



MAR 18 1996

All Regional Managers and
All Holders of the Interior Appraisal Manual

Dear Manual Holder:

I hereby approve Amendment 1 to the *Interior Appraisal Manual*. This amendment will come into force on April 1, 1996. The amendment clarifies sections of the *Interior Appraisal Manual* and changes others to reflect changes in policy. The following sections are amended:

| Section | Nature of Amendment |
|---------------|---|
| 2.3(4) | Clarifies the error in appraisal policy. |
| 2.5 and 4.8.1 | Deletes Donald as an appraisal point. |
| 3.3 | Changes the treatment of burnt timber to allow for a zero chip value. |
| 3.3(6) | Adds Louis Creek as appraisal point qualifying for a shipping differential. |
| 4.10 | Revises Silviculture Treatment Regime Cost Estimate Table by the addition of a cost estimate for Group 4, Regime G. |
| 6.5 | Clarify the requirement to reappraise certain Section 16.1 timber sale licences that currently have frozen stumpage rates. |
| 6.7.2 | Replace Table 6-2, Miscellaneous Stumpage Rates for Timber Licences, with a table that is updated to April 1, 1996, to be consistent with Section 84(1.03) of the <i>Forest Act</i> . |

Yours truly,

Dennis Streifel
Minister

Attachment: (1)

Table of Contents

1 Introduction

| | |
|--|-----|
| 1.1 Terms of Reference..... | 1-2 |
| 1.2 Area of Application..... | 1-3 |
| 1.3 Cutting Authority..... | 1-4 |
| 1.3.1 Cutting Authority Area..... | 1-4 |
| 1.4 Responsibility for Stumpage Determination..... | 1-5 |
| 1.5 Comparative Value Timber Pricing..... | 1-6 |
| 1.6 Stumpage Adjustments..... | 1-8 |

2 Appraisal Principles and Procedures

| | |
|--|------|
| 2.1 Types of Determination..... | 2-2 |
| 2.2 Time Schedule - New Appraisals and Reappraisals..... | 2-3 |
| 2.3 Reappraisal..... | 2-4 |
| 2.4 Extension of Term..... | 2-8 |
| 2.5 Point of Appraisal..... | 2-10 |
| 2.5.1 Method of Transportation to be Used in Determining Point of Appraisal..... | 2-11 |
| 2.6 Calculation Conventions..... | 2-12 |

3 Interior Selling Prices

| | |
|--|-----|
| 3.1 Lumber Average Market Values (AMVs)..... | 3-2 |
| 3.1.1 Application of Lumber Average Market Values..... | 3-3 |
| 3.1.2 Lumber Average Market Value (AMV) Zones..... | 3-3 |
| 3.2 Chip Average Market Values..... | 3-4 |
| 3.3 Calculation of Species Selling Price..... | 3-4 |

4 Operating Cost Estimation

| | |
|--|------|
| 4.1 Cost Estimates..... | 4-2 |
| 4.1.1 Specified Operations..... | 4-2 |
| 4.2 Appraisal Data Requirements..... | 4-4 |
| 4.3 Development..... | 4-5 |
| 4.3.1 Development Cost Allocation..... | 4-6 |
| 4.3.2 Tabular Cost Estimates..... | 4-11 |

| | | |
|---------|---|------|
| 4.3.2.1 | Subgrade Construction | 4-12 |
| 4.3.2.2 | Subgrade Construction Variables | 4-12 |
| 4.3.2.3 | Subgrade Cost Estimate | 4-14 |
| 4.3.2.4 | Drainage Structures | 4-15 |
| 4.3.2.5 | Additional Stabilizing Material (ballast, gravel) | 4-18 |
| 4.3.2.6 | Cattle Guards, Remedial Fences and Pipeline Crossings | 4-19 |
| 4.3.2.7 | Winter Road Reconstruction | 4-19 |
| 4.3.3 | Detailed Engineered Costs | 4-19 |
| 4.4 | Tree-to-Truck | 4-23 |
| 4.4.1 | Required Logging Systems | 4-23 |
| 4.4.2 | Tree-to-Truck Variables | 4-24 |
| 4.4.3 | Tree-to-Truck Cost Estimate | 4-26 |
| 4.4.4 | Tree-to-Truck Additive for Damaged Timber | 4-29 |
| 4.4.5 | Prorating Tree-to-Truck Cost Estimates | 4-30 |
| 4.5 | Log Transportation | 4-31 |
| 4.5.1 | Truck Haul Variables | 4-31 |
| 4.5.2 | Truck Haul Cost Estimates | 4-33 |
| 4.5.2.1 | Primary Haul | 4-33 |
| 4.5.2.2 | Secondary or Re-Haul | 4-33 |
| 4.5.3 | Water Transportation | 4-34 |
| 4.5.4 | Special Transportation Systems | 4-34 |
| 4.6 | Road Maintenance | 4-37 |
| 4.7 | Road and Land Use Charges | 4-40 |
| 4.8 | Administration and Other Costs | 4-42 |
| 4.8.1 | Overhead | 4-42 |
| 4.8.2 | Isolated Cutting Authorities | 4-44 |
| 4.9 | Post-Logging Treatment Costs | 4-45 |
| 4.10 | Basic Silviculture Cost Estimate | 4-46 |
| 4.11 | Manufacturing Cost Estimates | 4-49 |
| 4.12 | Cost Trend | 4-51 |

