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October 30, 2009

**BY EMAIL**

To: Regional Executive Directors

From: Murray Stech  
Director  
Revenue Branch

**Re: Amendment No. 13 to the *Provincial Logging Residue and Waste Measurement Procedures Manual***



I hereby approve Amendment No. 13 to the *Provincial Logging Residue and Waste Measurement Procedures Manual*, and attach a copy for your use.

The purpose of this amendment is to establish procedures for assessing residual standing timber left on a cutting authority that is subject to tabular stumpage rates.

This amendment comes into force on November 1, 2009.

Murray Stech  
Director  
Revenue Branch

Attachment





Ministry of  
Forests and Range



## MANUAL REVISION TRANSMITTAL

<p>FOR FURTHER INFORMATION OR IF YOU HAVE A CHANGE OF ADDRESS, PLEASE CONTACT:</p> <p>John Wai Residue Forester and Log Salvage Policy Forester Revenue Branch Ministry of Forests and Range 1 Floor, 1520 Blanshard Street Victoria, BC V8W 3K1 Phone: 250-356-7671 Email: John.Wai@gov.bc.ca FAX: 250-387-5670</p>	<b>MANUAL TITLE</b>	
	Prov. Logging Residue & Waste Measurement Procedures Manual	
	<b>AMENDMENT</b>	<b>ISSUE DATE</b>
	Amendment No. 13	November 1, 2009
<b>MANUAL CO-ORDINATOR</b>		
Judy Laton Publications/Administrative Co-ordinator		
<b>AUTHORIZATION (Name, Title)</b>		
Murray Stech Director, Revenue Branch		

Please make the following changes to your copy of the above Ministry manual.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT	PAGE(S)	COMMENTS
	TABLE OF CONTENTS		
REMOVE	Table of Contents	i - vi	After Table of Contents Tab
INSERT		i - vi	
REMOVE	Chapter 5	17 - 24	After Chapter 5 Tab
INSERT		17 - 24	
INSERT	Letter from Murray Stech, Director Transmittal Sheet		After Amendments Tab



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absence of the billing history records or if an RPF or RFT considers the records are unrepresentative, grades may be derived by an RPF or RFT based on examinations of the actual grade compositions of the stand left on site.

#### 5.3.2.4 Tabular Stumpage Rates

1. This section only applies to cutblocks where primary logging is completed on or after November 1, 2009.
2. Subject to subsection (3) of this section, and notwithstanding sections 5.3.2, 5.3.2.1 and 5.3.2.2 of this manual, where a stumpage rate for a cutting authority must be determined under Section 6.1.1, or Section 6.1.2 of the *Interior Appraisal Manual*, or Section 7.2 of the *Coast Appraisal Manual*, timber left standing on the cutting authority area after primary logging has been completed will not be measured nor billed as waste.
3. Where the District Manager determines that the holder of the agreement failed to harvest the standing timber in accordance with:
  - a. the results or strategies of a Forest Stewardship Plan, or the default or alternative performance requirements that pertain to the agreement, or
  - b. the results, strategies, or the measures of a Woodlot Licence Plan that pertain to the agreement,the District Manager may require the holder of the cutting authority to conduct a waste assessment of the standing timber and will bill this residual timber on the cutting authority area as avoidable waste.
4. Subsections (2) and (3) apply to standing timber only, a waste assessment of the dispersed and accumulated subpopulations of the cutblock must be conducted as per this manual requirements.

#### 5.3.3 Slabs

A slab is defined as any non-round piece with less than half (1/2) of its original circumference remaining, a minimum thickness of 10 cm and an average diameter equal to or larger than the timber merchantability specification diameter. The *only* exception is mature red cedar (on the Coast only) which must have a minimum thickness of 15 cm to be measured or recorded.

Slabs are measured, graded and recorded as a “Log” (L) if they have a minimum thickness of at least 10 cm for at least 3 m in length or as “Bucking Waste” (W) if they are bucked at the butt end or both ends and have a minimum thickness of a least 10 cm for less than 3 m but at least a tenth (0.1) of a metre.

Chapter 5 of the *Scaling Manual* should be referred to for measurement procedures for slab ends in various shapes (i.e., semi-circle, quadrant, sector, segment, etc). Alternatively, the following method is continuously accepted for computing slab diameters, for waste purposes.

