

# LOG QUALITY CONTROLS AT MWFP

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MILLAR WESTERN FOREST PRODUCTS LTD.



# Why A Quality Program

Ensure the most effective utilization of our resource during logging operations and producing a log which will maximize mill recovery while remaining within the provincial ground rules.



# Log Products Produced at MWFP

- Tree length Conifer
- Cut to Length Conifer
- Tree Length Aspen



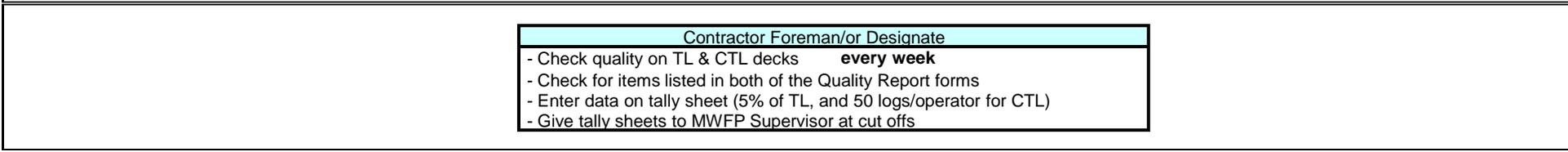
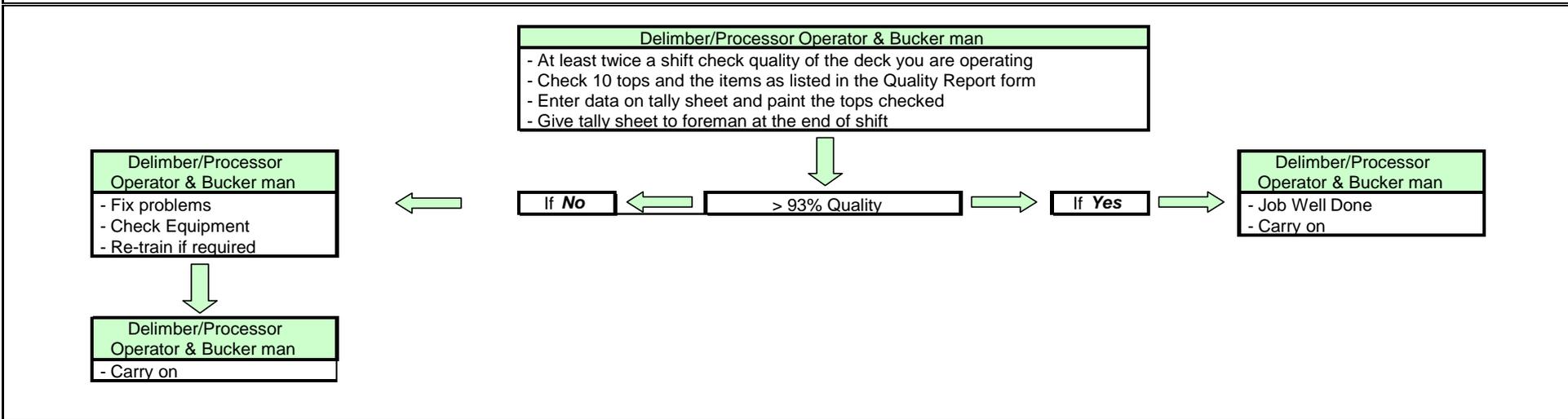
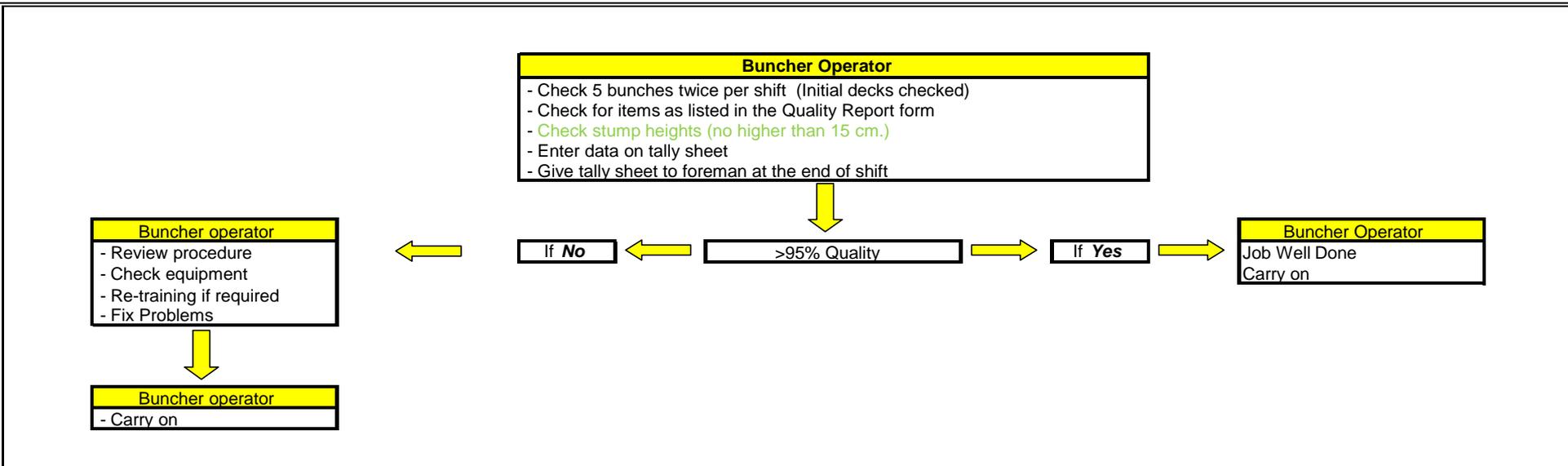
# Quality Program