5 Stumpage Rate Determination

| | | |
|-----|-------------------------------|-----|
| 5.1 | Indicated Stumpage Rate | 5-2 |
| 5.2 | Value Index | 5-3 |
| 5.3 | Mean Value Index | 5-4 |
| 5.4 | Market Value Indexing | 5-5 |
| 5.5 | Base Rate | 5-6 |

| | |
|--|-----|
| 5.6 Calculation of Stumpage Rate | 5-7 |
| 5.6.1 Calculation of Indicated Stumpage Rate | 5-7 |
| 5.6.2 Prescribed Minimum Stumpage Rate | 5-7 |
| 5.6.3 Reserve Stumpage Rate..... | 5-7 |
| 5.6.4 Upset Stumpage Rate..... | 5-8 |
| 5.6.5 Total Stumpage Rate..... | 5-8 |

6 Miscellaneous Timber Pricing Policies

| | |
|---|------|
| 6.1 Average Value Indexes by District and Species | 6-2 |
| 6.2 Cutting Authorities With 5 000 m ³ or Less Volume..... | 6-3 |
| 6.3 Right-of-Way Cutting Authorities | 6-5 |
| 6.4 Partially Harvested Timber..... | 6-6 |
| 6.5 Small Business Forest Enterprise Program (SBFEP) Sales..... | 6-7 |
| 6.6 Levies | 6-9 |
| 6.7 Miscellaneous Stumpage Rates | 6-10 |
| 6.7.1 Special Forest Products and Other Miscellaneous Rates | 6-10 |
| 6.7.2 Miscellaneous Stumpage Rates for Timber Licences..... | 6-13 |

Appendices

| | |
|---|-----|
| Appendix I Equipment and Labour Rates..... | A-2 |
| Appendix II Lumber Recovery Factors (board feet/cubic metre)..... | A-4 |
| Appendix III Development Cost Allocation..... | A-5 |

Index

Tables

| | |
|---|-------------|
| Table 5-1 Timber Licence Stumpage Rate Adjustment Schedule | 5-8 |
| Table 6-1 Miscellaneous Stumpage Rates | 6-11 |
| Table 6-2 Miscellaneous Stumpage Rates for Timber Licences | 6-13 |

- b. an amendment requiring a Specified Operation or different logging system (see Sections 4.1.1 and 4.4.1), that affects at least 10 percent of the cutting authority volumes, or
- c. an amendment requiring major subgrade reconstruction or replacement or reconstruction of a major drainage structure. In these instances, the cost estimate is based solely upon remaining timber volume (i.e., applicable volume).

The redetermined stumpage rate becomes effective on the first day 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 permit or where there is no cutting permit, the term of the licence began.

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

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

Where the above conditions have not been met, reappraisals may be made at either the District or Regional Manager's or licensee's option (see Section 2.2 Time Schedule - New Appraisals and Reappraisals).

These reappraisals are made in accordance with the appraisal manual in effect on the anniversary date. In this case, 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 determine stumpage rates.

4. 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 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 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 decides that an error has been made, then the following shall occur:
 - i. the Regional Manager or the Director shall notify the person who sent the Notice of the decision and the reasons for it,
 - ii. the Regional Manager or the Director 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 to correct the error unless the cutting authority, the appraisal manual or the application in 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,
- 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 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 reappraised 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 a calculation made as part of the appraisal datasheet,
- iii. an error in transcribing the data from an approved appraisal datasheet or in performing the calculation specified in the manual,
- iv. an error in the application of published appraisal parameters,

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

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

Omissions of data on an approved datasheet does not constitute an error in the appraisal.

5. 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. The reappraisal is made according to the appraisal manual in effect on the effective date of the reappraisal.

2.4 Extension of Term

1. Small Business Forest Enterprise Program

When a licensee has elected the fixed stumpage rate option for a timber sale licence in the Small Business Forest Enterprise Program, that stumpage rate remains fixed for the term and all extensions.

Definition: Under the Small Business Forest Enterprise Program a fixed stumpage rate means that the reserve stumpage rate, levies and bonus bids are fixed and will not change during the term of the cutting authority and all extensions. The only exceptions are if a reappraisal is done under Section 2.3.1 - Sudden and Severe Damage or Section 2.3.5 - Minister's Direction.

