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September 28, 2000

To: Regional Managers

From: The Honourable Jim Doyle
Minister of Forests

Re: Amendment No. 3 to the *Coast Appraisal Manual*

I hereby approve Amendment No. 3 to the *Coast Appraisal Manual*, and attach a copy for your use.

This amendment is to implement the timber pricing part of the Coast Hemlock Strategy.

This amendment will come into force on October 1, 2000. Further amendments or revisions to this manual require my approval.



Jim Doyle
Minister

Attachments

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Coast Appraisal Manual*



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Amendment No. 3

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MANUAL CO-ORDINATOR

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AUTHORIZATION (Name, Title)

W. Howard
Director, Revenue Branch

Please make the following changes to your copy of the above Ministry manual. Please insert the following specified pages and **file this notice** immediately after the Amendments Tab.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT	PAGE(S)	COMMENTS
	TABLE OF CONTENTS		
REMOVE	Table of Contents	i - iv	
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Introduction

1

1.1 Terms of Reference and Conventions

1.1.1 Terms and Conventions

Procedures	<i>Italics</i>	Indicate the formal name of a document. e.g. <i>Forest Act, Coast Appraisal Manual</i>
	Headings	1. = Chapter 1.1 or 1.1.1.1 = Section of Chapter 1 1.1.1.1, (2) = Section within Chapter 1, with Subsection. Table 4-2 = Table 2 within Chapter 4

1.1.2 Terms of Reference

The *Forest Act*, Sections 103 to 108, and regulations provide the statutory authority for the determination of stumpage for Crown timber.

The *Forest Act*, Section 105, requires adherence to the policies and procedures approved for the forest regions by the Minister of Forests. This *Coast Appraisal Manual*, approved by the Minister, contains the policies and procedures for determining stumpage rates charged for Crown timber harvested in the area described in Section 1.2.

1.2 Area of Application

This manual applies to the "Coast" which is defined as that geographic area included within the Vancouver Forest Region, as established by the *Forest Act* and Regulations, and the North Coast Forest District.

1.3 Cutting Authority

The term "cutting authority" means one of the following:

1. A cutting permit issued under:
 - a. a forest licence,
 - b. a timber sale licence that provides for the issuance of cutting permits,
 - c. a tree farm licence,
 - d. a community forest agreement,
 - e. a woodlot licence, or
 - f. a timber licence.
2. A timber sale licence under which cutting permits have not or will not be issued.
3. A licence to cut.
4. A road permit.

1.3.1 Cutting Authority Area

The term "cutting authority area" means the area that:

1. Timber may be harvested from, under a cutting authority, and
2. Has a unique timber mark, or marks.

1.4 Responsibility for Stumpage

For the purposes of Section 105 of the *Forest Act*, the following employees of the ministry are authorized to determine, redetermine and vary stumpage rates:

- Regional Managers, Regional Appraisal Coordinators and other employees authorized by the Regional Manager, and
- Director, Revenue Branch and employees of Revenue Branch.

1.5 Market Pricing System

Market Pricing System (MPS), subject to a minimum stumpage rate and Sections 2.1, (3), (4), and (5), is the basis for determining stumpage rates for cutting authority areas under timber sale licences awarded under Sections 20 and 21 of the *Forest Act* on or after January 1, 1999, and other cutting authority areas as directed by the Minister of Forests.

1.6 Comparative Value Timber Pricing

Comparative Value Pricing (CVP), subject to a minimum stumpage rate and Sections 2.1, (3), (4), and (5), is the basis for determining stumpage rates for all cutting authority areas except those specified under Section 1.5.

