strip site preparation assists in forest renewal on mixed wood sites, burned sites and salvage areas.
- ◆ Improper shearing can create difficulties in forest renewal, reduce tree growth and increase hunting opportunities.

What You Need To Do

- ▲ Check with your Tembec Representative and the Work Permit for specifications on strip and leave widths.
- ▲ Only shearblade during frozen periods.
- ▲ Avoid shearing wet areas such as willow draws, ash and spruce swamps.
- ▲ Do not remove more than 3 cm (1.2 inches) of organic layer during the shearing process and never shear down to mineral soil. Strips should be clean enough to allow access by all terrain vehicle (ATV).
- ▲ Whenever possible orient strips so they run parallel to roads and waterbodies.
- ▲ Avoid running strips in straight lines. Run strips so they wind and bend to reduce line of sight.
- ▲ Strips should follow areas containing the lowest density of residual trees. Whenever possible avoid pushing down poplar or wildlife trees.
- ▲ Avoid shearing areas of advanced regeneration. The only exception would be in budworm infected sites where the operator may be directed to remove balsam fir regeneration.



Avoid pushing down poplar. Go around whenever possible.



Good shearblading – strips are clean of heavy debris and organic layer is still present

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Procedure Name: - Drag Chain Site Preparation		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -028	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

Why This Is Important

- ◆ Drag Chain site preparation assists in natural regeneration of Jack Pine sites.
- ◆ Site Preparation can result in soil erosion and rutting if not carried out properly.
- ◆ Poses a high risk of starting a fire if not done carefully.

What You Need To Do

- ⤴ Operations to cease or modify hours of work during high – extreme fire hazard times as directed by Tembec Representative.
- ⤴ Avoid damaging young trees present on the site.
- ⤴ Stay out of localized wet areas where rutting and churning can occur.
- ⤴ Only treat areas which contain sufficient cone bearing slash. Avoid rock outcrops
- ⤴ Whenever possible, orient furrows perpendicular to slope to reduce potential of soil erosion.
- ⤴ Select a speed and drawbar position which optimizes mineral soil exposure.
- ⤴ Reduce machine speed when turning. A chain could get caught on a stump and possibly cause the machine to overturn.



Typical drag chain operation



Drag chains break up slash and exposes soil for seed germination

Procedure Name: - Disc Trenching and Bracke Moulder Site Preparation		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -029	Revision #: 2	Last Revised: September 30, 2008
Approver: Silviculture Forester		

Why This Is Important

- ◆ Trenching and Mounding improves planting survival and growth.
- ◆ Trenching and Mounding can result in soil erosion and rutting if not carried out properly.

What You Need To Do

- ▲ Avoid damaging young trees present on site. Go around instead of going through these areas.
- ▲ Avoid pushing down or damaging residual poplar and wildlife trees.
- ▲ Whenever possible, orient trenches and mounds perpendicular to slope to reduce potential of soil erosion.
- ▲ Try to maintain an interpass distance of 2.0 metres (6.5 feet).
- ▲ Avoid using excessive down pressure when trenching. Excessive trenching can result in unnecessary soil disturbance and create a poor planting microsite for trees.
- ▲ Avoid treating localized wet areas where rutting and churning can occur.



Stay out of wet areas when site preparing



Good protection of non-crop trees

Procedure Name: - Pre-commercial Thinning		
WHO Needs To Know: Contractor, Supervisor, Spacers		
WDS-WI -030	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

Why This Is Important

- ◆ Thinning improves tree growth.
- ◆ Careless practices and neglect of equipment can lead to serious injuries as well as starting forest fires.

What You Need To Do

- ▲ Operations to cease or modify hours of work during high – extreme fire hazard times as directed by Tembec Representative.
- ▲ Ensure that brushing equipment is in good working order. Ensure that all saws have spark arrestors, guards, and chain brakes in working order.
- ▲ Smoking is only allowed at roadside. Never smoke while working in the bush or while fueling up equipment. Extinguish all cigarettes in water or bare mineral soil.
- ▲ Always be aware of the location of other people working next to you. Be aware of the dangers of kickback especially when cutting in dense areas.
- ▲ All safety equipment must be worn and fire equipment present on site (refer to WDS-WI-021 and WDS-WI-022).
- ▲ Care should be taken when working under wet conditions. Slash and rock surfaces can become very slippery. Never work during a lightning storm.



A stand of Jack Pine spaced at 1.8 metres (6 feet) apart. Notice that all cut trees are laying on the ground and not leaning on the leave trees



Thinning in winter time is good since there is no risk of starting of fire

Procedure Name: - Pre-commercial Thinning		
WHO Needs To Know: Contractor, Supervisor, Spacers		
WDS-WI -030	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

What You Need To Do



Always follow proper procedures when pre-commercial thinning.

Space trees 1.8 metres apart (6 feet).

Look ahead and select trees to leave. Leave trees should be large, healthy, and have good form.

Leave tree preference order is as follows:

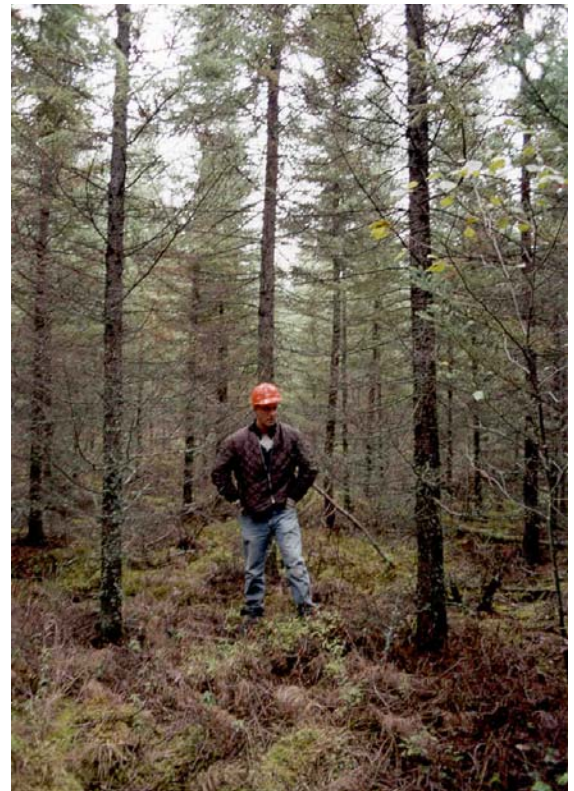
1. Spruce
2. Pine
3. Other Softwoods
4. Hardwoods

Remove suppressed, damaged, and diseased trees first.

Cut trees below the lowest live branch. All stems should be cut cleanly off with no hinges.

Cut trees must fall to the ground. Remove any trees leaning up against leave trees.

Never cut a spruce or a pine with a butt diameter greater than 8 centimetres (3 inches) regardless of spacing.



Thirty-five year old spruce stand spaced at 1.8 m x 1.8 m (6 feet x 6 feet)

Procedure Name: - Manual and Chemical Plantation Clearing		
WHO Needs To Know: Contractor, Supervisor, Brushers, Applicators		
WDS-WI -031	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

Why This Is Important

- ◆ Plantation clearing improves tree growth and survival.
- ◆ Improper clearing practices can harm the environment and damage tree plantations.

What You Need To Do

- ▲ Always adhere to Tembec's Herbicide Application Procedure (WDS-014) when working with chemicals.
- ▲ Operations to cease or modify hours of work during high – extreme fire hazard times as directed by Tembec Representative.
- ▲ Ensure that brushing equipment and spraying equipment is in good working order. Ensure that all saws have spark arrestors, guards, and chain brakes in working order.
- ▲ Smoking is only allowed at roadside. Never smoke while working in the bush or while fueling up equipment. Extinguish all cigarettes in water or bare mineral soil.
- ▲ Always be aware of the location of other people working next to you. Be aware of the dangers of kickback especially when cutting in dense areas.
- ▲ All safety equipment must be worn and fire equipment present on site (refer to WDS-WI-021 and WDS-WI-022).
- ▲ Care should be taken when working under wet conditions. Slash and rock surfaces can become very slippery.
- ▲ Never apply chemicals under wet conditions or if rain is forecast within eight hours.



Chemical treatment of Vision herbicide. This plantation was manually brushed one month prior to spraying and only vegetation within 1.25 metres (4 feet) of a crop tree was cleared



Be careful not to damage crop trees while brushing

Procedure Name: - Manual and Chemical Plantation Clearing		
WHO Needs To Know: Contractor, Supervisor, Brushers, Applicators		
WDS-WI-031	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

What You Need To Do



Always follow these procedures when manually clearing a plantation.