2. Woodlots

Instead of the quarterly stumpage adjustment, a woodlot licensee may elect an annual stumpage adjustment, where the initial stumpage rate shall remain in effect until the anniversary date of the cutting authority, at which time it will be reappraised. If the election is not made within the specified time, the quarterly stumpage adjustment will apply.

The election of quarterly or annual stumpage adjustment becomes effective August 1, 1995, and will apply as follows:

- a. all *new* woodlot cutting permits will be offered a non-revocable selection at the time of the initial appraisal,
- b. all existing woodlot cutting permits that have not been offered the opportunity to make an election will now have an opportunity at the cutting permit's anniversary date,
- c. woodlot cutting permits that have had the opportunity to elect and have elected non-adjusting rates will remain unchanged during the original term of the cutting permit. At the time of extension, the cutting permit will be reappraised and the new stumpage rate will apply until the expiry date. A reappraisal will then be required at the time of each future extension. There will be no opportunity to change the original election, and
- d. there will be no change to all other woodlot cutting permits that have elected a quarterly stumpage adjustment. They will continue to adjust quarterly and be subject to annual reappraisal.

Amendments to cutting authorities with the annual stumpage adjustment option (as defined in Section 2.3.2) would be subject to reappraisal at the time of the amendment. The new stumpage rate would then not be adjusted until the cutting permit's anniversary date or expiry, whichever occurs first.

3. District Average Value Index

When the stumpage rate was determined under Section 2.1 (4) and the term is extended, the regional manager may either extend that stumpage rate or reappraise the cutting authority. When the term of a cutting authority is extended and that cutting authority is reappraised, the notification requirements of Section 2.2 do not apply.

4. Miscellaneous Stumpage Rates

Miscellaneous stumpage rates (Section 6.7) will be based on the appraisal manual in effect on the date of scale, except for those cutting authorities that contain miscellaneous stumpage rates specified in their cutting authority document.

5. Timber Licence

When a cutting authority that includes the authorization to harvest timber licence volume has the term extended, the stumpage rate will be determined under 4. above, if:

- the cutting authority has a term that began before May 1, 1995, and
- the cutting authority area was not appraised.

2.5 Point of Appraisal

The appraiser must select the point of appraisal from those listed below which will produce the least total operating cost estimate for the cutting authority area. All species, qualities and sizes of timber must be appraised to a single point of appraisal. The appraiser must estimate the cost of transporting timber to the sawmill which is near the point of appraisal and produces the least total operating cost estimate and must assume manufacturing costs and average market values applicable for that point of appraisal.

A sawmill is defined as a conversion facility capable of producing lumber and chips, and includes the log sorting/storage areas and satellite mill yards if applicable.

The logs are deemed to have reached the point of appraisal once they have entered the site upon which the sawmill is located. All further log handling costs are deemed to be part of the manufacturing cost estimate.

POINTS OF APPRAISAL

Northern Interior (Zone 5) (If volume per tree is less than 0.20 m³/tree, use Zone 15)

| | | | |
|---------------|----------------|-------------|-------------|
| Bear Lake | Burns Lake | Carnaby | Clear Lake |
| Engen | Fort St. James | Fraser Lake | Hazelton |
| Houston | Isle Pierre | Kitwanga | Mackenzie |
| Prince George | Quesnel | Smithers | Strathnaver |
| Upper Fraser | Vanderhoof | | |

Skeena (Zone 6) (If volume per tree is less than 0.20 m³/tree, use Zone 16)

Terrace

Southern Interior (Zone 7) (If volume per tree is less than 0.20 m³/tree, use Zone 17)

| | | | |
|------------|----------------|---------------|-------------|
| Adams Lake | Armstrong | Boston Bar | Canal Flats |
| Canoe | Castlegar | Craigellachie | Cranbrook |
| Creston | Elko | Galloway | Grand Forks |
| Kamloops | Kelowna | Lavington | Louis Creek |
| Lumby | Lytton | McBride | Merritt |
| Midway | Okanagan Falls | Park Siding | Princeton |
| Radium | Revelstoke | Slocan | Squamish |
| Thrums | Valemount | Vavenby | Westbank |
| Ymir | | | |

For appraisals effective before April 1, 1996, Donald is an acceptable point of appraisal.

Southern Cariboo (Zone 8) (If volume per tree is less than 0.20 m³/tree, use Zone 18)

100 Mile House

Chasm

Lillooet

Williams Lake

Fort Nelson - Peace (Zone 9) (If volume per tree is less than 0.20 m³/tree, use Zone 19)

Chetwynd

Fort Nelson

Fort St. John

Taylor

2.5.1 Method of Transportation to be Used in Determining Point of Appraisal

The appraiser must base his estimate of transportation costs on the method of transportation which will produce the least total operating cost estimate for the cutting authority area, unless that particular method of transportation is not possible under the cutting authority. In considering whether or not a particular method of transportation is possible under the cutting authority, the appraiser must not have regard for:

1. any destination referred to in the cutting authority, or
2. any document other than the cutting authority.