## Requirements:

- MWFP contractor supervisors will be responsible to check quality as outlined on the following flow chart.
- Contractor, Buncher and delimeter / processor checks are recommended to be done as outlined.
- If the quality percentage on any sample falls below the minimum, QC checks will be mandatory for 2 weeks.

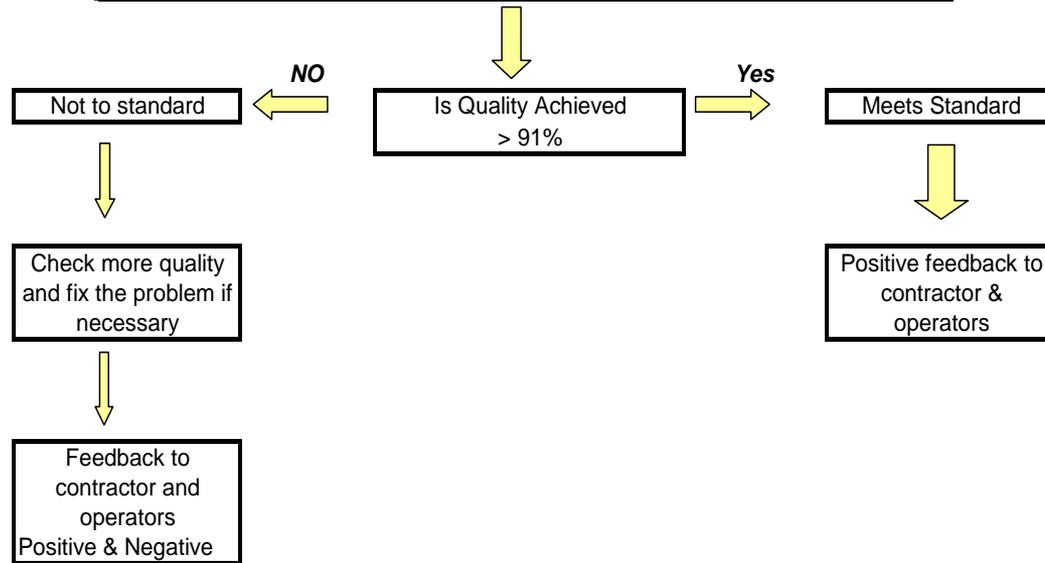


## Log Quality Flow Chart



Millar Western Supervisor or Designate

- Review contractor quality forms.
- Conduct quality checks on each delimeter and processor operator. (**every week**)
- Check for items listed on the Quality Report from.
- Enter the data on the Quality Report forms.
- Discuss the findings and results with the contractor **before leaving the block.**
- TL check 3% of the tree counts (overall) and 10% for quality (**minimum / block**)
- CTL check 100 logs / week / processor / contractor minimum



# UTILIZATION

All trees must be merchandized to maximize saw log and chip recovery.

Deciduous trees with excessive crook, sweep or large limbs are to be left standing.

Trees with a diameter over 64 cm at the butt can either be left standing or with MWFP Supervisor approval can be stubbed and the majority of the tree utilized.

Trees found with a oversized butt dia. will be considered cull logs

## Stump Height

All stump heights measured must be **15** cm or less. All stumps greater than **15** cm in height are unacceptable.



# UTILIZATION

## Top Diameter

Conifer (TL) 9.0 cm **(2.0 Point against Quality)**

Conifer (CTL) 9.0 cm **(2.0 Point against Quality)**

Deciduous (TL) 9.0 cm, **or to the point where the stem is unusable or there is heavy branching with no central stem.** Tops are measured inside of the bark.