- Brush competing woody vegetation within 1.25 metres of a live crop tree (4 feet). Your Tembec Representative may provide alternate distances.
- Stems must be cut below the lowest live branch. Hinged trees are acceptable.
- Take care not to damage or cut crop trees when brushing.
- Use a brushing pattern which falls vegetation away from the crop tree and not towards it. Remove any debris which may be covering up a crop tree.



Always follow these procedures when chemically clearing a plantation.

- Follow the manufacturer's instructions and never exceed the application rates prescribed by Tembec.
- Use appropriate nozzles. Use a coarse droplet cone nozzles when doing spot applications and a streamline nozzle when doing a basal bark treatment.
- Spray coverage should be uniform and complete. Do not spray to point of runoff.
- Only treat vegetation within 1.25 metres (4 feet) of a live crop tree.
- Avoid spraying crop trees when using Vision herbicide. Never spray a crop tree when using Release herbicide.



Ten-year old cleaned White Spruce plantation

Procedure Name: - Snow Caching Seedlings		
WHO Needs To Know: Foremen		
WDS-WI -032	Revision #: 1	Last Revised: September 30 , 2004
Approver: Silviculture Forester		

Why This Is Important

- ◆ A proper snow cache ensures that seedlings remain frozen and viable until they are ready to be planted in the spring.

What You Need To Do

- ↑↑↑ Determine the best snow cache locations for ATV access and tree delivery throughout the planting blocks.
- ↑↑↑ Ideal temperature for making a snow cache is between -10°C and -20°C (mid February – early March)
- ↑↑↑ Locate the cache on high ground. Avoid swamps, wet areas and depressions.
- ↑↑↑ Pile the first row of boxes or bags on pallets or wooden slabs so they are off the ground.
- ↑↑↑ Always pile bags on top of boxes. Never pile boxes on top of bags. Boxes are heavier and more rigid than bags.
- ↑↑↑ Once piling is completed, cover with a heavy duty polyethylene tarp and cover immediately with snow to prevent overheating generated by the tarp and sun.
- ↑↑↑ Cover the entire cache with a minimum of 30 centimetres (12 inches) of clean snow and let sit overnight. Avoid using dirty or sticky snow since this will reduce the effectiveness of the snow cache.
- ↑↑↑ Cover the entire cache with a thick layer of straw or sawdust (60 centimetres)(24 inches).
- ↑↑↑ Dust completed cache with Comet to repel bears.



Covering cache with snow.

TEMBEC

WORK PROCEDURES
FOR
TREE PLANTING

2009 - 2010



WDS-WI-033
Revision #: 3
Last revised: September 28, 2006
Approver: Silviculture Forester

CURRENT UNTIL 09/30/10 SEE SUPERVISOR IF OUT OF DATE

EMERGENCY

Ambulance	Pine Falls	367-2333 or 911
	Lac du Bonnet	911
	Bissett	277-5119

RCMP	Pine Falls	367-2222
	Lac du Bonnet	345-8685
	Bissett	277-5227

Manitoba Conservation (Forest Fires)

Forest Fire Hotline	345-1414
after hours line	345-1418
Pine Falls	367-6130
Lac du Bonnet	345-1400
Bissett	277-5212

Helicopters	Provincial	345-8332
	Prairie Helicopter	642-4841
	Custom	338-7953

TEMBEC STAFF

	office	home	cell
Main Office (Linda Cyr)	367-5228		
Bob Durocher	367-5226	367-8930	345-3591
Andy McCuaig	367-5271	367-9692	345-3934

TEMBEC STAFF (Forest Renewal)

Dan Philippot	367-5233	367-8618	345-3193
Vince Keenan	367-5224	367-8390	345-3928
Terry Wert	367-8851 (contract)		

INTRODUCTION

This manual is designed to inform and be used as a reference by contractors, tree planters, supervisors and Tembec quality assessors, to the procedures of Tembec's tree planting program. The manual is broken down into different sections for quick reference. The manual goes over safety, proper planting techniques, tree handling, reporting, quality assessments and payment calculations. Copies of this manual should be given to the planting contractor, planting supervisors and Tembec quality inspectors. A copy of this manual should also be kept at camp or in the vehicles and made available to all the tree planters. This manual covers most aspects of Tembec's planting program, however you may encounter circumstances not covered by the manual. When in doubt, always discuss unforeseen situations with your immediate supervisors or crew members.

Safety

Tembec is committed to safety and emergency response programs. Such programs and procedures are in place to protect contractors, company staff and the public from accidents and /or incidents related to forestry activities. Everyone is responsible and accountable for the overall safety initiatives.

During tree planting activities workers and supervisors are required to wear protective equipment and follow safety procedures. **No exceptions or deviations are allowed.**

Hard Hats	-Everyone must wear a hard hat at all times when working in the field.
Safety Boots	-Everyone must wear steel toed safety boots when working in the field.
Safety Pants	-While operating a chain saw, a person must wear safety pants/chaps. Pants must be worn at all times when working in the field. No shorts allowed.
Eye protection	-While operating a chain saw, a person must wear safety glasses/shield. It is recommended that you wear eye protection at all times.
Hearing protection	-While operating a chain saw, skidder, or personnel carrier a person must use ear plugs or ear muffs.
Gloves	-While operating a chain saw, a person must wear safety gloves. It is recommended that you wear work gloves at all times.
First Aid Kit	-Everyone must have access to a first aid kit. First aid kits should be located on the work site and the camp site. All work Sites must have a person trained in first aid.

Communication -Everyone must have access to some type of two-way communication device such as a cellular or mobile phone. A list of emergency numbers must be available as well.

Although not a requirement, the following is a list of items that everyone should have at their disposal.

- compass
- bear blaster or noise maker

Anyone caught not wearing the required safety equipment will be given a verbal warning. Anyone caught a second time will be sent home and not allowed to work that day. Continuous disregard of safety procedures will result in termination.

Although tree planting is relatively safe, workers must always be alert and aware of certain hazards. Hanging trees or snags are the greatest hazards a tree planter will encounter. When entering a planting site, particularly alternate strip sites, always look up for hanging or dead trees. If you do encounter a hazard make sure to alert your co-workers and be very cautious especially on a windy day.

Avoid working by-yourself. You should always have a planting partner nearby. Never wander off and always make sure your supervisor is aware of your whereabouts.

While riding on a personnel carrier ensure that everyone is sitting and that the safety bar is drawn down. Never mount or dismount the machine while it is moving.

People are allowed to work in the rain, however care should be taken when walking over slash or rocks as these surfaces can be very slippery when wet. **Workers should never work during a lightning storm.** Take shelter in a vehicle or at camp. Workers should never work during extremely hot periods either. Drink lots of liquids (water) and avoid carbonated drinks such as colas and do not overexert yourself.

Workers may sometimes encounter bears. Do not run away or make any sudden movements. Keep upright and walk away slowly while making noise by raising your voice, clapping your hands, or banging your planting shovel on a rock or stump. Avoid using a bear blaster, this should always be used as a last resort.

A list of emergency phone numbers has been included at the beginning of this manual.

Forest Fire Safety and Prevention

Tembec has developed rules and procedures regarding fire prevention for its employees and contractors. These rules and procedures are required to promote the prevention of forest fires and increase the safety of all forest users. **Violation of these rules and procedures may result in fines and/or termination of work.**

Tree planting usually occurs during a period when forest fire risks are high, so extreme caution must be taken when planting activities are going on. The fire season is in effect from April 1 through November 15. No open fires of any type are allowed. The cost of fire suppression may be charged against a person or company if proven that person or company is directly responsible for starting the fire. Forest workers are required by law to fight forest fires when called upon and are paid at the rates set by Manitoba Conservation.

Must have a work permit on site and adhere to it. The contractor must have necessary fire fighting equipment such as pumps, hoses, extinguishers, water packs, axes and shovels on site and ensure that all chain saws have spark arrestors. Workers should know the location and use of the fire equipment. While camping, no open fires are allowed. Persons must use approved camping stoves and heaters that run on naphtha, kerosene or propane.

Smoking is not allowed in the bush, cutovers or planting sites. Smoking is only allowed at roads or landings during breaks when a person is not planting. Persons should pick an area which is moist. Sit down before lighting up and avoid using matches (lighters will reduce the risk). Remain seated until smoking is completed and extinguished. While in camp, identify a safe smoking area and use proper ashtrays.

If you detect a forest fire, the first call must be made to your nearest Manitoba Conservation Officer (see listing at the beginning of the manual). The second call must be to a Tembec Woodlands representative (see listing).