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) 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.

Stumpage rate calculations are performed according to the methods specified in the document entitled, "SPECIFICATIONS: CALCULATING STUMPAGE RATES FOR INTERIOR APPRAISALS", approved by the Director, Revenue Branch.

3. Random Lumber AMVs

Random AMVs are compiled for all species.

Wherever the data are inadequate to provide a reasonable average for a species within a zone, the data are combined with other species or zones (with appropriate adjustments) before use.

3.1.1 Application of Lumber Average Market Values

Application of the Stud and Random lumber AMVs in appraisals for all cutting authorities are made according to the formula in Section 3.3.

3.1.2 Lumber Average Market Value (AMV) Zones

Refer to Section 2.5 for a list of Points of Appraisal by Lumber Average Market Value (AMV) Zones.

3.2 Chip Average Market Values

Monthly market value information is obtained and compiled by Revenue Branch.

3.3 Calculation of Species Selling Price

The total selling price in \$/m³ is determined for each species using lumber recovery factors (LRF) from the cruise compilation summary, LRF update add-ons, current applicable average market values for the species, zone, and species chip yield factors. Lumber and chip prices are each calculated to the nearest cent before being totalled.

In the case of burned timber, the value of the stand is reduced due to a number of factors, which include an increased manufacturing cost, lower lumber and chip recovery, and lower lumber and chip average market values.

In order to compensate for the combined effect of all these factors, the chip value for light, moderate and heavily fire damaged timber will be zero. The only other adjustment to the appraisal is for heavily fire damaged timber and is covered under Section 4.4.4 (Tree to Truck Additive for Damaged Timber).

Burn Percent: Is the prorate of normal value for the volume undamaged and zero value for the volume classified as light, moderate and heavy fire damaged.

The LRF factors are determined from the following applicable formulas or tables:

1. Zonal LRF Update Add-Ons and Combined Product Recovery Factors

| <u>Zone</u> | <u>Species</u> | <u>LRF Update Add-Ons</u> | <u>Combined Product Recovery Factors</u> |
|--|----------------|-------------------------------|--|
| Northern Interior (Zone 5) & Skeena (Zone 6) | Lodgepole Pine | 60 | 424 |
| | Spruce | 63 | 424 |
| | Balsam | 59 | 424 |
| | Douglas Fir | 24 | 424 |
| | Larch | 23 | 424 |
| | Cedar | 19 | 424 |
| | Hemlock | 22 | 424 |
| | White pine | 22 | 424 |

| | | | |
|-------------------------------|----------------|----|-----|
| Southern Interior (Zone 7) | Lodgepole Pine | 60 | 402 |
| | Spruce | 66 | 402 |
| | Balsam | 59 | 402 |
| | Douglas Fir | 26 | 402 |
| | Larch | 25 | 402 |
| | Cedar | 21 | 402 |
| | Hemlock | 23 | 402 |
| | White Pine | 24 | 402 |
| | Yellow Pine | 26 | 402 |
| Southern Cariboo (Zone 8) | Lodgepole Pine | 49 | 412 |
| | Spruce | 54 | 412 |
| | Balsam | 50 | 412 |
| | Douglas Fir | 16 | 412 |
| | Larch | 15 | 412 |
| | Cedar | 12 | 412 |
| | Hemlock | 13 | 412 |
| | White pine | 12 | 412 |
| | Yellow pine | 15 | 412 |
| Fort Nelson-Peace (Zone 9) | Lodgepole Pine | 44 | 412 |
| | Spruce | 45 | 412 |
| | Balsam | 39 | 412 |

Example: Zone 5

| <u>Lodgepole Pine</u> | <u>Cruise LRF</u> | | <u>Update Add-on</u> | | <u>Appraisal LRF</u> |
|-----------------------|-------------------|---|----------------------|---|----------------------|
| All Logs | 180 | + | 60 | = | 240 |

2. Chip Yield Derivation

Chip Yield (BDU/m³) = (Combined Product Recovery Factor - Appraisal LRF)
* Species Chip Yield Factor

3. Chip Yield Factors

| <u>Species</u> | <u>Factor (BDU/fbm)</u> |
|----------------|-------------------------|
| Balsam | .00072 |
| Cedar | .00067 |
| Fir | .00098 |
| Hemlock | .00089 |
| Larch | .00119 |
| Lodgepole Pine | .00087 |
| Spruce | .00076 |
| White Pine | .00078 |
| Yellow Pine | .00095 |

4. Determination of Stud Log Percent

The percent (%) stud log is determined as follows:

The percent stud log for each stud species (spruce, balsam, lodgepole pine, Douglas fir and larch) is determined from the cruise compilation summary. The percent stud log is defined as the net volume of 5 m logs with top diameters under 20 cm expressed as a percentage of the total net cruise volume. The percent stud log is calculated and rounded to the nearest whole percentage point.