Using Figure 5.3, slab diameters are computed using the following steps:

1. Measure and average 3 thickness.

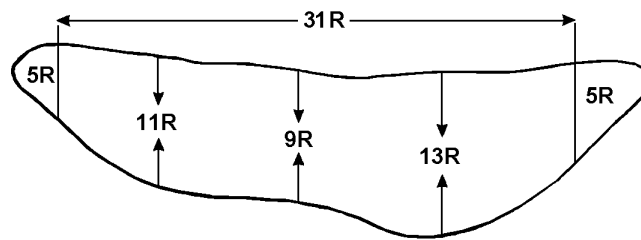
i.e.,  $11 + 9 + 13 = 33/3 = 11$  rads

2. Measure 1 width between 5 rad edges.

i.e., Width = 31 rads

3. Average the thickness and the width.

i.e.,  $11 + 31 = 42/2 = 21$  rads\*



*Figure 5.3 Measuring Slabs.*

### 5.3.4 Stumps

A stump is defined as any piece with more than half (1/2) of its original circumference remaining, less than 3.3 m in length and still attached to the roots. The length is to be measured from the high side of the stump. A stump that is at least 3 m in length after the maximum allowable stump height (usually 30 cm) has been deducted is classified as a log because of its length.

Stump heights are always measured from the high side.

Stump height *is not* measured from the top of any root flare or any obstacles such as accumulated bark, moss, or other loose duff and vegetation that could be kicked away easily by the faller. No consideration should be given to brush and undergrowth that the faller should cut away before falling.

Measure from where the ground meets the base of the stem to the top of the felling cut (as shown in Figure 5.4) to the nearest tenth (0.1) of a metre. The volume of the undercut is included in the measured stump volume. Deduct the stump height of 0.3 m and record the result under length on the FS 161.

If the total stump height is less than or equal to the stump height of 0.3 m measured from the high side, then the stump *does not have to be recorded*.

For raised stumps where the tree has grown out of a rotten log, the stump height should be measured from the point of germination, or the high side, whichever is higher.

Stumps will not normally be graded and will default to sawlog grade. However, if the log from the stump is present the stump should be graded the same as the log.

If the stump has less than 50 percent firmwood volume, the stump is not recorded.

In the Interior, dead stumps will only be measured and recorded where the timber stand is designated to be catastrophic.

On the Coast, dead stumps will not be measured nor recorded except cedar, cypress and white pine. Use the following guidelines to differentiate between dead/live stumps:

Dead	considerable crumbling sap rot and/or loose or missing bark.
Live	little or no crumbling sap rot and bark not loose.

Sometimes stumps can be broken up in logging. Any stump fragments are ignored. Conversely, any stumps with missing fragments are measured as if the fragment was still in place.

#### 5.3.4.1 Measuring and Recording Stumps

Careful measurement of stumps is critical because they contain high volume per unit of length.

Measure the top diameter (inside bark) of the stump (unless the total height of the stump exceeds 1.3 m) and record it in the "top" column.

For a stump whose total height exceeds 1.3 m, record the diameter (inside bark) at 1.3 m above the ground on the high side of the stump. The taper of the stump should be finished at approximately that point and recording the top diameter above 1.3 m would end up under estimating the volume of the stump.

Stump diameter is always measured inside bark, and recorded to the nearest rad.

No entry is required in either the top or butt end code fields on the FS 161.

### 5.3.4.2 Waste in Stumps

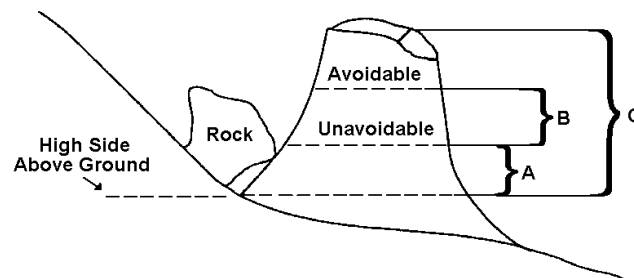
Unless there are physical obstructions or safety precautions because of decayed wood, waste in stumps is classified as avoidable waste.

Unavoidable waste occurs where excessive snow depth or an obstruction prevents cutting the tree to the timber merchantability specifications. Where there are physical obstructions or excessive snow depth, the lowest height that the tree could have been cut must be established.

Frequently, trees and snags with butt rot are felled above the TMS stump height for safety reasons. Under these circumstances, a stump may have both avoidable and unavoidable components. This situation is illustrated below in Figure 5.4.

The District Manager may approve a higher allowed stump height on all or a portion of the cutblock for safety reasons or to hold back logs.

- A. Timber Merchantability Specifications (TMS) Stump Height.
- B. Allowed Stump Height.
- C. Total Stump Height.



*Figure 5.4 Avoidable and Unavoidable Waste (High Side).*

#### 5.3.4.2.1 Definitions:

- A. *Timber merchantability specifications (TMS) stump height* of 30 cm is measured from the ground on the *high side*. This part is not recorded. If the stump is higher, length measurements start from the 30 cm mark.