When reporting a forest fire, the witness should provide as much information as possible in order to assist Manitoba Conservation in the suppression of the fire. The following information should be provided:

- your name and phone number
- time you discovered the fire
- location of the fire
- property values i.e.) lodges, cabins, camps
- approximate size of the fire
- fire spread i.e.) smoldering, ground, crowning
- fuel type i.e.) cutover, muskeg, rock ridge
- wind direction and strength
- access to fire i.e.) roads or air
- people and equipment available to fight fire as well as experience level
- remain available on the phone or radio for further assistance

GENERAL OVERVIEW

Planning

Tree planting is a very important component of Tembec's forest renewal program. A lot of planning goes on well before the actual plant gets started. Field crew go into an area before it is harvested and collect pertinent information such as soil types, vegetation composition and moisture regimes. This information is used to determine what kind of renewal activities should be carried out on the block to ensure that it regenerates back to a healthy forest.

In most cases natural regeneration or some type of light scarification is all that is needed to regenerate a site. Examples of this would be lowland black spruce swamps or jack pine ridges. In other cases however scarification and tree planting must be carried out to ensure that the softwood component of the harvest block is maintained. Examples would include poplar/spruce mixedwood sites or black spruce/jack pine upland sites. These sites tend to regenerate heavily back to poplar and the spruce has difficulty establishing itself naturally.

The type of species planted is dependent on the soils and the original stand composition. It is Tembec's objectives to regenerate a site back its original species composition. In special cases such as a heavily infested budworm sites, species such as black spruce may be planted instead of white spruce. The practice of stand conversion, where a hardwood dominated site is converted to a predominantly softwood type is not done. The company plants three types of species; black spruce, white spruce, and jack pine. The company does not plant hardwoods or non native species of trees.

The stock type used is usually determined by ground conditions and the amount of competing vegetation. Bareroot and large container stocks are planted on sites that have deep soils and a lot of competing vegetation. Bigger seedlings do much better than smaller stock when under heavy competition. Small container stocks are used on sites where the soils are not very deep and contain a lot of boulders. There tends to be less competing vegetation on these sites and the soil conditions make it difficult to plant larger stock. Miniature plugs are used on hard packed soils or very shallow soiled sites.

Timing is also an important factor in the planting program. The company prefers to plant trees in early spring when soils are still relatively moist and temperatures are somewhat milder than in the summer time. The geography of the area allows for an early plant without the risk of frost damage. Frozen stock is planted in early May and no later than early June. Frozen stock planted later than mid June would be susceptible to frost damage in the fall. If it is not possible to get all of the planting done by early June then, current stock which is not susceptible to fall frost, can be planted from mid June to early July. The company normally does not have a fall plant.

Preparing for the Plant

Before the plant begins, the contractor and Tembec supervisors are given maps of the various planting locations and a planting summary listing the number of seedlings, species and stock types to be planted in each of the location blocks. It is very important that the summary listing be adhered to. **Modifications to the list can not be made without the permission of the Tembec Silviculture Forester.** It is the duty of the Tembec supervisor to ensure that the proper species and stock types are planted in the appropriate blocks. The contractor, foremen and Tembec supervisors should walk the blocks and familiarize themselves with the area before planting begins.

Tree Delivery

With the exception of snow caches, trees are delivered by truck trailer to the site. Trees should be left in the reefer until they are ready to be thawed out and planted. Current stock should be taken out of the trailer immediately. The contractor and the Tembec supervisor will each have a copy of the delivery slip listing the number of seedlings delivered to the site. Trees can not be taken out of the trailer without the permission of the Tembec supervisor. The date, number, and stock type must be recorded and signed by the contractor each time trees are taken out of the trailer. Make sure to provide a copy of the sign out slip to the contractor.

When more trees are required or need to be moved to a new location, the Tembec supervisor will contact the Silviculture Forester. Always notify the Silviculture Forester at least three days in advance when more trees will be needed. This will ensure that the contractor doesn't run out of trees to plant and gives the nursery ample time to prepare itself. Don't forget to allow for a thawing period as well.

Daily Reporting

Contractor

At the end of each planting day or the following morning the contractor will provide the Tembec supervisor with a daily summary of the number of trees planted, broken down by species, stock type, and location. The contractor will also keep track of the number of planters and hours worked.

Daily Planting Report

The Tembec supervisor will be responsible for filling out a Daily Planting Report every day and giving it to the Silviculture Forester. If the supervisor can not drop off the Daily Planting Report then it must reported over the radio or telephone.

The Daily Planting Report consist of the following;

Contractor - a numbered code for each contractor

Species - a numbered code for each species

Stocktype - a numbered code for each stocktype

Site - a numbered code for each of the different planting locations

Date - Date that the trees were planted on

Number of Planters - the number of planters that work on that day

Manhours - number of planting manhours worked on that day

Trees Planted - number of trees planted by species, stocktype and location on that day

Sample Size - total number of trees checked on each site

Number of Satisfactory Trees - total number of trees that were satisfactorily planted for each site

Trees Received - total number of trees that were delivered on that day. This is not the number of trees taken out of the trailer

Program - ignore this field, not used

Supervisor - Initials of Tembec supervisor

Comments - any comments that are worth mentioning

It is possible that more than one Daily Planting Report has to be filled for each planting day depending on the number of species, stocktypes, and sites that were planted or checked for that particular day. For example if a contractor planted two different species of the same stock type in one location, two different Daily Planting Reports would have to be filled out. If a contractor planted two species of two different stock types in one location, then four Daily Planting Reports would have to be filled out. An example of the Daily Planting Report is shown on the next page.

Daily Plantation Summary by Plantation Block

The Tembec supervisor must keep a daily record of the number of seedlings being planted in pre-assigned plantation block. Planting areas are subdivided into planting blocks by the supervisor and assigned a unique plantation number on the planting map. Planting blocks should be subdivided in a logical manner. For example trenched sites on the east side of a road at Happy Lake should be considered one planting block. Trenched sites on the west side of a road at Happy Lake should be considered as a different planting block. However it wouldn't be logical to lump a alternate strip site and disc trenched site together as one planting block. The supervisor must record the date, species, stocktype, stocklot number (found on the delivery slip), and number of seedlings planted in each of the plantation blocks. This form is to be handed in at the end of the tree planting contract. The form is used for updating the GIS system and can also be used for balancing planting numbers. An example of the form is shown on the next page.

DAILY PLANTING REPORT		
CONTRACTOR:		
SPECIES:	STOCKTYPE:	
SITE:		
DATE:	NUMBER OF PLANTERS:	MANHOURS:
TREES PLANTED:		
SAMPLE SIZE:	NUMBER OF SATISFACTORY TREES:	
TREES RECIEVED:		
PROGRAM: (C/M or FML):		
SUPERVISOR:		
COMMENTS:		

FIELD HANDLING GUIDELINES

Bareroot and Frozen Container Stock

1. The field holding period should not exceed 1 day.
2. Planting stock being kept in holding areas must be used before additional stock supplies are delivered.
3. When selecting holding areas consider the following:
 - The containers should be placed where no direct sunlight will reach them and where they are not sitting in water. The containers should be spread out so that there is ample space between them to permit thawing of snow cached trees. No space should be left between bags of trees already thawed.
 - Tents or tarpaulins must have no floor and be set up to provide adequate ventilation. A tarp must be supported in such a manner as to allow for proper ventilation. Arrange containers in such a way so that they will receive no direct sunlight.
 - The use of space blankets is also an acceptable method of holding trees but they must be used properly in order to be effective. Silver-White, Silvicool or Heat Shield Tarps are by far the best tarps for seedling caches. Always use these tarps with the white side up or out and the silver side down or in. The white surface is highly reflective, absorbing little radiation. The white surface is also highly emissive, (91%), allowing for a quick release of heat buildup. The mylar coated aluminum inner surface is not very emissive, (0.5%), and so acts as a barrier to outside heat. Both the heat buildup from radiation on the white surface and heat conducted from the boxes to the aluminum surface are re-radiated to the outside from the white surface. The silverwhite seedling tarp must be placed in direct contact with the boxes to work most effectively.
4. Allow 1 - 2 days for thawing of frozen container stock. Take boxes out of the refer to the holding area but always leave trees in the containers. It may be necessary to open the containers on cloudy days to allow for adequate thawing. **Do not plant frozen seedlings or expose frozen bundles to direct sunlight.**
5. To prevent unnecessary drying of nursery stock, open containers only when the stock is required for planting. Keep containers closed at all other times.
6. Transporting stock from the holding area to the planting site requires special considerations. Protect the containers from heating, wind, direct sunlight and other detrimental factors.
7. Handle the stock so as to prevent physical damage.

8. The water supply for soaking bareroot stock should be relatively warm depending on availability and should be well-oxygenated and changed frequently. Fast flowing stream water is preferable to pond water. Place the trees upright in a container that will hold enough water to keep roots submerged but avoid submerging the green foliage.
9. Avoid unnecessary handling of nursery stock; no throwing, dumping or piling.
10. Any bareroot trees taken by the planter and not planted at the end of the day must be returned to the holding area and "heeled in", or returned to the shipping container with the roots of the planting stock protected by moist peat moss or equivalent material.
11. Planters, supervisors, or anyone else who is on the site must take responsibility for the care of the trees. If someone notices a problem, take corrective action immediately. Don't wait for someone else to do it.

