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August 9, 2005

BY EMAIL

To: Regional Managers

From: Bill Howard
Director
Revenue Branch

Re: Amendment No. 1 to the *Cruise Compilation Manual*

I hereby approve Amendment No. 1 to the *Cruise Compilation Manual*, and attach a copy for your use. The following sections have been amended.



Section 2.3.1:	Removed 04.
Section 11.1:	Hemlock, balsam LRF updated.
Section 12.1:	Removed 6(b).
Chapter 13:	Housekeeping.
Appendix 7:	Deleted reference to partition, Kalum and Skeena and replaced paragraph.
Appendix 10:	Deleted reference to partition, Kalum and Skeena.
Appendix 10.2	Deleted reference to partition, Kalum and Skeena.

This amendment will come into force on September 1, 2005. Further amendments or revisions to this manual require my approval.

Bill Howard

Bill Howard
Director
Revenue Branch

Attachment

Amendments

Amendment No. 1 - Effective September 1, 2005

For your convenience the current amendment updates appear in red text. All changed graphics are indicated with a red arrow ➡. Two arrows ➡➡ represents text removed.

Section	Description
Chapter 2, Section 2.3.1	Remove 04
Chapter 11, Section 11.1	Hemlock, Balsam LRF update
Chapter 12, Section 12.1	Removed 6(b)
Chapter 13	Housekeeping
Appendix 7	Deleted reference to Partition, Kalum and Skeena Replaced paragraph
Appendix 10	Deleted reference to Partition, Kalum and Skeena
Appendix 10.2	Deleted reference to Partition, Kalum and Skeena

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2.3 Card Type B - Compilation Standard

2.3.1 Table of Data Types

Column Position	Column Name	Accepted Values	Error Type
1	Card type	"B" - hard coded	F
2-10	N/A	Same as card type A	F
11	N/A	Blank - not used	W
12	Selective Cut Ind.	Blank, C, L	F
13	Double Sampling	0, 1	F
14	Special Comp.	Blank for Coast, 1 or 2 for Interior	I
15	Tree Class Comp.	0, 1	F
16	Species Comp.	0, 1	F
17-18	Type of Comp.	03,  , 32	F
19-21	DBH lower limit	9 (3, 1)	I
22-24	Stump height	999	I
25-27	Top diameter	9 (3, 1)	I
28-39	Log length	99	I
30-31, 45-46, 60-61	Species Exceptions	Refer to <i>Cruising Manual</i> , Section 6.3.2 http://www.for.gov.bc.ca/hva/manuals/cruising/Ch6-02.htm#P290_8843	F
32-33, 47-48, 62-63	Type of Comp.	03,  , 32	F
34-36, 49-51, 64-66	DBH lower limit for species exceptions	Blank, 9 (3, 1)	I

Column Position	Column Name	Accepted Values	Error Type
37-39, 52-54, 67-69	Stump height for species exceptions	Blank, 999	I
40-42, 55-57, 70-72	Top diameter for species exceptions	Blank, 9 (3, 1)	I
43-44, 58-59, 73-74	Log length for species exceptions	Blank, 99	I
75	Block vs. Avg. line	A, B	F
76	N/A	N/A	N/A
77	100% cruise	Blank, A	N/A
78	Measurement type	C, R	N/A
79	Diameter measure	I	N/A
80	Stump cruise	Blank, S	N/A

2.3.2 Fatal Errors

1. For Interior compilations, the Special Compilation cannot be 0.
2. The DBH Lower Limit is less than or equal to the Top Diameter.
3. Columns 2-10 must be the same as card type A.

2.3.3 Warnings

1. Exception Log Lengths should be between 2 and 11 m.

Volume and Lumber Recovery Reports

11

11.1 Volume and Lumber Recovery Reports - Overview

Volume and lumber recovery reports are produced for Interior compilations only. The reports are 1 page per Species in the compilation. Segregate the logs from each Species by Risk Group and Top Diameter Class.

Risk Group determination is described in section 3.3.1 (step 3).

Top Diameter Classes are found, by species, in Appendix 7.

The LRF reports are based on logs that meet the merchantability requirements specified in the Map Area Statement.

Exceptions:

 Use Appendix 10.2 to assign grades to Hemlock. A special column in the Sound LRF Table (Appendix 7) is to be used for Hemlock  for grades 4 and 5. The LRF for all diameter classes for these grades is zero. The average LRF will be lowered due to the reduction of the sawlog net volume over the total net volume.

Interior White Pine logs from trees recorded as tree class 3,7 and 9 will use Appendix 10.3 to determine grade as of January 1, 2004. When a log is identified as grade 5, an LRF of zero is assigned to it. The average LRFs will be lowered due to the reduction of the sawlog net volume over the total net volume.

 The LRF compiled for Balsam is to be based on the sawlog component only. The compilation will assess each balsam tree and segregate those with decay, waste and breakage of less than 48% as all sawlogs. Those balsam trees with greater than or equal to 48% DWB will have zero LRF assigned to the complete volume of the tree. The average LRFs will be lowered due to the reduction of the sawlog net volume over the total net volume.