The stumpage rate for a cutting authority area is more or less than the Base Rate (see Section 5.5) depending on whether or not the timber in the cutting authority area is more or less valuable than timber from the average cutting authority area. To make that assessment and hence to determine a stumpage rate, the authorized Ministry of Forests employee (see Section 1.4) will typically:

1. Estimate the Average Selling Price of the logs for the cutting authority area (see Chapter 3).
2. Estimate the least Operating Cost (see Chapter 4) for the cutting authority area.
3. Determine the Value Index (see Chapter 5) for the cutting authority area by subtracting the estimated least Operating Cost from the estimated Average Selling Price.
4. Determine the indicated stumpage rate by comparing the Value Index for the cutting authority area with the Coast Mean Value Index and adding the Coast Base Rate (see Chapter 5).
5. Determine the reserve stumpage rate (see Chapter 5) by selecting:
 - a. the greater of the indicated stumpage rate or the prescribed minimum stumpage rate, or
 - b. for an appraised cutting authority area containing timber licence volume, the greater of the adjusted indicated stumpage rate or the prescribed minimum stumpage rate.
6. Determine the upset stumpage rate by adding any development or silviculture levies (see Section 6.5) to the reserve stumpage rate,
7. Determine the total stumpage rate by adding any bonus bid to the upset stumpage rate.

One stumpage rate is determined for all appraised timber in each cutting authority area with the exception of miscellaneous stumpage rates under Section 6.6.

The average stumpage rate or Target Rate for the coast is calculated as a function of a coast softwood lumber price index and a provincial chip index (see Chapter 5).

The Coast Target Rate is adjusted to the Coast Base Rate as described in the publication *Specifications: Calculating Stumpage Rates for Coast Appraisals*.

Principles and Procedures

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2.1 Types of Determination

Stumpage rates are determined, redetermined or varied by one of the following methods:

1. An appraisal, reappraisal or quarterly adjustment using the Comparative Value Pricing System.
2. An appraisal, reappraisal or quarterly adjustment using the Market Pricing System.
3. An Order-in-Council under the *Forest Act*, Section 105.
4. Chapter 6.
5. A stumpage rate calculated by ministry staff and approved by a Regional Manager.

2.3 Reappraisal

Except as may be directed by the Minister of Forests under this section a reappraisal is a re-estimation of Operating Cost, Log Grade Percentages, and Selling Price according to the Appraisal Manual in effect on the effective date of the reappraisal. As explained below, a reappraisal is based upon a complete reassessment of a cutting authority area and assumes the cutting authority area being reappraised has been returned to its original condition prior to development or harvesting. If there are changes to the cutting authority area, the Operating Cost data must be revised to reflect those changes unless a reappraisal is optional (as described in Section 2.3 (3)). At the time of a reappraisal, initial detailed engineering cost estimates may be re-estimated once after construction utilizing information as specified in Section 4.3.3 of this manual. However, development costs originally estimated using ministry approved competitive bids, are not re-estimated in a reappraisal.

For those cutting authorities where the election of quarterly adjusting, or annual adjusting stumpage rate has been made, that election at reappraisal remains unchanged.

A cutting authority area that has fixed stumpage rates is not reappraised unless Section 2.3 (1) or (4) require a reappraisal.

A cutting authority area that has fixed stumpage rates because it was appraised under Section 6.2 (1) shall remain as fixed status.

A reappraisal is made only if one of five situations arises:

1. Sudden and Severe Damage

If the Regional Manager is satisfied that sudden and severe damage has occurred to the appraised timber, the cutting authority is reappraised upon the licensee's request. The effective date of the redetermined rate is the first of the month following the occurrence of the damage, unless otherwise specified by the Regional Manager. A reappraisal is not made in the case of fire damage caused by the licensee if the licensee has failed to comply with the *Forest Practices Code of British Columbia Act*, Sections 75 through 95 and relevant regulations.

In the case of sudden and severe damage the redetermined stumpage rate is based upon the remaining timber only. The Regional Manager may approve the use of appraisal data obtained from a comparable cutting authority. The reappraisal cost estimate for development takes into account volume already removed.

This policy on sudden and severe damage applies to fixed rate cutting authorities and to adjustable rate cutting authorities. Any existing bonus bid is payable in addition to the redetermined upset stumpage rate.