The percent (%) stud AMV is determined as follows:

$$\% \text{ stud AMV} = (5 * \% \text{ stud log}) - 225$$

If the percent stud log is less than 45, the percent stud AMV = 0;

If the percent stud log is more than 65, the percent stud AMV = 100.

5. Shipping Differential

The Shipping Differentials for the following points of appraisal are:

\$0.40/m³

\$0.70/m³

\$4.03/m³

Bear Lake

Adams Lake

Fort Nelson

Fort St. James

Clear Lake

Mackenzie

Merritt

Strathnaver

Midway

Quesnel

Okanagan Falls

Princeton

Thrums

Westbank

Ymir

Louis Creek (effective July 1, 1996)

6. Manufacturing Cost Differential

\$2.95/m³

Fort Nelson

Cost estimates for each point of appraisal are shown in the following table:

| Group A \$4.90/m³ | Group B \$4.15/m³ | Group C \$3.85/m³ | Group D \$3.46/m³ |
|---|---|---|---|
| Carnaby | Chetwynd | Chasm | Bear Lake |
| Hazelton | Fort Nelson | 100 Mile House | Burns Lake |
| Kitwanga | Fort St. John | Williams Lake | Clear Lake |
| Smithers | Taylor | | Engen |
| Terrace | | | Fort St. James |
| | | | Fraser Lake |
| | | | Houston |
| | | | Isle Pierre |
| | | | Mackenzie |
| | | | Prince George |
| | | | Quesnel |
| | | | Strathnaver |
| | | | Upper Fraser |
| | | | Vanderhoof |
| Group E \$4.33/m³ | Group F \$5.81/m³ | Group G \$5.72/m³ | |
| Armstrong | Adams Lake | Boston Bar | |
| Kamloops | Canoe | Canal Flats | |
| Kelowna | Castlegar | Cranbrook | |
| Lavington | Craigellachie | Creston | |
| Louis Creek | Lumby | Elko | |
| Merritt | McBride | Galloway | |
| Okanagan Falls | Park Siding | Grand Forks | |
| Princeton | Revelstoke | Lillooet | |
| Squamish | Slocan | Lytton | |
| Westbank | Thrums | Midway | |
| | Valemount | Radium | |
| | Vavenby | | |
| | Ymir | | |

For appraisals effective before April 1, 1996, Donald is located in Group F.

4.8.2 Isolated Cutting Authorities

An isolated cutting authority is defined as one that has no continuous road access from the nearest support centre (listed in Section 4.4.2.8) to the centre of the cutting authority. The exception is where there is continuous road access, but the route is not routinely used to transport people, equipment or supplies to the cutting authority. Continuous road access includes public ferry service or private daily ferry or daily barge service.

The isolation cost estimate covers the costs of moving people, equipment and supplies to and across the non-road portions of the route to the camp (or cutting authority where there is no camp) whether by crew boat, periodic barge service, air, or rail. Also covered are the depreciation, maintenance and operating costs of any camp facilities and the non-recoverable costs incurred for cookhouse, family quarters, bunk houses, shop, office and other pertinent buildings.

For isolated cutting authorities serviced by camps, the costs of moving people, equipment or supplies by road from the isolated camp location to the cutting authority are covered by the distance variable in the tree-to-truck equation.

The cost estimates for isolated cutting authorities at the following locations are:

1. Williston Lake: \$7.17/m³
2. Niteal Rail: \$5.09/m³
3. Quesnel Lake: \$5.00/m³

For any other locations, the cost estimate is determined by the Director, Revenue Branch.

Treatment Regimes Cost Estimates Table

| Regime | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 |
|--------|---------|---------|---------|---------|---------|---------|---------|
| | \$/ha | \$/ha | \$/ha | \$/ha | \$/ha | \$/ha | \$/ha |
| A | 2227 | 2411 | 2369 | 2062 | 1860 | 2623 | 2538 |
| B | 1826 | 1998 | 1909 | 1717 | 1536 | 2182 | 2032 |
| C | 1402 | 1348 | 1157 | 1266 | | 1400 | 1377 |
| D | | 1185 | 797 | 1269 | 879 | 1181 | 1281 |
| E | | | 1486 | 1450 | 1170 | 1792 | 1488 |
| F | 1413 | 1601 | | 1377 | | 1763 | |
| G | | | 620 | 942 | 636 | 718 | 928 |
| H | 1659 | 2045 | 2141 | 1743 | 1474 | 2067 | 1968 |
| I | | 1446 | 1537 | 1232 | 1024 | 1394 | |
| J | 308 | | 202 | 307 | | | |
| K | | | | | 45 | 69 | 69 |
| L | | | | | | | |
| M | 1137 | 1461 | 1367 | 1270 | 927 | 1287 | 1458 |

Note: All Regimes assume a combination of manual and chemical brushing and weeding (i.e., a blended cost estimate).