# UTILIZATION

## Minimum Butt Diameter

The measurement at the stump. Must be a merchantable tree. Anything under the minimum is unacceptable. Minimum acceptable butt diameters are:

Coniferous (TL) 15 cm

Coniferous (CTL) 12.5 cm

Deciduous 15 cm

## Merchantable Tree (2 Points against Quality for undersized trees)

**Conifer-** A tree that has a minimum diameter of 12.5 cm outside bark at stump height (15 cm). Must be able to attain a 3.66 m (12')

**Deciduous-** A tree that has a minimum diameter of 15 cm outside bark at stump height (15 cm)

and a usable length of 4.88 meters to the minimum top diameter (inside bark).

Red trees are allowed only if they are not cull logs.

## Merchantable Broken Piece

A piece of log which has a minimum top diameter of 9 cm and a minimum length of 2.44 m (8').

**All logs under 7.62 m must be set back 3 m from the butts.**

# Small Diameter Trees < 19cm

All trees with a butt diameter less than 19 cm must have evidence of a buncher cut unless bucking rot to a clear 19 cm in conifer. This will allow the scaler to easily determine the butt of a tree.



# OVER BUCKING

(1 Point against Quality)

Any part of a tree bucked out unnecessarily will be considered over bucking. **If deemed excessive MWFP Supervisor may apply a penalty under mechanical damage. Comments will be written on the QC form.**

**Examples of over bucking are:**

- Bucking out mechanical damage
- Heavy Topping
- Cookies on clear butt less than 19cm dia.
- Improperly bucked forks
- Improperly bucked sweep / crook
- Cookies over 5 cm with no visible defect (bucking to zero the saw)**



# LARGE TOPS

Tops/pieces with a large end diameter of greater than 10cm are NOT acceptable in the top pile (unless other criteria of the top/piece as per this manual render it not to MWFP quality specifications. ie. cull log).

- Tree length to a 9cm top will ensure NO large tops (below).
- Cut to Length to a 9cm top and good length utilization decisions by operator will ensure NO large tops (below).



# Length Specifications (Cut to Length ONLY)

(1 Point against Quality for improper lengths)

(5 Points against Quality for logs over 5.08 m)

- i.e. 3.13m -3cm/+5cm
- 3.76m -3cm/+5cm
- 4.36m -3cm/+5cm
- 4.99m -3cm/+5cm **Preferred Length**

All lengths which are not properly utilized to size standards are considered unacceptable. 10 foot logs are allowed on sawlogs but must be kept to a minimum. Any log found that is over 5.08 m long **MUST be** corrected to meet the above length specifications. If found while a quality check is being done it will be painted blue at both ends and **MUST** be fixed. If 5% or more of the logs in a sample are over 5.08 m the entire deck must be rechecked and corrected by the contractor immediately. When decking the logs ensure that the tops are flush. Do not center the short logs.

Bucking Decisions: \*\*

# ROT

## (2 Points against Quality)

- **All trees** with butts (or large ends) of **19 cm** diameter or less, containing soft rot, are to be bucked at 0.61 m intervals **or less** to achieve a 100% clear face.
- **All trees** with butts (or large ends) greater than **19 cm** diameter exhibiting advanced decay greater than 50% in the area of the cut surface are to be bucked at 0.61 m intervals **or less** to achieve 50% sound wood. (Figure 1 is an example of butt rot.)
- Heart rot (or **white spec/milk rot**) must also be bucked out. If it isn't, the results are worse than butt rot because the entire log is unusable (Figure 2 shows how the boards break apart with heart rot).
- STAIN: Do not buck out stain. Bucking it out is considered waste.

Figure 1



Figure 2

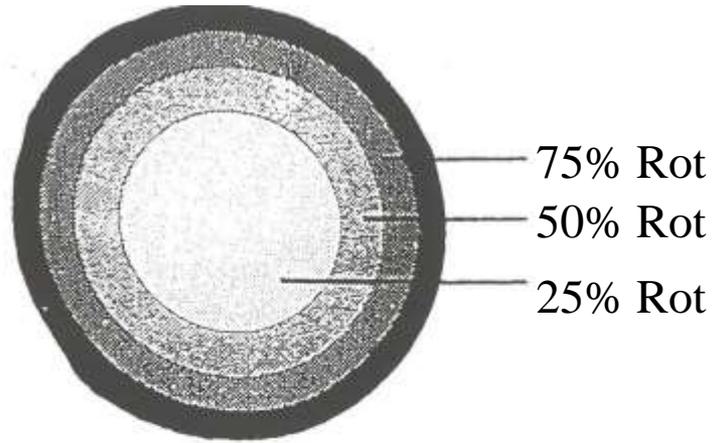


# STAIN VS ROT

- Stain is NOT rot; however, where it is observed, watch for rot as advanced stain becomes rot.
- Typically, stain is pink or salmon colored while rot is darker to brown.
- Rot will often exhibit white flecks and/or be visibly pitted on the end grain. This produces rougher cuts where stained wood behaves the same as sound wood.
- The severity of the stain and/or rot is often consistent within a cut block so it may be worth while to sample cut and break a few cookies when starting a new block.