2. Amendments

If accumulated amendments (either addition or deletion of area containing merchantable timber) made to the cutting authority exceed 25 ha or 25 percent of the merchantable area, whichever is less, then the entire cruise must be recompiled and the stumpage rate redetermined.

The redetermined stumpage rate becomes effective on the first of the month following the notice to the licensee which approves the amendment.

3. Reappraisal at Anniversary Date

"Anniversary date" means the annual recurrence of the month and day when the term of the cutting authority began.

Reappraisal at the anniversary date is mandatory for all woodlot cutting authorities regardless of the volume remaining (see Section 2.4 (2)).

Reappraisals must be carried out on all adjustable stumpage rate cutting authorities with subsequent anniversary dates when the following conditions are satisfied:

- a. timber from the cutting authority area is expected to be scaled under the cutting authority during the next year, and
- b. there is at least 2 000 m³ of merchantable timber remaining on the cutting authority area.

Where the above conditions have not been met, reappraisals may be made at the option of either the District Manager, Regional Manager or licensee subject to Section 2.2 Time Schedule - Appraisals and Reappraisals.

Anniversary date reappraisals are made in accordance with the *Coast Appraisal Manual* in effect on the anniversary date of the cutting authority. The effective date of the redetermined stumpage rate is the anniversary date.

If a reappraisal is not made, the untrended logging and silviculture cost estimates from the current appraisal will continue to be trended quarterly to redetermine stumpage rates.

4. Minister's Direction

The Minister of Forests may direct that a reappraisal be made at any time and that the redetermined stumpage rate be effective on any future date, and may specify criteria and procedures for the reappraisal.

A reappraisal directed by the Minister of Forests, may be a re-estimation of Operating Cost, Log Grade Percentages, or Selling Price, or any combination of them, as may be directed by the Minister of Forests.

The Minister of Forests may direct that a reappraisal be made using the Market Pricing System.

5. Mathematical Error

- a. If a government employee or contractor in the Ministry of Forests or a licensee (or employee or contractor of a licensee) becomes aware of what is or probably is a mathematical error in a stumpage determination, that person shall give written notice of the error ("the Notice") as follows:
 - i. in the case of appraisals and reappraisals, to the appropriate Regional Manager, and
 - ii. in the case of quarterly adjustments, to the Director, Revenue Branch,
- b. the Notice shall describe the stumpage determination or determinations involved and shall describe the nature and cause of the error to the extent reasonably possible,
- c. upon receipt of the Notice, the Regional Manager or the Director, Revenue Branch, shall make the appropriate investigation to decide whether or not an error has, in fact, been made,
- d. if the Regional Manager or the Director, Revenue Branch decides that an error has not been made, then they shall notify the person who sent the Notice of the decision and the reasons for it,
- e. if the Regional Manager or Director, Revenue Branch decides that an error has been made, then the following shall occur:
 - i. the Regional Manager or the Director, Revenue Branch shall notify the person who sent the Notice of the decision and the reasons for it,
 - ii. the Regional Manager or the Director, Revenue Branch shall take reasonable steps to ensure that all licensees who have been affected by the error are informed of the Notice and of the nature and cause of the error,
 - iii. the cutting authority or authorities under which the error was made shall be reappraised or the quarterly stumpage adjustment recalculated to correct the error unless the cutting authority, the appraisal manual or the application and tender for a timber sale licence, specified that the stumpage rate is fixed, and

- iv. the effective date of the redetermined rate shall be the first day of the month following the date on which the Notice was received by the Regional Manager or the Director, Revenue Branch,
- f. if an error has occurred and no Notice has been given with respect to it, the Notice shall be deemed to have been given on the date on which the Regional Manager or the Director, Revenue Branch became aware of the error or probable error,
- g. no person who discovers or otherwise becomes aware of a mathematical error in a stumpage determination shall be obliged to send the Notice as required herein if that person, on reasonable grounds, believes that someone else has sent the Notice with respect to the same error,
- h. the redetermined rate does not apply to timber scaled before the first of the month following the date upon which the Notice was given. No remedy will be available with respect to timber scaled before the first of the month,
- i. in this section, a mathematical error is any of the following:
 - i. an error in transcribing or compiling approved cruise field data, or in the application of approved loss factors and taper equations,
 - ii. an error in log grade source or in transcribing the log grade data from an approved appraisal datasheet,
 - iii. an error in performing the calculations specified in the manual,
 - iv. an error in the application of published quarterly appraisal parameters,

A difference between cruise estimates and actual timber quality or quantity does not constitute an error.