Current Container

1. Unload all containers from the refer and open immediately upon arrival at the site. Leave the containers open all the time and do not close or cover them with tarps.
2. Containers should be placed where they are not sitting in water.
3. Ensure that plugs are moist and water when necessary. Do not over water seedlings.
4. Avoid placing containers in direct sunlight and allow for proper ventilation.
5. Do not take the seedlings out of the boxes until they are required for planting.

PLANTING PROCEDURES

Do's and Don'ts

1. The planter must not place any more trees in bags than can be safely accommodated without damaging the trees.
2. Lunch and coffee breaks should be taken prior to loading the planting bag.
3. Exposure of tree roots and plugs to wind or sun must be avoided.
4. Seedlings must be planted in the manner prescribe by Tembec and in an acceptable microsite.
5. All trees not planted by the end of the day must be returned to the on-site holding area, be re-packaged, identified and planted first on the following day.
6. Seedlings must be planted upright with the roots distributed in the ground in a natural condition.
7. Seedlings must be placed in the planting hole so that the root collar or plug is completely covered with soil and no roots are exposed. The lower lateral branches may be covered by duff or loose debris but not mineral or organic soil.
8. The ground must be firmed in around the seedling, filling any air spaces from the shovel holes. Seedlings can not be loose or contain air pockets. Care must be taken not to damage the root collar or the stem when heeling in a tree.
9. Spruce seedlings must be planted as close to 2.0 metres (6.56 feet) apart as microsite selection permits and pine seedlings must be planted as close to 1.83 metres (6 feet) apart as microsite selection permits.
10. Only one seedling must be planted per planting hole.
11. Seedlings must be handled or carried in the field carefully so as to ensure no seedlings are dropped or discarded.
12. Seedlings must be planted in a mixture of organic and mineral soil. The only exception being roads, landings and sandy-shallow sites.
13. Black spruce and White Spruce seedlings should never be planted on a road or landing unless specified by Tembec.

Special Considerations when Planting Bareroot

1. The planter must give roots a 5 to 10 second dip in water prior to placing them in the planting bag.
2. The planter must not attempt to remove excess soil or water from the roots by beating or shaking.
3. The planter is allowed to cull individual damaged trees. **Pruning however is not allowed.**
4. It is essential that all planting bags contain approximately 4 cm of water. Bags should be cleaned out frequently and new water added.
5. Extreme care must be exercised when removing bundle ties and separating trees to avoid damaging the bark and roots. Ties should be cut off, not pulled off.
6. Only tree planting shovels can be used to plant bareroot stock. Dibbles or spears can not be used.

Special Considerations when Planting Container Stock

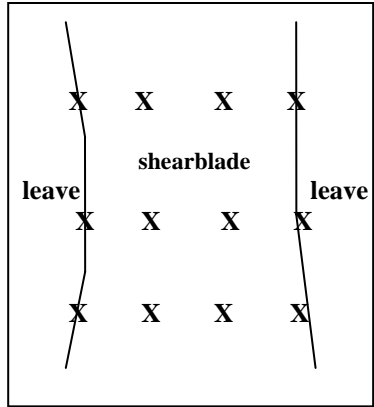
1. Frozen stock should be adequately thawed before planting. **Never plant frozen plugs or expose frozen bundles to direct sunlight.**
2. Ensure plug is planted in straight and not “J”.
3. Never soak plugs in water.
4. Always handle a seedling by the plug or the root collar. Care must be taken not to break the stem or pull off the leader of a seedling.

Unacceptable Planting Microsites

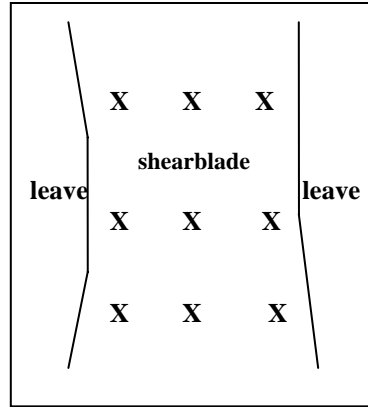
- bare mineral soil (unless planting Jack Pine or directed to by Tembec staff)
- rotten logs or stumps
- bottoms of depressions subject to flooding or puddles
- raised humps subject to extreme drying
- duff, loose debris, or slash

Spacing Shearblade

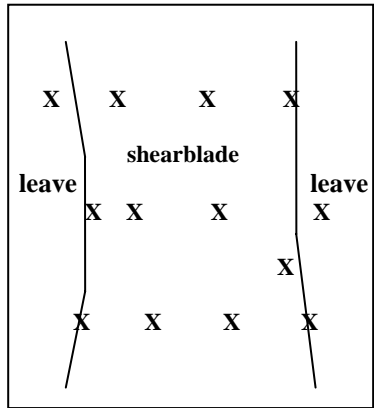
In most cases a planter should be able to plant at least 4 rows of trees. Trees should be planted along the windrow as close as possible. Avoid planting inside windrows.



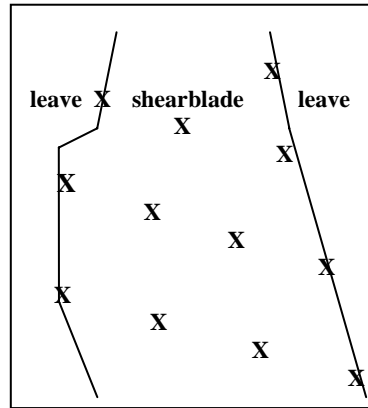
shearblade - good



**shearblade - poor coverage
plant trees up against windrows**



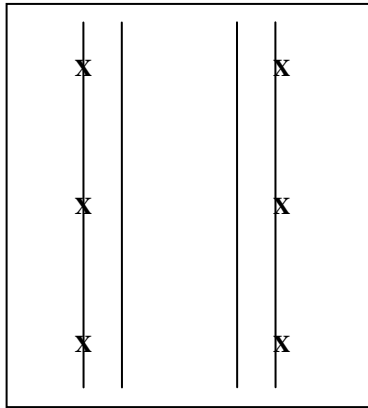
**shearblade - poor spacing
avoid planting leave strip**



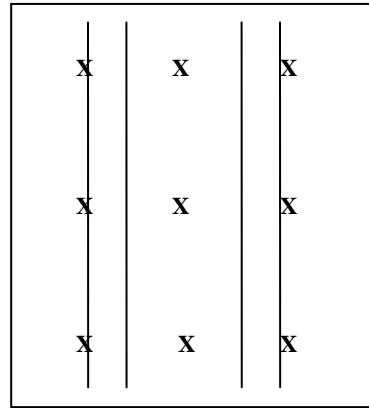
shearblade - good

Spacing Disc Trenching

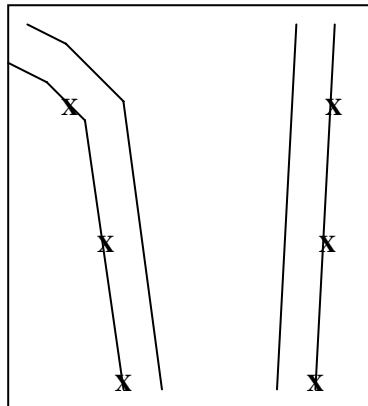
Plant trees on the throw side of the trench just above the hinge. Do not plant inside the trench or on top of the berm. Do not plant in between trenches unless there is adequate space.