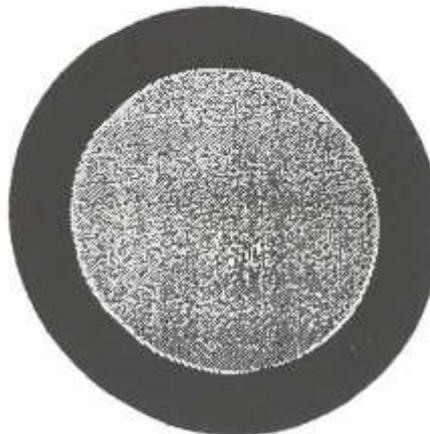
# ROT



75% Rot



50% Rot



25% Rot

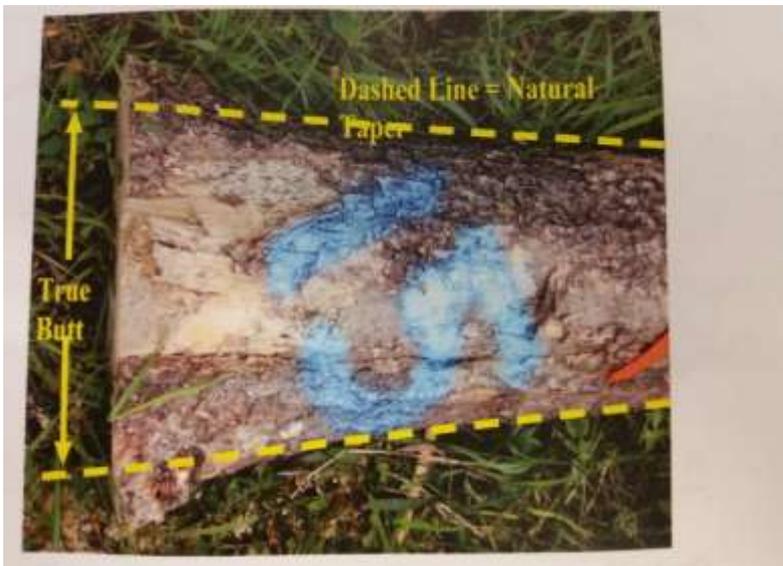


# BUTT FLARE

(2 Points against Quality)

**Conifer** – On trees less than 43cm at the butt, flare greater than 5.0 cm beyond normal taper is considered unacceptable. The dashed yellow lines below would be acceptable if the flare was only 5.0 cm on either side. On trees greater than 43 cm at the butt, flare 2.5 cm beyond normal taper is considered unacceptable. The dashed yellow lines below would be acceptable if the flare was only 2.5 cm on either side. When bucking flare, cookies may NOT exceed 10 cm.

**Deciduous** - Flare greater than 5.0 cm beyond normal taper is considered unacceptable. The flare outside of the dashed lines should have been bucked off. When bucking flare, cookies may NOT exceed 10 cm.



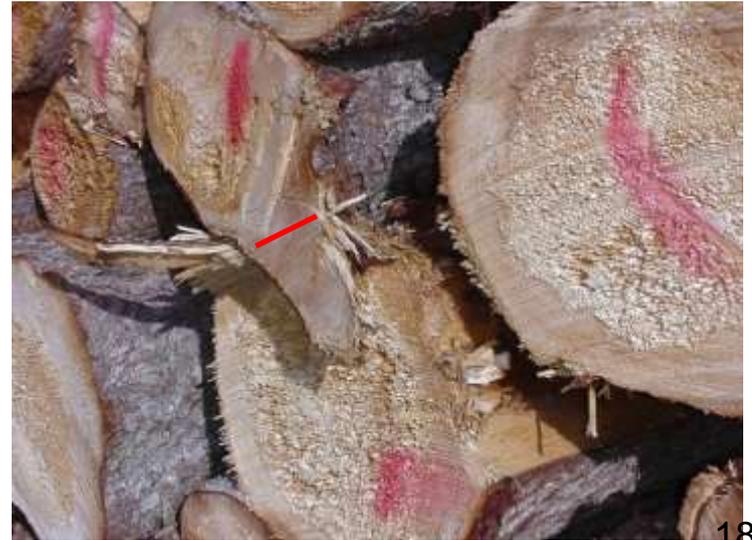
# BUTT FLARE

**(2 Points against Quality)**

Excessive flare can cause logs to get jammed in the debarkers causing breakage or just take extra time to process. The red lines show what should have been bucked off.