A difference between appraisal estimates of selling price or operating cost and the licensee's experience does not constitute an error.

Omissions of data by the licensee on an approved datasheet do not constitute an error.

2.5 Point of Appraisal

Cutting authorities are appraised to the point of appraisal that results in the least total operating cost estimate.

The Points of Appraisal are:

Location	Code	Details
Alberni	ALBE	The head of Alberni Inlet.
Chemainus	CHEM	Tie-up grounds in the vicinity of Chemainus including the facilities from Nanaimo Harbour to Cowichan Bay.
Gambier Island	GAMB	The facilities in the Howe Sound area.
Pitt River Bridge	PIRV	The facilities near the confluence of the Fraser and Pitt Rivers.

2.6 Calculation Conventions

All operating cost calculations are performed to the full capacity of the calculating machine with the results truncated at four places of decimals and rounded to two places.

Results from 5 to 9 are rounded upward and from 1 to 4 rounded downward.

After each phase cost estimate (\$/m³) (see Chapter 4) has been rounded to the nearest cent, it is summed with other estimates to obtain the total cost estimate.

Where values are specified as limits (constraints or requirements for equations), they are treated as absolute values and actual measurements or records are not rounded before use unless otherwise specified.

CVP stumpage rate calculations are performed according to the methods in the document entitled, *Specifications: Calculating Stumpage Rates for Coast Appraisals* approved by the Director, Revenue Branch.

MPS stumpage rate calculations are performed according to the methods in the document entitled, *Specifications: Calculating Stumpage Rates for Coast Appraisals for the Market Pricing System* approved by the Director, Revenue Branch.

Average Selling Price Estimation 3

This Chapter contains policies and procedures for estimating average selling prices for the Comparative Value Pricing System.

Average selling price estimates are based upon log grades and species, and schedules of log market values collected and published by Revenue Branch. These schedules, when compiled and distributed, are an integral part of this manual.

3.1 Average Log Market Value (AMV) Determination

Invoiced (f.o.b.) log market values are compiled from prime, domestic, arms-length sales reported to occur in areas adjacent to the Strait of Georgia; the Strait of Juan de Fuca and the Alberni Inlet east of a line drawn south from Amphitrite Point; Johnstone Strait; the Queen Charlotte Strait south of a line drawn west from Cape Caution; and the Fraser River west of the bridge at the confluence of the Pitt River. The cut-off date for the collected log market value input is approximately forty-five (45) days prior to the stumpage rate adjustment date.

A set of average log market values by species and log grade is developed using sales data for each one-month reporting period. The data is accumulated into a six-month schedule of average market values by species and log grade for mature timber stumpage rate determinations. The same six-month schedule is adjusted on a species grade level to create a schedule for second growth average log market values to be used for second growth stumpage rate determinations.

The second growth schedule adjustment table will be reviewed and/or updated as determined by the Director, Revenue Branch.

Operating Cost Estimation

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This Chapter contains policies and procedures for estimating operating costs for the Comparative Value Pricing System.

The Operating Cost is the sum of the trended Total Logging Cost Estimate and the trended Basic Silviculture Cost Estimate as detailed in this chapter.

4.1 Cost Estimates

The phase cost estimates, predictive formulas and most of the tables in this manual are derived from data collected through surveys of logging and forest management costs incurred by licensees and contractors operating in the Coast Region of British Columbia in 1998.