Where stump removal for root disease control is required, a cost estimate may be determined as a specified operation as described in Section 4.1.1.

The area requiring basic silviculture treatment includes only that portion of the land on which the licensee is required to establish a free-growing crop of trees, as specified in the Forest Act. Basic silviculture treatment may not be required on some cutting authorities (e.g., right-of-way, licence-to-cut (gravel pit)).

Basic silviculture cost estimates will not be included in the appraisal where this intent has been specified in the licence document, cutting authority or by applicant's agreement.

If available, the net area to be reforested is to be taken from the "Pre-Harvest Silviculture Prescription" (PHSP); otherwise the best information at hand (i.e., cruise area with appropriate net down factors) will be used.

Individual areas of non-commercial cover (NCBR) of less than four hectares, growing on productive forest land, are included in the applicable treatment regime(s) used to calculate the basic silviculture cost estimate. Subject to approval by the District Manager, these areas are eligible for a cost estimate of 1.2 times the applicable treatment regime(s) cost. Individual areas of NCBR greater than 4 ha in size must not be included in the appraisal.

In the case of mixed stands where utilization of deciduous timber is mandatory, the deciduous area is also eligible for a silviculture cost estimate and the deciduous volume is included in the total net merchantable volume.

The cost estimate for each treatment regime is determined as follows:

Treatment Regime cost estimate (\$) =

treatment regime cost (\$/ha) * [net area to be reforested - (NCBR) + (NCBR * 1.2)] * R

Each area portion of a cutting authority that requires less than 90% volume removal must have one or more separate treatment regime cost estimates. (i.e., partial cut areas and clear-cut areas may not be combined)

R = volume removal factor and is calculated for each treatment regime area.

NCBR = individual areas of non-commercial brush of 4 hectares or less in size.

$$R = \frac{\text{Volume Required to be Harvested}}{\text{Total Net Merchantable Volume}}$$

Where the entire volume is required to be harvested (i.e., clear-cut) then R = 1.

For treatment regime G (partial cutting) R is always = 1.

The Basic Silviculture Cost Estimate is determined as follows:

$$\$/m^3 = \frac{\text{Summation of Treatment Regime Cost Estimates}}{\text{Total Net Cruise Volume}(m^3)}$$

6.5 Small Business Forest Enterprise Program (SBFEP) Sales

For appraisal purposes, the SBFEP includes:

- All Timber Sale Licenses issued under the *Forest Act*, Sections 16 and 16.1.
- All TSL's issued under the *Forest Act*, Section 18, except:
 1. those issued under Section 18 (1)(b) or 18 (1)(c), and
 2. those having an AAC of more than 10 000 m³.

Fixed/Adjustable Stumpage Rates for SBFEP Cutting Authorities

The adjustable rate option can be provided to a licensee only if the upset rate has been determined by means of a full appraisal. The data for the full appraisal may be site-specific or may be obtained from one or more comparable cutting authorities. Once a selection has been made, it remains in effect for the term and all extensions. If the District Average Value Index method is used, the upset and hence the total stumpage rate must be fixed for the term of the cutting authority and all extensions. The only exceptions are if a reappraisal is done under Section 2.3 (1) Sudden and Severe Damage or Section 2.3 (5) Minister's Direction.

During the term of the cutting authority and all extensions, a licensee's election of fixed stumpage rates also precludes any correction to the upset stumpage rate determination that would otherwise be warranted because of an error in the appraisal.

Section 16 Timber Sale Licences (prior to May 1, 1994)

A licensee who holds a timber sale licence issued under Section 16 of the *Forest Act* that was advertised or awarded prior to May 1, 1994 may have elected to have the stumpage rate on that licence fixed at the April 30, 1994 level for the term and all extensions. The election must have been made prior to July 1, 1994.

Section 16.1 Timber Sale Licences (prior to May 1, 1994)

For a timber sale licence issued under Section 16.1 of the *Forest Act*, the licensee may have elected to have the stumpage rate fixed at the April 30, 1994 level until April 30, 1996 on timber marks issued under that licence if:

- the timber sale licence was advertised or awarded prior to May 1, 1994,
- the timber mark was issued prior to May 1, 1994, and
- the election to fix rates was made before July 1, 1994.

The above timber marks with rates fixed until April 30, 1996 will be reappraised effective May 1, 1996. All subsequent reappraisals for those timber marks will be as per Section 2.3.