- B. *Allowed stump height* is the height specified in the District Manager's letter for heavy snow packs, or the minimum distance from the ground on the *high side* of a stump up to a point above a physical obstruction which allows for safe falling. B minus A = unavoidable piece.
- C. *Total stump height* is the distance from the ground on the *high side* to the top of the felling cut. C minus B = avoidable piece.

#### 5.3.4.3 Recording Stumps in Segments

If there are both avoidable and unavoidable components of waste, the stump is recorded as two pieces each with its own piece number and record appropriate comment code such as MP on FS 161 to indicate multiple pieces.

Record the top portion as avoidable piece. Enter the difference between the total stump height and the allowed stump height in the length field, and the top radius in the top field. Classify this piece as avoidable (A).

Record the lower portion as unavoidable piece. Enter the difference between the allowed stump height and the TMS stump height in the length field, and the top radius of this lower segment in the top field. Classify this piece as unavoidable (U).

#### 5.3.4.4 High Stumps - Snowpack

Winter logging can result in unavoidable waste occurring in high stumps due to snowpack, especially alongside winter skid trails.

Where winter logging is approved and the TMS stump heights cannot be achieved by operators because of snow conditions, the waste portion is considered avoidable unless a written exemption is issued by the District Manager.

This exemption will specify a new maximum stump height to reflect acceptable winter stump heights.

The portion of the stump between the TMS stump height and the allowed stump height specified in the exemption letter is considered unavoidable.

The portion of the stump above the allowed stump height specified in the exemption letter is considered avoidable.

In all cases, trees must be cut as close to the TMS stump height as possible.

Survey crews must confirm if an exemption letter has been issued prior to the survey.

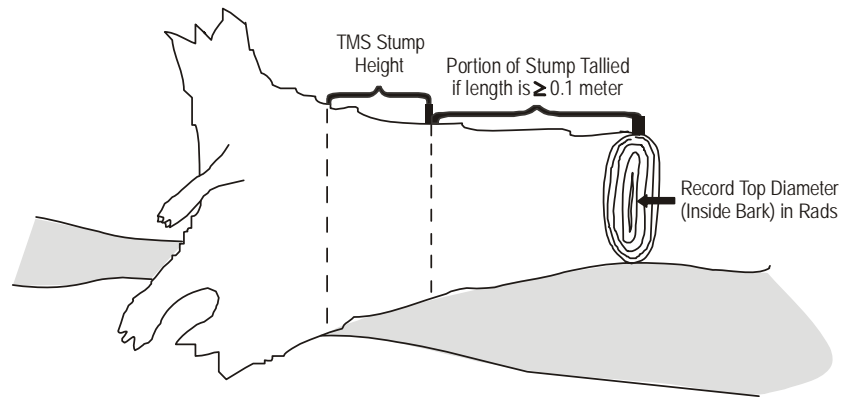
In addition, the decision to classify stumps as unavoidable because of snow should not be automatic. Prudent operators with a mix of operating areas are expected to avoid high snow areas through sound planning.

### 5.3.4.5 Blowdown Stumps

It is very difficult to determine whether a stump on a blowdown area is avoidable or unavoidable after the logging has been completed since there could have been a dangerous obstruction that has since been removed.

Safety is the primary consideration for the person cutting the log off a tree that has been blown over. Therefore, if there is any question as to whether the stump should be called avoidable then the waste surveyor should give the licensee the benefit of the doubt and call it unavoidable.

Unavoidable waste in blowdown stumps also occurs in the form of long butts. Where this occurs, as illustrated below in Figure 5.5, the long butt is treated as a stump with the length being measured from the side 30 cm adjacent to high ground.



**Figure 5.5 Windfall Stump.**

In some blowdown situations, there may be wind sheared trees resulting in high stumps that could not yield a minimum-length clean log. These stumps are classified as unavoidable, provided that the Forest Service has been advised immediately after the field work for the affected block has been completed. Occasionally, there may be valid safety reasons for leaving a wind sheared high stump that could have yielded a minimum-length log, but normally such high stumps are classified as avoidable.

Unavoidable stumps can also occur when windfalls obstruct the trunks of standing trees preventing lower cuts.

Where feasible, especially where there are many blowdown trees, fallers should consider making their first cut just over one log length from the root wad. The resulting log with the root attached may then be yarded or skidded into the landings and the roots safely cut off.



Blowdown stumps which stand back up when the logs are bucked off should be classified as unavoidable because they were probably cut high for safety reasons.

If bucking could safely produce a minimum length log from such stumps, the volume above the TMS stump height should be recorded as avoidable waste.