The survey collects licensee costs from both company and contract operations: including wages, benefits, overtime, depreciation, fuel, supplies, repair and maintenance, moving assistance, freight, applicable licences, insurance, etc. from a representative sample of coast operations. Contract costs, including contractor profit and risk margins, overhead, crew transportation, etc., are also included.

Phase cost estimates are complete and reflect average conditions, operating practices, and phase accounting allocations as found in the survey data. With the exception of specified operations listed in Section 4.1.1, no additions to or subtractions from the phase cost estimates are permitted.

The Appraisal Coordinator must estimate total operating costs for a cutting authority area in a manner which will produce the appraisal least total operating cost estimate for the cutting authority area.

The appraisal estimate of harvesting and transportation costs must be determined by using the criteria for determining the harvesting and transportation costs as set out in this manual.

The estimate of harvesting costs must be determined for the method of harvesting referred to in this manual, other than a method that the District Manager states is unsuitable for the cutting authority area, that will produce the appraisal least total operating cost estimate.

The estimate of the transportation costs must be determined for the method of transportation referred to in this manual, other than a method that the District Manager states is unsuitable for the cutting authority area, that will produce the appraisal least total operating cost estimate.

4.1.1 Specified Operations

In addition to the logging phases and systems that are covered by this manual, there are specified operations which require special cost estimates.

The following is a complete list of specified operations for which certain cost phase estimates are based on the information on hand rather than on the tables and formulas in this manual. Specified operation cost estimates are combined with associated

Stumpage Rate Determination

5

This Chapter contains policies and procedures for determining stumpage rates for the Comparative Value Pricing System.

5.1 Indicated Stumpage Rate

The Indicated Stumpage Rate is determined by comparing the Value Index of the stand being appraised to the Value Index of other stands, as explained in the following sections.

Misc. Timber Pricing Policies

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This Chapter contains policies and procedures for determining miscellaneous stumpage rates for the Comparative Value Pricing System.

Section 6.6 of this Chapter contains policies and procedures for determining miscellaneous stumpage rates for the Market Pricing System.

6.1 Value Indexes by District and Species

A new table of Value Indexes by District and Species is prepared at the time of each quarterly stumpage adjustment and becomes an integral part of this manual at that time.

This table may be used by the Appraisal Coordinator to determine the Value Index for cutting authorities of less than 2 000 m³, as explained in Section 6.2.

Market Pricing System

7

This Chapter contains policies and procedures for determining stumpage rates for the Market Pricing System (MPS).

7.1 Introduction

MPS is a method of estimating the stumpage value of a cutting authority area, based on the bids for other cutting authority areas that were sold at auction.

MPS can only be used where complete appraisal data, as specified in Section 4.2, has been submitted for the cutting authority area.

The total MPS stumpage rate only applies to coniferous sawlogs. Stumpage rates for deciduous species, special forest products and Y grade logs are determined under Section 6.6.

7.2 Principles and Procedures

7.2.1 Appraisals

The total stumpage rate will be calculated using the policies and procedures in this chapter and monthly parameters ((log selling prices and consumer price index (CPI)) in effect on the appraisal effective date. This rate remains in effect until the next quarterly adjustment.

7.2.2 Stumpage Adjustments

Unless a cutting authority or the application and tender for a licence specifies that stumpage rates are fixed for a specified period or for the full term of the cutting authority, stumpage rates are adjusted on January 1, April 1, July 1, and October 1 of each year.

At the time of the quarterly adjustment, the upset rate will be recalculated based on the equations applicable for the appraisal effective date and the cutting authority area specific data. The monthly parameters (log selling prices and CPI) effective for the month of the adjustment will be used in the calculation instead of the original values. All other data (including the estimated number of bidders) remain unchanged.

This process is repeated quarterly until the cutting authority area is reappraised.

7.2.3 Reappraisals

Reappraisals will be done using the policies and procedures in Section 2.3.

Revised data and revised monthly parameters will be used with the MPS equations in effect on the reappraisal date to calculate a new upset rate. The original bonus bid remains in effect.