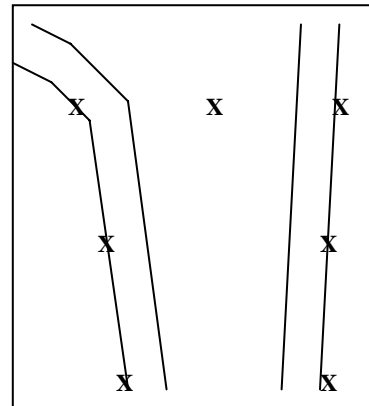
disc trench - good



**disc trench – poor
spacing to tight - only plant
between trenches if there is
adequate spacing**

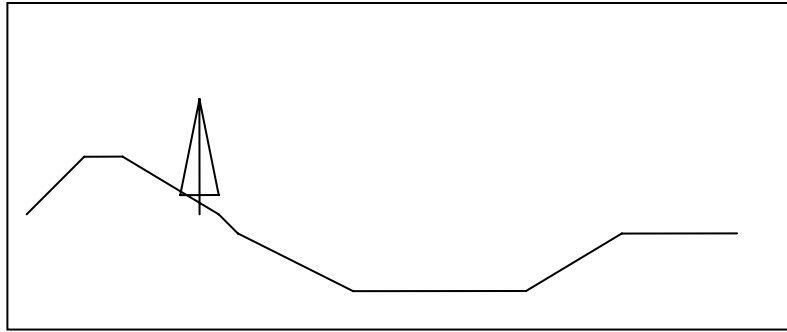


disc trench - good

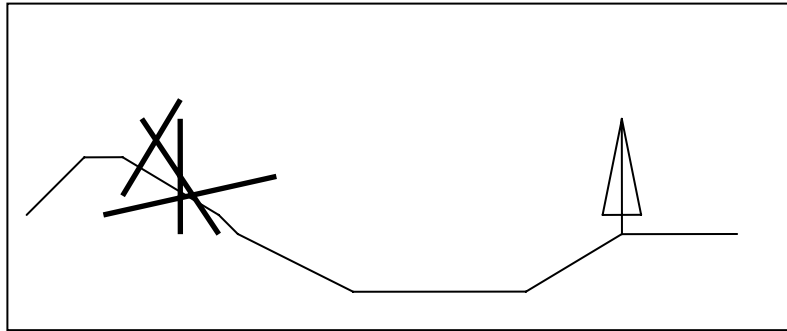


**disc trench - good
planting between trenches is
allowed as long as there is
adequate spacing**

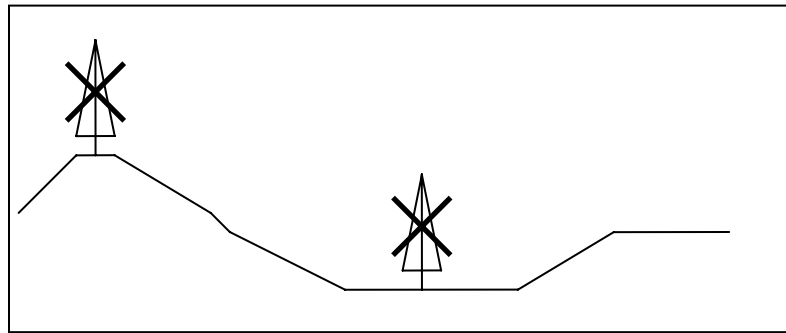
Microsite - Trenches



good – preferred microsite – plant on edge of berm



acceptable - only plant on opposite side of trench if there is no adequate planting microsite on the berm side



**unacceptable - never plant on top of berm, to dry
- never plant in trench, susceptible to flooding**

PLANTING QUALITY ASSESSMENT

Tembec uses two sampling methods to assess planting quality. The random circular plot (50 m²) is used on trenched and area plant sites while the random line sample is used on alternate strip sites. Sampling intensity is one plot per hectare planted.

Procedures (Random Circular Plot)

1. Establish one plot for each hectare planted on a contract basis. Plots should be randomly located.
2. Flag every tree within the plot boundary. Plot radius is 3.99 metres.
3. Determine plantable spots using suitable planting tool. A range of 9 - 15 trees is allowable for each plot at 2.0m (6.5 feet) spacing and 12-18 trees is allowable at 1.83m (6 feet) spacing. This range must be reduced proportionately to any reduction in plantable area within a plot.
4. Enter number of trees found within the plot including all natural regeneration.
5. Enter the number of excess trees above or below the range of plantable spots.
6. Assess each planted tree according to the infraction code, and enter each infraction in the appropriate box. Each tree may only be given one infraction. Do not fix or correct planting infractions.
7. In order to determine the absence or presence of air pockets or J-roots, dig up 2 randomly selected trees in the plot. Report any consistent problems to the contractor and the planting supervisor immediately.
8. Sum all unsatisfactory planted trees and excess trees together.
9. Subtract total unsatisfactory from planted trees to obtain satisfactory trees.
10. Determine percent quality by dividing satisfactory trees by the planted trees.
11. An assessment pin must be left in the plot center for rechecking in the case of a dispute. **A planter or contractor has 24 hours to request a re-assessment.**
12. A mean quality of all plots established within a planting block should be established and relayed back to the contractor.
13. The percent quality is used to determine the pay rate factor.

Procedure (Random Line Sample)

1. Establish one plot for each hectare planted on a contract basis. Plots should be randomly located.
2. Assess 5 trees in a planting row with a total of 25 trees sampled in a plot. Flag every tree within the plot.
3. Measure the total length between the 1st and 5th tree of each planting row. A 10% tolerance from the required spacing is allowed. If the distance is outside the tolerance a spacing infraction is assessed.
4. Assess each planted tree according to the infraction code, and enter each infraction in the appropriate box. Each tree may only be given one infraction in the appropriate box. Each tree may only be given one infraction. Do not fix or correct planting infractions.
5. In order to determine the absence or presence of air pockets or J-roots, dig up 2 randomly selected trees in the plot. Report any consistent problems to the contractor and the planting supervisor immediately.
6. Sum all unsatisfactory planted trees and spacing infractions.
7. Subtract total unsatisfactory from 25 to obtain satisfactory trees.
8. Determine percent quality by dividing satisfactory trees by 25.
9. An assessment pin must be left in the plot center for rechecking in the case of a dispute. **A planter or contractor has 24 hours to request a re-assessment.**
10. A mean quality of all plots established within a planting block should be established and relayed back to the contractor.
11. The percent quality is used to determine the pay rate factor.

Don't forget to always document known problems.

INFRACTION CODE

Microsite

Seedlings planted in/on any of the following microsites are assigned this code.

- 1a. bare clay (except for jack pine)
- 1b. rotten logs or stumps
- 1c. bottoms of gullies or depressions subject to flooding
- 1d. raised humps or loose soil or debris
- 1e. landings, skidways, roads or other compacted areas (unless specifically prescribed by supervisor)

Planting Method

Includes any of the following planting defects.

- 2a. physical damage to seedling
- 2b. planting more than one seedling per hole
- 2c. damaged seedling caused by tamping in tree with heel
- 2d. planting an unhealthy or dead seedling
- 2e. roots not spread out naturally or J-rooted (bareroot)
- 2f. plug not planted in straight – J-root

Planting Depth

The plug or root collar should be completely covered without covering the branches

- 3a. planted to deep
- 3b. planted to shallow
- 3c. exposed roots (bareroot)

Seedling Firmness

Soil shall be filled in and compacted around the roots with no air pockets in the soil.
Soil shall be compacted so that a seedling will not pull loose with a firm tug.

- 4a. seedling is loose
- 4b. airpocket

Stem Angle

Seedlings should be planted so that the stem is within 30 degrees of a vertical position. The crown should be in a position so that it is unobstructed by slash or competing vegetation.

- 5a. planted at an angle
- 5b. planted under debris or an obstruction

Dropped Tree

Any plantable seedling dropped and left on the ground.

6a. dropped seedling

Spacing

Optimum spacing is 2.0 m (6.5 feet) for spruce and 1.83 m (6 feet) for pine.

7a. missed plantable spot

7b. seedling closer than 1.07 m (3.5 feet) to another planted seedling or natural softwood seedling.

PAYMENT

Payment calculations are as follows:

number of trees planted X bid price X pay rate factor (one location)

Pay rate factors are based on the quality checks. The contractor receives a bonus for quality exceeding 92.5 %. There are deductions if the quality falls below 91.1 %.

Pay rate factors are as follows:

Planting Quality	Pay Rate Factor
85.0 - 86.5	.96
86.6 - 88.0	.97
88.1 - 89.5	.98
89.6 - 91.0	.99
91.1 - 92.5	1.00
92.6 - 94.0	1.01
94.1 - 95.5	1.02
95.6 - 97.0	1.03
97.1 - 98.5	1.04
98.6 - 100.0	1.05

Any planting quality below 85% for a particular site will be paid at the assessed quality rate, i.e. 75 % planting quality would result in a pay rate factor of 0.75.

Procedure Name: - Access Control		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -034	Revision #: 2	Last Revised: October 11, 2002
Approver: Operations Manager		

Why This Is Important

- ◆ Access by motor vehicles may increase hunting pressure and negatively impact wildlife populations.
- ◆ Human safety must be considered when removing access to existing roads.

What You Need To Do

- ▲ Consult with your Tembec Representative and follow the access control plan provided.
- ▲ Where safety hazards have been identified by Tembec, place signage to ensure it is visible to all traffic.
- ▲ More extensive access control should be used at the beginning of the road to discourage people from attempting to access the area with vehicles.
- ▲ Use berms or blockades at all excavations to ensure that all vehicles, snowmobiles and ATV's are warned of the safety hazard.
- ▲ Use natural features such as rock cuts, swamps and beaver floods when choosing access control locations.
- ▲ Ensure that the entire right-of-way is treated when erecting berms or blockades, spreading slash and debris or performing ripping operations in order to control vehicle access.