6.7.2 Miscellaneous Stumpage Rates for Timber Licences

The stumpage rates in Table 6-2 apply only to timber licence cutting authorities that are not appraised and have a cutting authority term that began before May 1, 1995.

For each species of timber in column 1 of Table 6-2, the stumpage rate immediately opposite that species in columns 2, 3 and 4 respectively, apply to:

- all products scaled in the indicated forest regions before July 1, 1995,
- sawlogs scaled in the indicated forest regions on and after July 1, 1995.

Table 6-2 Miscellaneous Stumpage Rates for Timber Licences

| Column 1 Species of timber | Forest Region | | |
|--------------------------------------|---|--|--|
| | Column 2 Vancouver except the Mid-Coast and Queen Charlotte forest districts (that part west of the Cascades Mountains) \$/cubic metre | Column 3 Prince Rupert and the Mid-Coast and Queen Charlotte forest districts (that part west of the Cascades Mountains) \$/cubic metre | Column 4 All forest regions and those parts of regions east of the Cascade Mountains \$/cubic metre |
| Fir | 36.80 | 28.40 | 20.90 |
| Spruce | 40.70 | 32.90 | 20.00 |
| Balsam | 20.60 | 17.20 | 17.60 |
| Cedar | 18.30 | 14.70 | 22.00 |
| Hemlock | 19.90 | 16.00 | 19.40 |
| Cypress | 37.30 | 29.10 | 20.20 |
| White pine | 20.10 | 17.10 | 24.90 |
| Yellow pine | 20.10 | 17.10 | 21.30 |
| Larch | 20.10 | 17.10 | 20.90 |
| Lodgepole pine | 13.00 | 10.10 | 18.20 |
| Other conifers | 20.10 | 17.10 | 20.20 |
| All non-conifers | 1.00 | 1.00 | 0.50 |
| All species Grades 3, 4, 5, and 6 | N/A | N/A | 0.25 |
| All species Firmwood reject | Nil | Nil | Nil |
| All species Grade Y | 0.25 | 0.25 | N/A |

Index

A

Adjustable Stumpage Rates, 6-7
 Administrative line, 1-3
 Allowable Annual Cut, 6-4
 Amendments, 2-4
 Applicable licences, 4-2
 Appraisal Coordinator, 1-5
 Appraisal data requirements, 4-4
 Area, 4-4
 Area of application, 1-3
 Arrow Dam log transfer, 4-36

B

Barge/Ferry, 4-35
 Basic silviculture, 4-46
 Benefits, 4-2, 4-49
 Biogeoclimatic zone, 4-14
 Blasting, 4-13
 Block roads, 4-12
 Blowdown, 4-25
 Bonus bid, 1-6
 Boom, 4-34
 Boulders, 4-13
 Breakage, 4-4
 Bridges, 4-20
 Brushing, 4-47

C

Calculation conventions, 2-12
 Calculation of species selling price, 3-4
 Calculation of total species selling price, 3-7
 Camp, 4-34
 Cascade Mountains, 1-3

Cattle guards, 4-19
 Chip average market values, 3-4
 Chip value, 3-7
 Chip yield derivation, 3-5
 Chip yield factors, 3-5
 Chips, 4-49
 Clearing, 4-12
 Combined product recovery factors, 3-4
 Comparative value timber pricing, 1-6
 Corduroy, 4-20
 Cost estimates, 4-2
 Cost trend, 4-51
 Cruise compilation, 4-4
 Cruise data, 4-4
 Culverts, 4-12
 Cutting Authority, 1-4
 Cutting authority area, 1-4
 Cycle time, 4-31

D

Damaged timber, 4-29
 Deactivation of roads, 4-21
 Dead useless snags, 4-29
 Decay, 4-4, 4-50
 Deciduous, 4-48
 Decked timber, 6-6
 Depreciation, 4-2, 4-49
 Detailed engineering cost estimates, 4-5
 Determination of stud log percent, 3-6
 Development Cost Allocation, A-5
 Development costs, 4-5
 Dewater, 4-33, 4-49
 District Manager, 2-3
 Ditch construction, 4-12
 Drainage structures, 4-15
 Drilling, 4-13
 Dump, 4-34

E

Effective date, 4-51
 End haul construction, 4-20
 Existing roads, 4-9
 Extended road amortization, 4-9
 Extension of term, 2-8

F

Fences, 4-19
 Fire damage, 4-29
 Fixed stumpage rates, 6-7
 Forest Act, 1-2
 Forest Service Roads, 4-40
 Free-growing stocking standards, 4-46
 Fuel, 4-2, 4-49
 Full appraisal, 2-2