7.2.4 Methodology

Calculation of the total stumpage rate is done using the following general procedure:

1. Calculate a preliminary market stumpage price using the equation in Section 7.4.2 with the variables as defined and the average number of bidders. Apply the discount factor to the preliminary market stumpage price to calculate the preliminary upset stumpage rate.
2. Calculate the estimated number of bidders using the equation in Section 7.4.3 with the variables for the cutting authority area.

3. Calculate the market stumpage price using the equation in Section 7.4.4, the variables for the cutting authority area and the estimated number of bidders calculated in Section 7.4.3.
4. Calculate the Indicated Stumpage Rate using the equation in Section 7.4.6, incorporating the total obligation adjustment and discount factor.
5. Calculate the Reserve Rate and Upset Rate according to Sections 7.4.8 and 7.4.9.
6. Calculate the Total Stumpage Rate according to Section 7.4.10 by adding the bonus bid, if any.

Detailed procedures are given below.

7.3 Log Selling Prices

Invoiced (f.o.b.) log market values are compiled from prime, domestic, arms-length sales reported to occur in areas adjacent to the Strait of Georgia; the Strait of Juan de Fuca and the Alberni Inlet east of a line drawn south from Amphitrite Point; Johnstone Strait; the Queen Charlotte Strait south of a line drawn west from Cape Caution; and the Fraser River west of the bridge at the confluence of the Pitt River. The cut off date for the collected log market value input is approximately forty-five (45) days prior to the stumpage rate adjustment date.

For the Market Pricing System a set of average log market values by species and log grade is developed using sales data for each one-month reporting period. The one-month sales data is used to produce a schedule of average market values by species and log grade for mature timber stumpage rate determinations published monthly by Revenue Branch for stumpage rate calculations.

The same one-month schedule is adjusted on a species grade level to create a schedule for MPS second growth average log market values to be used for second growth MPS stumpage rate determinations. See Section 2.7 for the definition of second growth.

The second growth schedule adjustment table will be reviewed and/or updated as determined by the Director, Revenue Branch.

7.3.1 Log Grade Percentage

To calculate log grade percentages, use the procedures in Section 3.2. However, Section 3.3.1 Low Volume Cypress Exception does not apply to MPS.

7.3.2 Calculation of Stand Selling Price

To calculate the stand selling price, use the procedures in Section 3.3. Note that for the calculation of stand selling price under MPS the volumes and prices of Alder, Birch, Maple, and Cottonwood are omitted from the calculation.

7.4 Stumpage Calculations

7.4.1 List of MPS Variables

MARKET STUMPAGE PRICE	Market Stumpage Price for the cutting authority in \$/m ³ .
ALP	Average log selling price estimate (\$/m ³) based upon log grades and species for the cutting authority area, and schedules of log market values collected and published by Revenue Branch.
VPH	Volume per hectare in m ³ /ha. Calculated by dividing the total net coniferous cruise volume (m ³) by the total merchantable area (ha).
HP	Fraction of coniferous volume that will be helicopter logged. This is calculated by dividing the coniferous volume to be harvested by helicopter by the cutting authority area's total net cruise volume.
SOR	The untrended specified operation cost estimate (\$/m ³) as determined by the Regional Appraisal Coordinator. For the list of specified operations refer to Section 4.1.1.
HD	Truck haul distance (km). This is calculated using the procedures in Section 4.5.1.
ln (NB)	The natural logarithm of the number of bidders competing for the cutting authority.
VOL	Total net cruise volume of coniferous timber (m ³).
CPIF	BC Consumer Price Index (P110000) for current month divided by the base CPI of 109.3.

7.4.2 Preliminary Upset Stumpage Rate (Step 1)

Use the following equation to calculate the preliminary upset stumpage rate.

$$\text{Preliminary Market Stumpage Price} = [-56.1836 + 0.9916 (\text{ALP}/\text{CPIF}) + 14.6050 (\text{VPH}/1000) - 36.8188 (\text{HP}) - 6.4322 (\text{RS}) - 0.7053 (\text{SOR}/\text{CPIF}) - 0.1232 (\text{HD}) + 10.4944 * \ln (\text{NB}) - \text{FD}] * \text{CPIF}$$

Where:

RS = 1, where the cutting authority area is accessible only by air or water and is not serviced by public ferries.
Otherwise RS = 0.