Restricted access to snowmobiles and ATV's



Sign warning of bridge removal ahead

Procedure Name: - Bridge or Culvert Removal at Water Crossings		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -035	Revision #: 5	Last Revised: September 30, 2008
Approver: Superintendent of Operations		

Why This Is Important

- ◆ Proper water crossing removal will protect water quality and fish habitat.
- ◆ Water crossing removal is an effective way of restricting vehicle access.

What You Need To Do

- ▲ Consult with your Tembec Representative for specific removal plans.
- ▲ Perform operations under frozen conditions or during low water periods.
- ▲ Excavate material to the stream bed level.
- ▲ Excavate a minimum area of 3 times the stream width (centered on the stream) between high water marks.
- ▲ Shape roadbed to match original river bank or slope excavations to a minimum of a 1:2 slope and preferably a 1:3 slope (rise:run).
- ▲ Construct off take ditches on roadbed and right-of-way to direct runoff into the forested area.
- ▲ Stabilize riverbanks by spreading clearing debris and/or seeding and transplanting local shrubs.
- ▲ Construct an earth berm on both sides of the water crossing approach to warn vehicles, snowmobiles and ATV's of the safety hazard.
- ▲ Where safety hazards have been identified by Tembec, erect the signage to ensure it is visible to all traffic.
- ▲ Dispose of all wooden bridge material by burning or other means of disposal approved by Manitoba Conservation.



Stream banks reshaped following bridge removal



Willow and alder clumps transplanted in old roadbed

Procedure Name: - Bridge or Culvert Removal at Water Crossings		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -035	Revision #: 5	Last Revised: September 30, 2008
Owner: Superintendent of Operations		

Return suitable culverts and bridge materials, to a site authorized by Tembec, for reuse. Dispose of damaged culverts as approved by Manitoba Conservation.



Use effective sedimentary control measures as identified in the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat.

Procedure Name: - Cross Drainage Culvert Removal		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -036	Revision #: 1	Last Revised: June 8, 2001
Approver: Operations Manager		

Why This Is Important

- ◆ Recovered culverts can be reused at new road construction sites.
- ◆ Culvert washouts may deposit silt in waterways and damage fish habitat as well as create a safety hazard for vehicles, snowmobiles and ATV's.

What You Need To Do

- ▲ Consult with your Tembec Representative for specific removal plans.
- ▲ Slope excavation banks to a minimum of a 1:2 slope and preferably a 1:3 slope (rise:run).
- ▲ Excavate culvert channel level with the ditches to avoid ponding on the right-of-way.
- ▲ Construct an earth berm on both sides of the excavation or slope excavation to accommodate snowmobile and ATV travel.
- ▲ Return suitable culverts, to a site authorized by Tembec, for reuse. Dispose of damaged culverts as approved by Manitoba Conservation.



Culvert removal with improper sloping

Procedure Name: - Spreading Slash and Debris or Performing Ripping Operations		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators		
WDS-WI -037	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

Why This Is Important

- ◆ Tops and branches can provide a seed source to assist in reforesting right-of-ways and roadbeds.
- ◆ Slash and debris provides an efficient and economical means of controlling access on roads being decommissioned.

What You Need To Do

- ▲ Consult with your Tembec Representative and follow the access control plan provided.
- ▲ Use debris piled during road clearing operations and roadside processing debris to spread over the right-of-way and roadbed.
- ▲ Ensure that the entire right-of-way is treated when spreading slash and debris or performing ripping operations in order to control vehicle access.
- ▲ Use natural features such as rock cuts, swamps and beaver floods when performing ripping operations.
- ▲ Avoid ripping on steep slopes or within 150 meters (500 feet) of rivers or streams.



Tractor and V-plow treating right-of-way and road bed



Vehicle access effectively removed with V-plow treatment

Procedure Name: - Planting of Roads, Landings and Campsites		
WHO Needs To Know: Tree Planting Contractor, Foremen, Tree Planters		
WDS-WI -039	Revision #: 0	Last Revised: March 6, 2000
Approver: Silviculture Forester		

Why This Is Important

- ◆ Reforesting roads, landings and campsites returns these areas to productive forest lands.

What You Need To Do

- ▲ Consult with your Tembec Representative to determine which roads have been scheduled for tree planting.
- ▲ Ensure all harvest area planting is complete before planting roads being used to access the planting blocks.
- ▲ Plant trees at a 1.8 X 1.8 meter (6 X 6 foot) spacing.
- ▲ Do not plant Spruce on areas cleared to bare mineral soil.
- ▲ Plant Jack Pine container stock, as specified in the Tree Planting Contract, on roads, landings and campsites.
- ▲ If hard packed roads have not been site prepared, ensure that the shoulders and center of the roadbed are planted.



Jack Pine planted on a rehabilitated campsite



Planting and natural regeneration has returned this in-block road to a productive forest

Procedure Name: - Contractor Emergency Equipment Inspections		
WHO Needs To Know: Contractors and Foremen		
WDS-WI -040	Revision #: 3	Last Revised: July 9, 2004
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Emergency equipment must be available and operational each and every time it is needed

What You Need To Do



Each month **Contractors** must:

- Inspect fire extinguishers, first aid kits and spill kits in the site, camp and equipment
- Replace material found missing from spill kits or first aid kits
- Recharge used fire extinguishers



Inspect fire extinguishers in your camp and on-site equipment each month



Inspect first aid kits and replace any material found to be missing

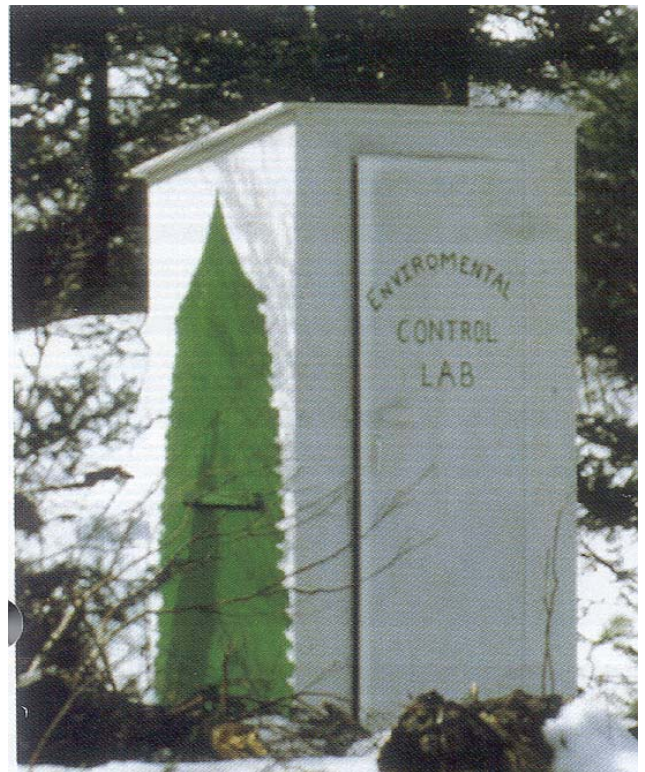
Procedure Name: - Management of Sewage and Grey Water at Remote Camps		
WHO Needs To Know: Contractor, Foremen, All Forest Workers		
WDS-WI -041	Revision #: 3	Last Revised: June 26, 2003
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Proper disposal of sewage and grey water is required under the Environment Act to ensure the health and safety of employees and visitors

What You Need To Do

- ▲ As a minimum, all operations using a camp set-up require the availability of a pit privy. A pit privy is simply a hole in the ground
- ▲ Privies may be enclosed in an outhouse but it is not a requirement of the Act
- ▲ Grey water (water from washing dishes, clothes, showers, etc.) must not be discharged to the surface of the ground. Grey water must be discharged to a covered hole (not under building) in the ground
- ▲ Locate and build the pit privy and grey water systems as follows:
 - Pit Privies must be farther than 6 meters (20 feet) from a lunch or sleeping trailer
 - Farther than 30 meters (100 feet) from a lake or stream
 - 30 meters (90 feet) from a water spring or a drilled well
 - Have 1 meter (3 feet) of soil between the pit bottom and bedrock
- ▲ Application of lime during non-frozen periods will assist in reducing odour and speed decomposition
- ▲ Cover pit with soil and debris when you want to relocate the privy or when operations are completed



Outhouses are not required for pit privies but they provide privacy and get you out of the elements

Procedure Name: - Public Inquiries or Complaints		
WHO Needs To Know: Contractors, Foremen, All Forest Workers		
WDS-WI -042	Revision #: 1	Last Revised: June 8, 2001
Approver: Operations Manager		

Why This Is Important

- ◆ The public has become more and more interested in how the Province's forests are managed
- ◆ It is our responsibility to educate the public on the good job we are doing in managing the forest