12.1 Header Information - All Reports

Include the following header information on Type, Block, Cutting Permit and Treatment Unit reports, including the damage reports. For damage reports, add the species and damage type, as shown in Chapter 4.

1. Compilers name and version number.
2. Title.
 - a. Timber Type Summary,
 - b. Block Summary,
 - c. Cutting Permit Summary,
 - d. Treatment Unit Summary.
3. Table Number.
 - a. 009A,
 - b. 009B,
 - c. 009C,
 - d. 009D.
4. Page Number.
5. Message indicating if compilation is for appraisal purposes or not.
6. Message if:
 - a. Double sampling cruise,
 - 
 - b. The statement PERCENT REDUCTION APPLIED will be reported in upper case letters and double spaced at the top of all pages when applicable,
 - c. Stump cruise,
 - d. Useless Excluded or Useless Included,
 - e. Selective Cut – Leave,

Harvesting Method Summary -

Overview

13

The Harvest Method summary reports summarize volume and grade data at the Harvest Method and All Method levels.

Approved Harvest Methods:

CC	- Cable Clear Cut
CS	- Cable Selective Cut
HC	- Helicopter Clear Cut
HS	- Helicopter Selective Cut
HL	- Helicopter Land
HW	- Helicopter Water
HF	- Helicopter Single Stem
LC	- Skyline Clear Cut
LS	- Skyline Selective Cut
HO	- Horse
SC	- Ground Skidding Clear Cut
SS	- Ground Skidding Selective Cut
SP	- Specified Operation



The All Method Summary always uses the Average Line method of calculation similar to the Cutting Permit.

The parameters are reported by species, coniferous and all species total. Cottonwood, Alder, Maple, Birch and Aspen are deciduous species and would not be included in the coniferous total.

Do not include Western Yew.

There are no additional damage reports for the Harvest Method Summaries. Instead there are specific damage parameters included in the reports. Trees with multiple damage codes contribute to the net volume percent for all applicable damage parameters. See Sections 13.2.12 through 13.2.15. Net volume deducted from a tree because of damage, to be used in calculating species net volume, will be calculated using the most severe damage type, as outlined in Section 4.2.

List of Reports

(015A) - Harvesting Method and All Method

13.1 Header Information

Include the following header information on Harvesting Method reports.

1. License from card type A.
2. Cutting Permit from card type A.
3. Number of Harvesting Methods.
4. Harvesting Method name, for the Harvesting Method reports only.
5. Cruiser name or agency from card type A.
6. Forest Inventory Zone from card type A.
7. Unit number and block from card type A.
8. Total merchantable area from card type A.
9. Number of count and measure plots.
10. Message indicating whether compilation is for appraisals or not.
11. Method of calculation (Average Line or Block).
12. Merchantability requirements from card type B for each species on the report.
13. Special compilation messages for:
 - a. Reduction compilation.
 - b. Stump cruise compilation.
 - c. Tree class combination - useless volumes are included or excluded, from column 15 of card type B (0 or blank - snags excluded, 1 - snags included).
 - d. Selective cut indicator - which trees to compile depends on column 12 of card type B (blank - include all trees, 'C' - include cut-indicated and non-indicated trees, 'L' - include leave-indicated trees).
 - e. Double sampling, if count plots are used.
 - f. 
14. Compiler program name and version.
15. Compile date and time.
16. Page number.

13.2 Detail Information Variable Definitions

The variables used throughout the chapter are defined below.

$\%B_{am}$	=	Percent Blowdown damage for Cutting Permit
$\%B_h$	=	Percent Blowdown damage for Harvest Method h
$\%DG_h$	=	Decay percent – gross for Harvest Method h
$\%D_l$	=	Decay percent for log l
$\%F_h$	=	Percent Fire damage for Harvest Method h
$\%FH_h$	=	Percent Heavy Fire damage for Harvest Method h
$\%G_{am,g}$	=	Percent of grade g for Cutting Permit
$\%G_{h,g}$	=	Percent of grade g for Harvest Method h
$\%SG_{am}$	=	Percent second growth for the Cutting Permit
$\%SL_{am}$	=	Slope percent in Cutting Permit
$\%SL_h$	=	Slope percent in Harvest method h
$\%SL_i$	=	Slope percent in Type i
$\%SL_{i,h}$	=	Slope percent in Type i within Harvest Method h
$\%SL_{p,i}$	=	Slope percent in Plot p within Type i
$\%ST_{am}$	=	Percent stud log – net for Cutting Permit
$\%ST_h$	=	Percent stud log – net for Harvest Method h
$\%TC_h$	=	Total cull percent – gross in Harvest Method h
$\%U_h$	=	Percent useless trees in Harvest Method h
$\%W_h$	=	Waste percent – net for Harvest Method h
A_{am}	=	Area of Cutting Permit
A_h	=	Area of Harvesting Method h
A_i	=	Area of Type i