Removing the flare parallel to the stem with a chainsaw is the preferred method. Cookies up to 5.0 cm to remove butt flare will be allowed, but should be avoided.

**Root horns are not flare and must be removed. No tolerance. 2 Point penalty will apply.**



# DOUBLE CUT

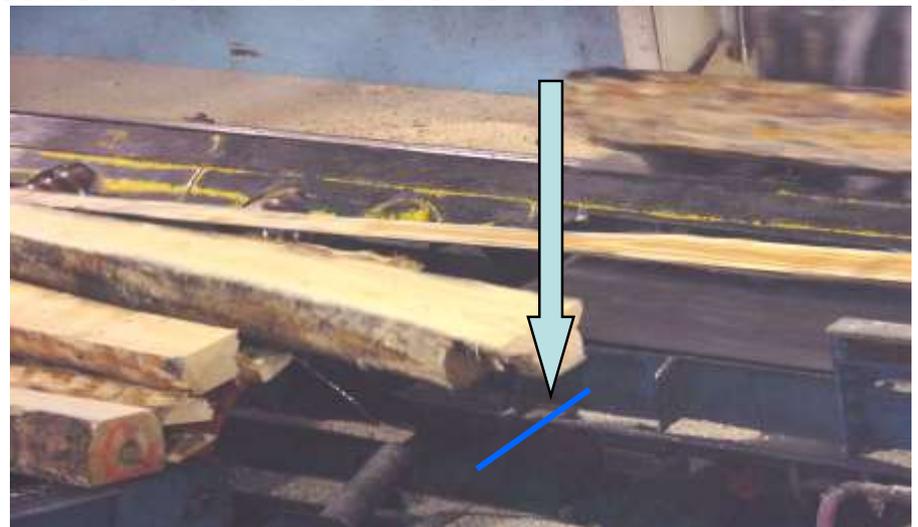
(1 Point against Quality)

Double cuts on conifer logs can result in waste if the scanner only sees the longest part.

Any double cut in conifer logs over 2.5 cm cut flush leaving evidence of the buncher cut. This will ensure minimum waste.

Any double cut in aspen logs over 5 cm cut flush leaving evidence of the buncher cut. This will ensure minimum waste.

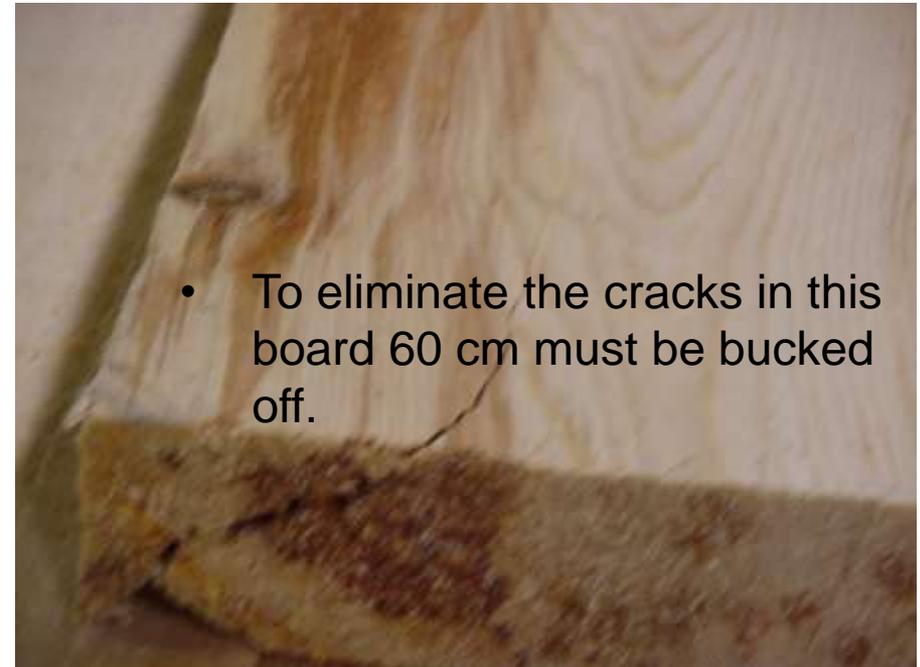
A double cut that penetrates more than the taper of the tree is unacceptable because it causes a loss in lumber recovered. 61 cm will be lost in this one below.