What You Need To Do



If you receive questions or complaints from the public that relates to your work for Tembec, collect the following information from the person(s):

- Name
- Address
- Phone and/or fax number
- Email address (if applicable)
- Questions or concerns



Let the person(s) know that Tembec will contact them regarding their question or concern



Provide this information to your Tembec Representative as soon as possible



The public should be treated with respect when they take the time to ask about forest management practices



Inquiries may result in forest management tours which allows us to show the public what a cutover looks like a few years later

Procedure Name: - Reporting Environmental Problems and Potential Problems		
WHO Needs To Know: Contractor, Foremen, All Forest Workers		
WDS-WI -043	Revision #: 3	Last Revised: September 25, 2002
Approver: Operations Manager		

Why This Is Important

- ◆ What you do in your job has the potential to affect the environment
- ◆ It is the responsibility of everyone working in the forest to identify and report environmental problems or risks that could potentially cause environmental problems

What You Need To Do

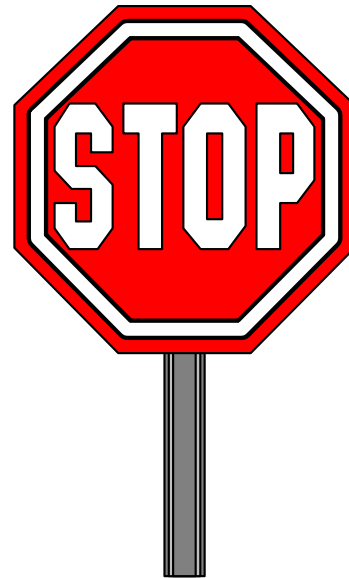


Stop work immediately and report to your supervisor if you think there is a risk to the environment



If you find any of the following things happening, you should stop operations in that area and contact your Tembec Representative as soon as possible

- Operating without a valid Work Permit
- Operating outside of your permit area
- A failure to follow plans provided by your Tembec Representative
- Operating practices or incidents that you feel may harm the environment



*If you are in doubt about what you are doing or identify a problem, **STOP WHAT YOU ARE DOING** and report it to your Tembec representative*

Procedure Name: Tembec Emergency Equipment Inspections		
WHO Needs To Know: Tembec Foremen, Mechanics, Scalers & Truck Owner Operators		
WDS-WI -044	Revision #: 6	Last Revised: September 30, 2008
Approver: Superintendent of Operations		

Why This Is Important

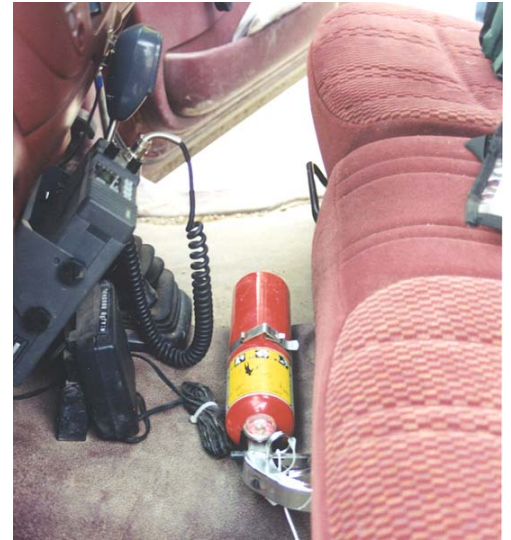
- ◆ Emergency equipment must be available and operational each and every time it is needed

What You Need To Do



Each month **Tembec Truck Owner Operators** must:

- Inspect fire extinguishers, first aid kits and spill kits in their vehicles
- Replace material found missing from spill kits or first aid kits
- Recharge used fire extinguishers



Procedure Name: - Handling, Storage and Transportation of Fuel		
WHO Needs To Know: Contractor, Foremen, Mechanics, Equipment Operators		
WDS-WI -045	Revision #: 3	Last Revised: September 29, 2006
Approver: Operations Manager		

Why This Is Important

- ◆ It is everyone’s responsibility to ensure fuels are stored, transported and handled properly to prevent spills to the environment.
- ◆ Improper placement of fuel tanks / trucks may result in spills of large volumes of fuel

What You Need To Do

- ▲ **No Smoking** in the vicinity of fuel storage tanks
- ▲ Storage and refueling sites must be at least 100 m (330 feet) from lakes, rivers or streams.
- ▲ Transportation of Dangerous Goods Certification is required if transporting more than 2000 liters (440 gallons) of fuel or gas or more than 500 Kg of propane, acetylene, oxygen, compressed air, or more than 5 cylinders.
- ▲ Worn or cracked hoses must be replaced as soon as possible
- ▲ Top supply fuel tanks must be equipped with a cradle, or a wire, or a container to secure the nozzle/hose when not in use. It must be set-up in a manner where fuel is not allowed to drip out.
- ▲ Bottom supply tanks or tanks using electronic pumps must be equipped with positive shut off nozzles
- ▲ Park Mobile fuel tanks on a level site
- ▲ Chock (block) at least one set of wheels to prevent rolling



Ensure slip tanks are secured in the truck box and have a cradle to secure the nozzle



All fuel tanks must meet new regulations

Procedure Name: - Handling, Storage and Transportation of Fuel		
WHO Needs To Know: Contractor, Foremen, Mechanics, Equipment Operators		
WDS-WI -045	Revision #: 3	Last Revised: September 29, 2006
Approver: Operations Manager		



When transporting fuel:

- Tanks must be in good condition and free of leaks
- Secure tank to the frame or within a cradle built into the box
- Label tanks with the appropriate TDG placard and must be visible
- Tanks **greater than 450 litres** must have a **TDG placard**. Tanks which are **450 litres or less**, including drums, must have a **TDG label**. The appropriate UN number must be displayed in all cases.

Diesel - CLASS 3 UN-1202

Gasoline - CLASS 3 UN-1203

- Transporting vehicle must be equipped with a fire extinguisher and spill kit
- Recommended to place tank on a rubber mat or carpet to prevent slippage

Federal TDG Legislation



Fuel tanks between 450 litres (99 gal.) and the maximum allowed 3000 litres (660 gal.) must be secured on a trailer or stored on the ground must meet the following requirements:

- ◆ All new tanks must meet Transport Canada standards
- ◆ All new tanks must have a plate that states "CGSB 43.146"



All tanks must be inspected, tested and approved every 60 months (5 years) from date of purchase.



Speak to your Tembec representative if you require information on tank standards or inspections.



TDG placard for Diesel with UN Number



TDG placard for Gasoline with UN Number

Procedure Name: - Vehicle and Container Fueling		
WHO Needs To Know: Contractor, Foremen, Mechanics, Equipment Operators		
WDS-WI -046	Revision #: 2	Last Revised: September 29, 2006
Approver: Operations Manager		

Why This Is Important

- ◆ Proper operating and fueling techniques protects the environment and the safety of the operator

What You Need To Do



When refueling any vehicle:

- Turn ignition off, except for diesel motors during winter months
- Put transmission in gear or park or lower blade
- **No smoking**
- Ensure there is a fire extinguisher and spill kit near by
- **Do not leave nozzle when refueling**
- Be careful when topping off tank to prevent fuel from spilling on ground
- Secure nozzle when refueling completed in a manner where fuel is not allowed to drip on the ground.



When filling portable containers

- All containers of 23 litres (5 gallons) or less must conform to ULC and CSA standards
- All containers of 23 litres (5 gallons) or less should **NEVER** be filled in trucks with box liners. Static electricity may cause an explosion.
- Containers should be secured for transportation in an upright position



A nozzle not secured will result in fuel dripping on the ground and poses a higher risk of spillage



Nozzle is properly secured in the cradle and minimizes the risk of spillage

Procedure Name: - Retaining Structure in Harvest Areas		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators in Cut-block		
WDS-WI -048	Revision #: 1	Last Revised: Dec 23, 2003
Approver: Superintendent of Planning		

Why This Is Important

- ◆ Retaining clumps of trees within the harvest area assists with natural regeneration, assists in maintaining soil productivity, provides wildlife habitat, assists operators in meeting line of sight and distance to cover requirements and generally makes new cutovers more pleasing to look at

What You Need To Do

- ▲ Trees should be left in clumps
- ▲ Leave a variety of different clump sizes. In general, larger clumps will remain standing longer than small clumps
- ▲ Avoid operating equipment within or through clumps or leave areas
- ▲ Selective harvest, by reaching into the edge of large clumps, will assist in reducing blowdown
- ▲ Leave single trees standing that are not merchantable, not designated for harvest or have high wildlife value such as open grown Pine and Spruce
- ▲ Pre-planning clump locations may be necessary in large areas of continuous merchantable trees
- ▲ Check with your Tembec representative for assistance in determining how many clumps to leave



Good example of a variety of different sized clumps left standing in the harvest area