G

Geo-tech fabric, 4-20
 Gravel, 4-18
 Grubbing, 4-12
 Gullies, 4-20

H

Hansard low water bridge, 4-36
 Haul method, 4-32
 Highway hauling, 4-32

I

Indicated stumpage rate, 1-6
 Insurance, 4-2
 Interior, 1-3
 Interior Appraisal Data Sheet, 2-3
 Isolated cutting authorities, 4-25

L

Land use charges, 4-9, 4-40
 Landings, 4-12
 Log bridges, 4-17
 Log transportation, 4-31
 Logging, 4-51
 Low Volume Additive, 6-3
 LRF update add-ons, 3-4
 Lumber, 4-49
 Lumber average market value (AMV) zones, 3-3
 Lumber average market values (AMVs), 3-2
 Lumber Recovery Factors, A-4

M

Main service road, 4-5
 Maintenance, 4-2
 Manufacturing, 4-51
 Manufacturing costs, 1-2, 4-49
 Mean value index, 1-6
 Method of transportation to be used in determining point of appraisal, 2-11
 Miscellaneous stumpage rates, 1-7, 6-10
 Moving assistance, 4-2
 Multispan bridges, 4-20

N

New development cost, 4-7
 Non-commercial cover (NCBR), 4-47

O

Ocean tow, 4-3
 Off-highway hauling, 4-32
 Operating cost, 1-6
 Operational roads, 4-12
 Operations roads, 4-40
 Order, 2-2
 Overhead, 4-2
 Overland construction, 4-20
 Overtime, 4-2, 4-49

P

Partial Cutting, 4-24, 4-48
 Percent rock, 4-13
 Percentage of the indicated stumpage rate, 1-6, 5-8
 Pipeline crossings, 4-19
 Point of appraisal, 2-10, 4-31
 Post-logging treatment costs, 4-45
 Pre-Harvest Silviculture Prescription, 4-47
 Private land, 4-8
 Profit and risk margins, 4-2
 Prorating, 4-30

R

Railway, 4-35
 Railway transportation, 4-35
 Random lumber, 3-2
 Random lumber AMVs, 3-3

Re-haul, 4-33
 Reappraisal, 2-4
 Reappraisal at anniversary date, 2-5
 Reconstruction, 4-20
 Regional Manager, 2-2
 Regional revenue staff, 2-2
 Reload, 4-33
 Repair, 4-2
 Required logging systems, 4-23
 Retaining walls, 4-21
 Right-of-way cutting authorities, 6-5
 Right-of-way felling, 4-12
 Rip rap, 4-17
 Road maintenance, 4-37
 Road type, 4-12
 Road use charges, 4-40
 Roads, 4-5
 Rock, 4-13

S

Secondary haul, 4-33
 Section length, 4-12
 Selling price, 1-6
 Shipping differential, 3-6
 Side slopes, 4-20
 Silviculture, 4-51
 Skidder swinging, 4-3
 Skyline logging, 4-3
 Slope, 4-13
 Small Business Forest Enterprise Program, 2-8
 Small Business Forest Enterprise Program (SBFEP) Sales, 6-7
 Soil moisture, 4-13
 Special Forest Products, 6-10
 Special structures, 4-21
 Special transportation systems, 4-34
 Species percent, 4-32
 Specified operations, 4-3
 Stabilizing material, 4-5, 4-18
 Statistics Canada Softwood Lumber Index, 1-8
 Stud lumber, 3-2
 Stump removal, 4-12
 Stumpage adjustments, 1-8

Stumpage determination, 1-5
 Subgrade construction, 4-5, 4-12
 Sudden and severe damage, 2-4
 Supplies, 4-2, 4-49

T

Tabular cost estimates, 4-5
 Tally sheets, 4-4
 Terms of Reference, 1-2
 Timber Supply Area, 4-37
 Time schedule, 2-3
 Total merchantable, 4-4
 Total stumpage rate, 1-6
 Tow, 4-34
 Treatment regimes, 4-46
 Tree Farm Licence, 4-37
 Tree-to-truck, 4-23
 Tree-to-truck variables, 4-24
 Trend factors, 4-51
 Tributary cutting authorities, 4-5
 Truck haul, 4-31
 Truck haul cost estimates, 4-33
 Truck to rail transfer, 4-35
 Turnout construction, 4-12

U

Unloading, 4-33, 4-49
 Upset stumpage rate, 1-6

V

Value Index, 1-6
 Value indexes by district and species, 6-2
 Volume per hectare, 4-4
 Volume per tree, 4-24
 Volume removal factor, 4-48

W

Wages, 4-2, 4-49
 Waste, 4-4
 Water transportation, 4-34
 Watershed, 4-3
 Weeding, 4-47
 Williston Lake dry dump, 4-36
 Winter logging, 4-12

Winter road reconstruction, 4-19
Winter roads, 4-12
Woodlot Licences, 4-37