# BUTT SHATTER

**(3 Points against Quality)**

Butt shatter or split is caused by falling, skidding, or delimiting. This is unacceptable because it wastes wood and reduces chip quality. Sharp teeth on the bunchers and insuring that trees are completely cut should eliminate this problem. If the shatter extends across the whole face it will be counted as Butt Shatter. Butt Shatter can not be removed, it must be prevented. If it is removed it will still count as Butt Shatter.

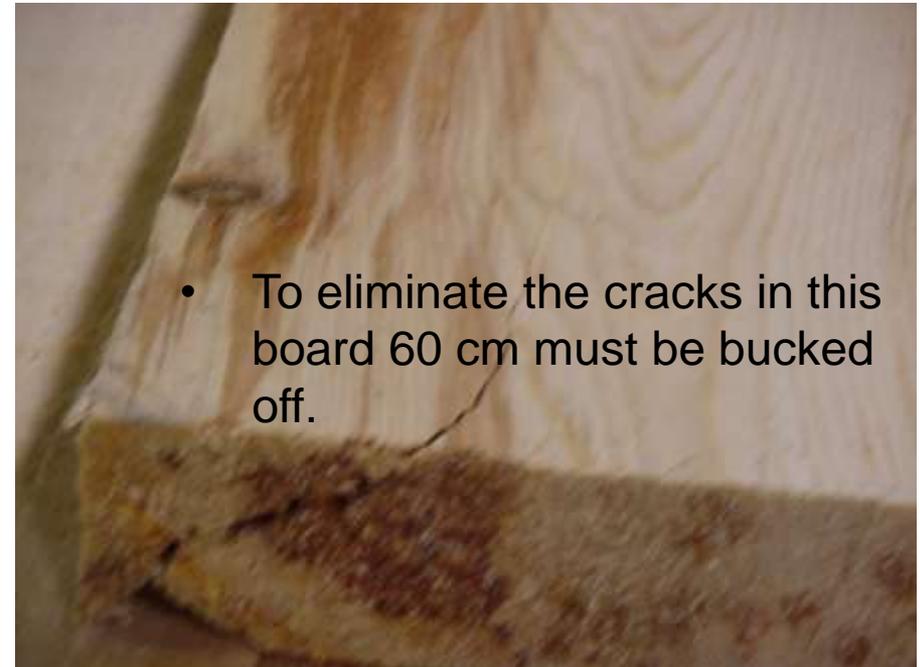


- To eliminate the cracks in this board 60 cm must be bucked off.

# BUTT SHATTER

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- To eliminate the cracks in this board 60 cm must be bucked off.

# MECHANICAL DAMAGE (TOP SHATTER)

**(1 Point against Quality)**

Top shatter or split is caused by delimiting or bucking. If the shatter extends across the whole face (Figure 2) it will be counted as mechanical damage or (top shatter in TL). This is unacceptable because it wastes wood. Sharp teeth on the topping saws, insuring that tops are not whipping and completely cut should eliminate this problem. Shattered tops can not be removed. In aspen logs Figure 1 if the shatter is tight (B), it will not count; however shatter with a gap as shown (A) will be an infraction.

Figure 1

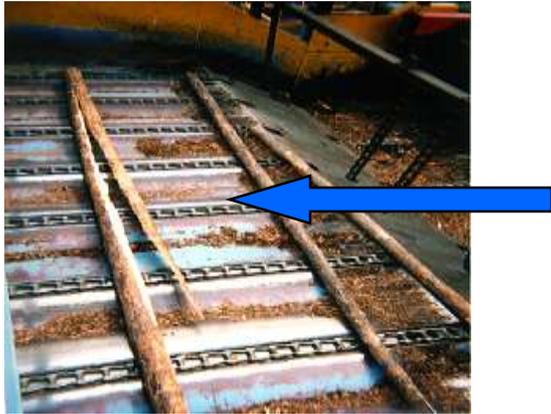


Figure 2



# MECHANICAL DAMAGE (SLABBING)

**(1 Point against Quality)**



Even a small piece like this will cause a loss in length of 60 cm to 1 or 2 boards.

This log will lose over 50 % of the fiber recovered and the loss wouldn't even make it to the debarker to get chipped.

A strip torn-off more than the taper in a 5 m interval the log will be considered mechanical damage. Slabbing and snipes are caused by: cutting trees too large for the felling head, pulling a tree off the stump prior to the cut being complete, or accumulating too many trees in the felling head and not having the capacity to finish cutting the tree. The loss in length is shown below (60 cm).