FD = 9.2977 (North Coast Forest District)
16.1047 (Port McNeill Forest District)
19.1108 (Mid Coast Forest District)
15.6639 (Queen Charlotte Islands Forest District)

Otherwise FD = 0

NB = 5.3 (Coastal average number of bidders)

Preliminary Upset Stumpage Rate (\$/m³) = Preliminary Market Stumpage Price
* (1-Discout Factor)

Where:

Discount factor = 0.30 or DCDF (see Section 7.4.6.1)

7.4.3 Number of Bidders (Step 2)

Use the equation below to calculate the estimated number of bidders.

Number of Bidders = $2.4176 + 0.03876 (\text{Margin/CPIF}) + 0.09650 (\Delta \text{ALP/CPIF}) + 0.1760 (\text{VOL}/1000) - 0.00247 (\text{VOL}/1000)^2 - 2.2607 (\text{HP}) - 2.0634 (\text{BARGEDUM}) - 2.5571 (\text{CTDUM}) - 2.2939 (\text{SKYDUM}) - 2.9484 (\text{ADUM}) - 2.5990 (\text{BLOWD}) + \text{FD}$

If VOL is greater than 35 000, then VOL = 35 000.

If the calculated number of bidders is less than 2, then the number of bidders = 2.

Where:

Margin = average log price current month - preliminary upset stumpage rate

Δ ALP = ALP current month minus ALP previous month (\$/m³)

FD = 1.0440 (South Island Forest District)

Otherwise FD = 0

The following variables take a value of 1 if the cutting authority area requires these specified operations, otherwise they are set to zero.

BARGEDUM	<p>BARGEDUM = 1, where part of the route from local tie-up grounds at the appraised point of origin to point of appraisal is exposed to the open ocean swell. Otherwise BARGEDUM = 0.</p> <p>Only points on the West Coast of Vancouver Island north of Port Renfrew, (except those routes totally east of a line drawn from Cape Beale to Amphitrite Point, including Ucluelet Harbour), and all points north of Cape Caution on the mainland are considered to require barge transportation.</p>
CTDUM	<p>CTDUM = 1, where the volume harvested from the cutting authority area is by commercial thinning. Otherwise CTDUM = 0.</p> <p>Commercial thinning is a silviculture treatment that "thins" out overstocked second growth stands by removing trees that are large enough to be manufactured into lumber, post or pole products. It is carried out to improve the health and growth rate of the remaining crop trees. The cut is from "below" for the entire even-aged stand.</p>
SKYDUM	<p>SKYDUM = 1, where the cutting authority is harvested using a skyline system. Otherwise SKYDUM = 0.</p> <p>Skyline logging includes any logging method that has short span, long span, or multispan systems using standing or running lines.</p> <p>Logs must be a suspended clear of the ground to qualify as a skyline system and the average yarding distance must be greater than 300 m measured from the landing.</p>

ADUM	ADUM = 1, where an A-frame is used to yard timber on the cutting authority area. Otherwise ADUM = 0. A-frame logging uses an A-frame spar with a yarder mounted on a large log float. The float is positioned along the shoreline and logs are yarded directly from the stump to the shore.
BLOWD	BLOWD = 1, where 50% or more of the net cruise volume in a cut block is blowdown. Otherwise BLOWD = 0.