Guy line stumps can be accepted as unavoidable if there is no unnecessary waste of wood. Any portion that is excessive waste must be classified as avoidable. Blowdown stumps on a landing should be classified as unavoidable.

#### 5.3.4.6 Borderline Stumps

For borderline stumps, measure the horizontal distance from the plot centre to the geometric centre of the stump at a point 30 cm above the high side. If this point is located inside the plot, the entire stump is recorded. If it is not, the entire stump is not recorded.

For knocked-over and uprooted stumps, measure the horizontal distance from the plot centre to a point 30 cm above the high side or the point of germination (POG), whichever is higher. If this point is located inside the plot, measure the entire stump.

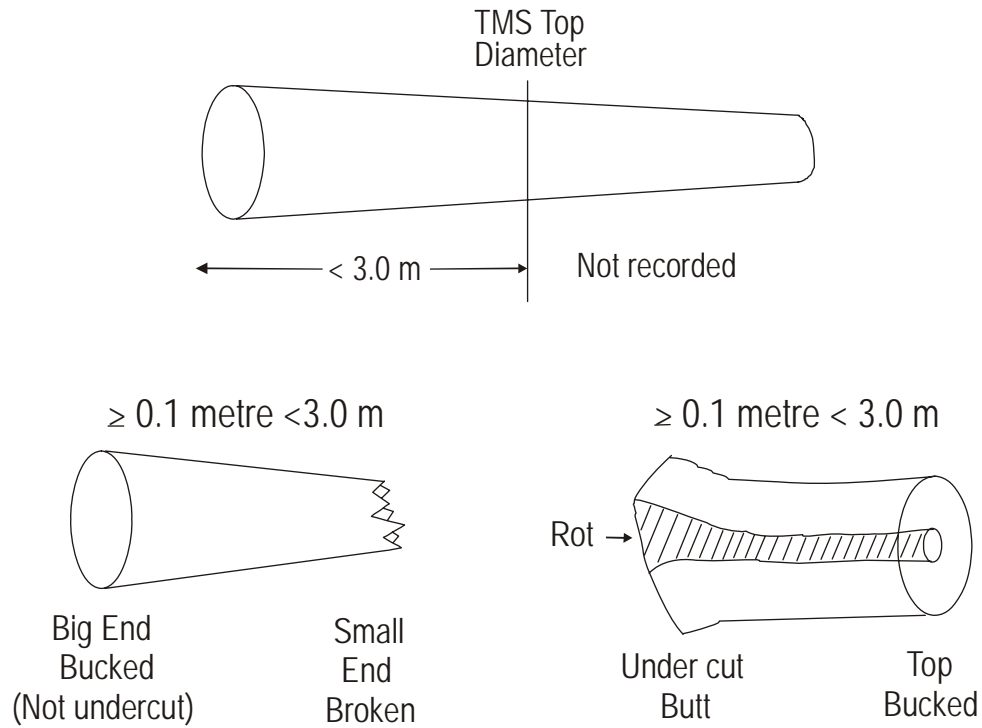
#### 5.3.5 Bucking Waste

Bucking waste is defined as any piece less than 3 m in length (originating from a log at least 3 m in length) that has been cut at the large end or at both ends. It has been cut too short to be of any use through improper or careless bucking practices.

A piece cut at the small end (top) and broken at the large end (butt) is considered unavoidable breakage (not recorded) in the dispersed sub-population but is measured and recorded as bucking waste in accumulation sub-populations. However, if the logging system was inappropriate or there was excessive breakage in the dispersed sub-population then all pieces cut at the small end (top) and broken at the large end (butt) should be recorded as avoidable breakage.

Some examples of bucking waste are when tops are bucked off at a diameter larger than the TMS diameter, when the 0.1 m trim allowance has been exceeded (big end cut and small end broken) and when decay has been bucked off a log and the remaining piece is more than 50 percent sound. Trim ends less than 50 percent sound which are less than the dimensions of a slab need not be measured. Trim ends which are heavily fractured are not to be measured.

Bucking Waste is recorded as "W" under "Kind of Material" on the FS 161 (Plot Survey Card). Bucking waste is normally graded sawlog and can only be downgraded for excessive twists and oversize knots.



**Figure 5.6 Examples of Bucking Waste.**

### 5.3.5.1 Avoidable/Unavoidable

Bucking waste is considered avoidable unless there is clear evidence that pieces were cut out for safety reasons in falling (escape path) and bucking (oblique cuts), in which case they may be classified as unavoidable.

Pieces with severe physical deformities such as forks, crooks, pistol butt or extreme sweep, and gall or goitres may be pencil bucked to separate avoidable and unavoidable portions as shown in the examples of pieces under 3 m below.