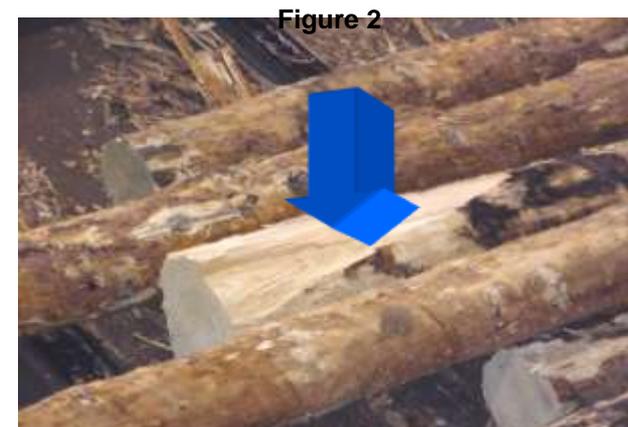
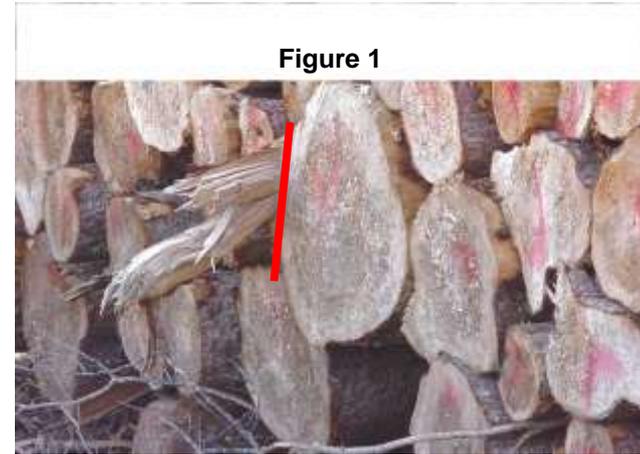
# MECHANICAL DAMAGE (SNIPES)

(1 Point against Quality)

Snipes are caused by incomplete cuts. They can result in wood waste if left on. These should be bucked on the red line (as shown in Figure 1).

This snipe comes from the stump. Even though there is no wood wasted this still has to be cut off because it causes problems in the debarkers.

Snipes can cause logs to get jammed in the conveyors or get torn off in the debarkers causing a slab to come off the log (as shown in Figure 2).



# MECHANICAL DAMAGE

(1 Point against Quality)

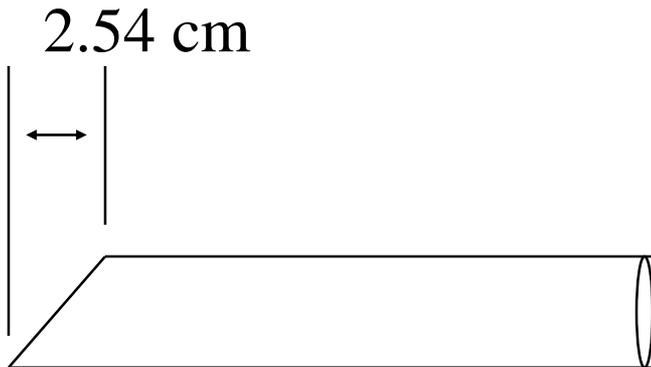
- **NO** broken tops are acceptable in CTL or TL logs.
- Gouges from delimiting knives or feed wheels greater than 2.5 cm will be counted as mechanical damage.
- Skidders can not drive over decks or try to push the decks up high because it causes too much damage. Must use the grapple to deck.
- Excessive mechanical damage will not be tolerated.
- Mechanical damage **CAN NOT** be cut off in the bush it must be prevented.

# ANGLE CUTS

(1 Point against Quality)

When a conifer log is cut at an angle it must be cut square. If there is more than a 2.54 cm difference in the length it will count as a defect.

Any angle cut in aspen logs over 5 cm cut flush leaving evidence of the buncher cut. This will ensure minimum waste.



# FORKS

**(2 Points against TL Quality, 0.8 Points on CTL)**

Here is some examples of improperly processed pieces.

Improperly bucked forks are unacceptable.

A properly bucked fork will increase your quality percentage, and the amount of fiber available for the sawmill.

Forks shouldn't be torn off because it wastes fiber.



# CROOK

(5 Points against Quality, 5 Point on CTL)

Example of improperly processed piece. Crooks with over **(90 cm displacement on TL), or (7.6 cm displacement in CTL)** of the logs. If the rest of the tree can be used remove the crook and deck the top, if not leave the crook on the unusable top. The tree on the right would require 2 cuts. Most would only require 1 cut.