7.4.4 Market Stumpage Price (Step 3)

Calculate the Market Stumpage Price using the equation below and the number of bidders (NB) calculated from Step 2. If number of bidders (NB) is less than 2, NB = 2.

$$\text{Market Stumpage Price} = [-56.1836 + 0.9916 (\text{ALP/CPIF}) + 14.6050 (\text{VPH}/1000) - 36.8188 (\text{HP}) - 6.4322 (\text{RS}) - 0.7053 (\text{SOR/CPIF}) - 0.1232 (\text{HD}) + 10.4944 * \ln (\text{NB}) - \text{FD}] * \text{CPIF}$$

Where:

FD =	9.2977	(North Coast Forest District)
	16.1047	(Port McNeill Forest District)
	19.1108	(Mid Coast Forest District)
	15.6639	(Queen Charlotte Islands Forest District)

Otherwise FD = 0

7.4.5 Total Obligation Adjustment

This section does not apply to cutting authority areas under timber sale licences under Section 20 or 21 of the *Forest Act*. The Total Obligation Adjustment for those cutting authority areas is zero (\$0.00/m³).

The Total Obligation Adjustment is the sum of the following:

- Overhead: the total corporate and forestry overhead cost estimate, from Section 4.6.1,
- road construction: the development cost estimate, from Section 4.3,
- market logger road cost: - \$3.10/m³,
- road maintenance: the routine maintenance and deactivation cost estimate, from Section 4.5.3,
- road and land use charges: the road use charges estimate, from Section 4.5.4,
- silviculture: the basic silviculture cost estimate, from Section 4.8,
- camp costs; dump, sort and boom: \$6.42/m³, and
- market logger overhead: - \$4.00/m³.

These adjustments are untrended and updated only at reappraisal.

7.4.6 Indicated Stumpage Rate

The Indicated Stumpage Rate is calculated using the following equation:

$$IR = (MSP * (1 - DF)) - TOA$$

Where:

IR	=	Indicated Stumpage Rate
MSP	=	Market Stumpage Price (as calculated in Section 7.4.4)
DF	=	Discount Factor (as calculated in Section 7.4.6.1)
TOA	=	Total Obligation Adjustment (as calculated in Section 7.4.5)

7.4.6.1 Discount Factor

For cutting authority areas not under timber sale licences under Section 20 or 21 of the *Forest Act*, the discount factor is zero.

For cutting authority areas under timber sale licences under Section 20 or 21 of the *Forest Act*, the discount factor is the greater of 0.30 or the high development cost discount factor (DCDF).

Where:

DCDF = (DC-3.10)/MSP

DC = Estimated development costs borne by the licensee, calculated using the procedures in Section 4.3

MSP = Market Stumpage Price calculated using the procedures in Section 7.4.4 and a discount factor of 0.30

If DCDF is greater than 0.30, the indicated stumpage rate is recalculated by performing the calculations in Sections 7.4.2, 7.4.3, 7.4.4, and 7.4.6, using the DCDF as the discount factor.

7.4.7 Prescribed Minimum Stumpage Rate

The Minimum Stumpage Rate is prescribed by the *Minimum Stumpage Rate Regulation* (B.C. Reg. 354/87). The current Minimum Stumpage Rate is \$0.25 per cubic metre.

7.4.8 Reserve Stumpage Rate

For each timber mark in a cutting authority area, except those for timber licences, the Reserve Stumpage Rate is the greater of:

- the indicated stumpage rate, or
- the prescribed minimum stumpage rate.

For each timber mark in a cutting authority area, for a timber licence the Reserve Stumpage Rate is the greater of:

- the indicated stumpage rate reduced according to Section 105 of the *Forest Act*, or
- the prescribed minimum stumpage rate.

7.4.9 Upset Stumpage Rate

The Upset Stumpage Rate is equal to the Reserve Stumpage Rate.

Where a timber sale licence with stumpage rates calculated using MPS does not receive any bids and is subsequently awarded directly under Section 23 (1)(e) of the *Forest Act*, the advertised upset stumpage rate applies.

7.4.10 Total Stumpage Rate

The Total Stumpage Rate is the Upset Stumpage Rate plus any Bonus Bid.

7.5 Deciduous and Miscellaneous Forest Products

The stumpage rate for deciduous sawlogs, all species grade “Y” and other miscellaneous forest products are found in Section 6.6.

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