Irregular sized clumps and single leave trees create wildlife movement corridors

Procedure Name: - Retaining Structure in Harvest Areas		
WHO Needs To Know: Contractor, Foremen, All Equipment Operators in Cut-block		
WDS-WI-048	Revision #: 1	Last Revised: Dec 23, 2003
Approver: Superintendent of Planning		



The following provides direction to the operator as to preferred locations of clumps

- Reduce blowdown by placing clumps in low areas and beside rock outcroppings. The north and west sides of rock outcrops should provide the best protection.
- Clumps closer to the edge of the cutover have more value for wildlife than those closer to the center
- Clumps may be placed to provide stepping stones for wildlife to move through cutovers
- Around inoperable areas that are too wet or too rocky
- Around willow and alder draws
- Create corridors along areas that drain water during wet periods and during spring runoff (intermittent creeks)
- Create corridors to reduce line of sight concerns
- Around areas of numerous snags, especially snags that contain cavity nests (e.g. wood peckers)
- Patches of young trees and species not being harvested that contain scattered merchantable trees
- Around large stick nests
- Areas of immature forest will be more windfirm and will stay on the landscape for a longer time



A large clump surrounded by single leaf trees

Procedure Name: - Safe Timber Hauling		
WHO Needs To Know: Contractor, Foremen, All Harvesting Equipment Operators, All Truck Drivers		
WDS-WI-049	Revision #: 1	Last Revised: September 30, 2004
Approver: Operations Manager		

Why This Is Important

- ◆ For the safe transportation of forest products on the public highway system.
- ◆ Ensure the safety of the general public, the driver and fellow employees.

What You Need To Do

- ↑↑↑ Haul trucks must be outfitted with two-way radios with haul safety channel frequency and mill yard channel frequency
- ↑↑↑ Drivers must at all times wear approved Personal Protective Equipment when outside the truck cab (hard hat and steel toe boots) and a high visibility vest is recommended at all times
- ↑↑↑ Drivers entering Tembec Mill Yard must at all times wear:
 - ◆ hard hats
 - ◆ steel toe boots
 - ◆ high visibility vests
 - ◆ eye protection when cleaning trailers
- ↑↑↑ Abide with all Manitoba Highway Safety Regulations
- ↑↑↑ Abide with posted provincial and municipal speed limits, adjust your speed to suit road conditions
- ↑↑↑ Maximum speed limit on bush haul roads 30 km/h
- ↑↑↑ Maximum speed limit on Class 1 roads 80 km/h (Trans Licence, Rice River and Happy Lake Roads)
- ↑↑↑ Maximum speed limit on Class 2 roads 70 km/h (Beaver Creek, Rainy Lake, Pointer Lake and Vanson Roads)

- ↑↑↑ Loader operator must tamp and shape load to ensure load is tight and logs are not protruding out of load
- ↑↑↑ Load must be securely strapped or cabled prior to transporting
- ↑↑↑ If individual pulpwood sticks begin to shift and protrude out of load, driver must stop and correct the load at the first location safe to do so.
- ↑↑↑ Prior to entering a numbered provincial highway or municipal road, driver must stop truck and conduct circle check of truck and load
- ↑↑↑ After unloading at mill yard or stockpile area, trailers must be swept clean of sticks and debris
- ↑↑↑ Haul trucks must stop at designated load check areas and use load aligners when available



Safe loaded truck

Procedure Name: Contractor & Employee Training		
WHO Needs To Know: Contractor, Foremen		
WDS-WI-050	Revision #: 4	Last Revised: September 30, 2008
Approver: Silviculture Forester		

Why This Is Important

- ◆ Contractors must adhere to all federal and provincial legislation which relates to training their employees. Web site addresses: <http://www.gov.mb.ca/labour/safety/index> and go under Acts and Regulations Section; or www.canada.gc.ca, click on A-Z Index, click on letter "L", then under Legislation Section click on "Laws-Justice Canada".
- ◆ It ensures that workers are provided with skills and knowledge to conduct their jobs in a safe and environmentally responsible manner.



Understand your legal requirements

What You Need To Do



Tembec EMS:

- All employees must be trained in the work procedures which apply to their work and be familiar with Tembec's environmental policy.
- The work procedure manual should be reviewed annually with all employees.



Transportation of Dangerous Goods:

- Workers and supervisors must receive TDG training and hold a valid training certificate if they transport the following;
 - More than 2000 litres (440 gallons) of fuel or gasoline
 - Over 500 kg of propane, acetylene, oxygen, compressed air; **or** more than 5 cylinders
 - Explosives
- Workers do not require a TDG certificate when transporting dangerous goods in the presence and under the supervision of someone who is adequately trained and holds a certificate
- Certificates are valid for 3 years and must be issued and signed by the contractor for their employees.



UNCONTROLLED DOCUMENT

CURRENT UNTIL 09/30/10 SEE SUPERVISOR IF OUT OF DATE

Procedure Name: Contractor & Employee Training		
WHO Needs To Know: Contractor, Foremen		
WDS-WI-050	Revision #: 4	Last Revised: September 30, 2008
Approver: Silviculture Forester		



First Aid Training:

- All work sites must have a person(s) trained in first aid
- The number of first aiders and level of training required at the work site is as follows:



Number of workers	First Aider Requirements & level
1 to 10	1 first aider level2 <i>standard first aid and CPR</i>
11 to 40	1 first aider level3 <i>advanced level first aid and CPR</i>
41 or more	2 first aiders level3 <i>advanced level first aid and CPR</i>

- First Aid certificates are valid for three years and are issued through the Canadian Red Cross Society or St. John Ambulance



Controlled products, hazardous material, WHMIS training:

- WHMIS is the primary system used in educating employees of potentially hazardous products on the worksite
- Contractors and employees who work with WHMIS controlled products must comply with Provincial WHMIS regulations regarding labelling, MSDS sheets and worker education

- **ALL** employees must be trained in WHMIS and a refresher is to be done every 5 years
- Common WHMIS controlled products used in forestry operation include propane, gasoline, diesel, acetylene, oxygen, cleaning agents such as varsol and turpentine
- Other products such as hydraulic oil, herbicides, and products for domestic use are not regulated under WHMIS, **however** employees still need to know potential hazards, proper handling and disposal of these products
- Contractors must keep a list of MSDS sheets at the worksite, inform employees of these products and ensure containers are labeled



Procedure Name: Disposal of Chipper Debris Piles		
WHO Needs To Know: Woodlands Foremen, Operations Manager, Supt. Of Planning		
WDS-WI-051	Revision #: 1	Last Revised: September 30, 2008
Approver: Manager, Community and Aboriginal Relations		

Why This Is Important

- ◆ Uncontrolled fires threaten human safety, destroy personal property and can negatively impact all forest users and forest based communities.

What You Need To Do






- ↑↑↑ Debris created by a chipping operation shall be piled away from buffers and leave blocks in such a manner to ensure a clean, efficient burn of all combustible materials.
- ↑↑↑ All piles identified on a burn inspection report that have been designated to be burned shall be recorded on a photo mosaic from gathered GPS coordinates.
- ↑↑↑ Unless otherwise agreed upon, all chipper debris piles to be burned will be ignited between the period November 1st and December 30th (refer to Manitoba Conservation Circular C-4 {FEM 19} and Debris Pile Burning Procedure Brush Disposal Guidebook - March 2005).
- ↑↑↑ If burning a chipper debris pile is required during the period April 1st to November 15th, a burning permit will be required.
- ↑↑↑ In cases where chipper debris piles have been created close to a community or a public road or highway, alternate methods of chip disposal shall be used i.e. spreading, hogging, or by the use of a controlled method of burning (air curtain burners).
- ↑↑↑ All piles, once lit, will be inspected at least once prior to December 30th.



Chipper debris pile lit in early December 2006

Procedure Name: Disposal of Chipper Debris Piles		
WHO Needs To Know: Woodlands Foremen, Operations Manager, Supt. Of Planning		
WDS-WI-051	Revision #: 1	Last Revised: September 30, 2008
Approver: Manager, Community and Aboriginal Relations		

What You Need To Do

- 
 Prior to April 1st, all piles will be scanned using an infrared scanner either from the air or from the ground. All findings shall be recorded on a Burn Inspection Report.
- 
 Any piles where heat sources have been identified shall be ground checked and appropriate action taken to ensure that all heat sources have been extinguished.
- 
 Any pile where heat sources have been detected and action has occurred shall be re-scanned to ensure that all heat sources have been extinguished.
- 
 Action on piles where heat sources have been detected and action will be recorded on the Burn Inspection Report.
- 
 Once completed, all burn inspection reports will be forwarded to the appropriate Manitoba Conservation office as indication that all piles have been scanned and where necessary, extinguished.



Chipper debris pile