# CROOK

Pistol grips like these must be removed. In CTL if cut at 313cm it will still count as a crook.



# EFFECTS ON THE SAWMILL

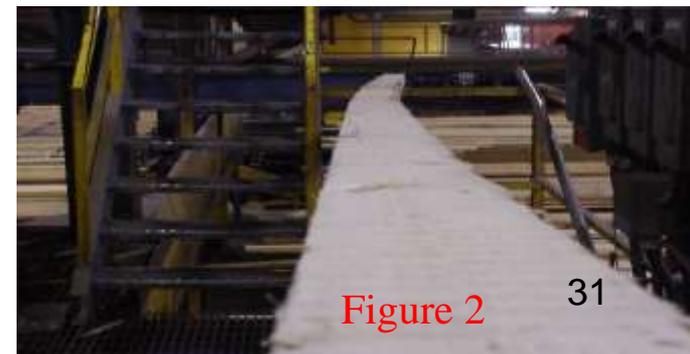
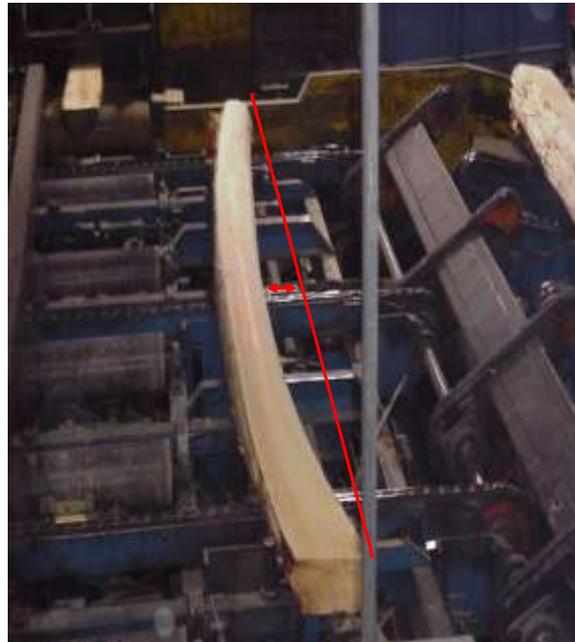
Excessive crook causes logs to get jammed in the sawmill and result in a loss of length. The red lines show where the saws would cut this cant.



# SWEEP

**(5 Points against Quality on TL, 5 Point on CTL)**

A tree length log is considered to have excessive sweep if the deflection is greater than 90cm from the butt to the top. Trees with excessive sweep must be cut into two pieces so it can be hauled & milled. A CTL log is considered to have excessive sweep if the deflection is greater than 7.6cm. Excessive sweep causes a loss in length (Figure 1) or curved boards (Figure 2).



# Compound SWEEP

Compound Sweep is **UNACCEPTABLE**. Must be merchandized into two preferred length pieces.

- While processing CTL, Compound Sweep/Crook as pictured below is **UNACCEPTABLE**.
- Compound sweep occurs when the direction of sweep changes more than once over the length of the tree. Tree must be merchandized into preferred length pieces in such a way that compound sweep is eliminated in ALL CTL logs.



# CATFACE

(1 Point against Quality)

Cat faces at the butt of a tree which are greater than 50% (including a dead or rotten core) of a logs own diameter must be cut out.



# LIMBING

**(2.5 Points against Quality, 0.5 Point on CTL)**

All limbs, large knots and other protrusions are unacceptable and must be bucked off flush with the stem. All burls must also be removed. Try to minimize the amount of bark stripped from the trees. Excessive penetration from limber drive rolls is not acceptable and must be kept to a minimum.



# CHECKING

Checking is the result of wood drying. Cracks, splits, seams, or checks that enter the heart wood are unacceptable. Surface checking is acceptable (A). Spiral checks should not exceed 1/2 turn in a 5m length. No more than 2 straight splits per piece. All unacceptable logs will be considered cull logs. **Notify your supervisor if there is a high amount of checking.**



This is a dry log with a crack to the center. If the crack doesn't go to the end of the tree buck off the bottom part and process the rest of the tree.



# EFFECTS ON THE SAWMILL

Spiral checking over 1/2 turn causes the entire log to fall apart when it is cut into lumber. Under 1/2 turn only up to 1/2 of the log is lost.



# DEAD / DRY LOGS

Dead logs are acceptable if the wood is sound (**NO ROT**) and the bark is still on the log **for the entire length** after delimiting it. These conditions indicate sound wood that can be processed at our facilities, otherwise it will be considered a cull log.