Appendix 6 Regions and District Numbers

Region	Number	Code	District Name	Number	FTAS Code
Coast	1	RCO	Chilliwack	01	DCK
			Squamish	02	DSQ
			Sunshine Coast	03	DSC
			South Island	04	DDU
			Campbell River	05	DCR
			North Island-Central Coast (Port McNeill, Mid-Coast)	06	DIC
			Queen Charlotte	07	DQC
			North Coast	08	DNC
Southern Interior	2	RSI	Headwaters (Clearwater, Robson Valley)	01	DHW
			Kamloops	02	DKA
			Okanagan Shuswap (Vernon, Penticton, Salmon Arm)	03	DOS
			Cascades (Merritt, Lillooet)	04	DCS
			Chilcotin	05	DCH
			Central Cariboo (Williams Lake, Horsefly)	06	DCC
			Quesnel	07	DQU
			100 Mile House	08	DMH
			Arrow Boundary (Arrow, Boundary)	09	DAB
			Columbia	10	DCO
			Rocky Mountain (Cranbrook, Invermere)	11	DRM
			Kootenay Lake	12	DKL
			Prince George	01	DPG
			Vanderhoof	02	DVA
Northern Interior	3	RNI	Fort St James	03	DJA
			Mackenzie	04	DMK
			Peace (Dawson Creek, Fort St. John)	05	DPC
			Fort Nelson	06	DFN
			Skeena Stikine (Bulkley, Cassiar, Kispiox)	07	DSS
			Nadina (Lakes, Morice)	08	DND
			Kalum	09	DKM

Re-organization has resulted in the amalgamation of several districts. District names not in brackets replace names in brackets where applicable.

Appendix 7 Lumber Recovery Factors

The following table lists the lumber recovery factors in board feet per cubic meter.



Log Top Dia.	Hemlock									
	F-db	F-wb	F-qc1	F-qc2	C	H	Grades 4, 5	B	S	YC
4.5 - 5.49	91	91	100	91	91	91	0	91	91	91
5.5 - 6.49	102	103	109	100	97	102	0	103	103	102
6.5 - 7.49	111	113	118	109	103	111	0	113	113	111
7.5 - 8.49	120	123	128	119	108	120	0	123	123	120
8.5 - 9.99	129	134	139	130	115	129	0	134	134	129
10.0 - 14.9	151	158	170	160	132	151	0	158	158	151
15.0 - 19.9	172	185	217	206	156	172	0	185	185	172
20.0 - 24.9	187	202	246	234	177	187	0	202	202	187
25.0 - 29.9	199	217	266	251	197	199	0	217	217	199
30.0 - 34.9	210	226	279	262	215	210	0	226	226	210
35.0 - 39.9	217	234	287	270	227	217	0	234	234	217
40.0 - 44.9	222	240	292	275	235	222	0	240	240	222
45.0 - 49.9	228	246	297	279	238	228	0	246	246	228
50.0 - 54.9	233	252	299	281	239	233	0	252	252	233
55.0 - 59.9	237	258	302	282	239	237	0	258	258	237
60.0 - 64.9	240	263	302	282	237	240	0	263	263	240
65.0 - 69.9	241	266	303	281	233	241	0	266	266	241
70.0 - 74.9	240	267	302	280	228	240	0	267	267	240
75.0 - 79.9	237	265	302	279	223	237	0	265	265	237
80.0 - 84.9	234	263	301	277	217	234	0	263	263	234
85.0 - 89.9	231	261	298	275	210	231	0	261	261	231
90.0 - 94.9	227	259	297	273	201	227	0	259	259	227
95.0 - 99.9	224	257	295	272	193	224	0	257	257	224
100.0 +	221	254	295	269	184	221	0	254	254	221

Figure A.7a Lumber Recovery Factors.

All Balsam logs in trees with DWB summing 48% or over in the interior will have a LRF of zero. Dead white pine logs in the interior that are classified as grade 5 by means of Appendix 10.3 have a LRF of zero.

Log Top Dia.	Pw	Pl	Py	L	Ac	D	Mb	E	At	Pa
4.5 - 5.49	91	91	91	91	91	91	91	91	91	91
5.5 - 6.49	102	103	103	103	103	103	103	103	103	103
6.5 - 7.49	111	113	113	113	113	113	113	113	113	113
7.5 - 8.49	120	123	123	123	123	123	123	123	123	123
8.5 - 9.99	129	134	134	134	134	134	134	134	134	134
10.0 - 14.9	151	158	158	158	158	158	158	158	158	158
15.0 - 19.9	172	185	185	185	185	185	185	185	185	185
20.0 - 24.9	187	202	202	202	202	202	202	202	202	202
25.0 - 29.9	199	217	217	217	217	217	217	217	217	217
30.0 - 34.9	210	226	226	226	226	226	226	226	226	226
35.0 - 39.9	217	234	234	234	234	234	234	234	234	234
40.0 - 44.9	222	240	240	240	240	240	240	240	240	240
45.0 - 49.9	228	246	246	246	246	246	246	246	246	246
50.0 - 54.9	233	252	252	252	252	252	252	252	252	252
55.0 - 59.9	237	258	258	258	258	258	258	258	258	258
60.0 - 64.9	240	263	263	263	263	263	263	263	263	263
65.0 - 69.9	241	266	266	266	266	266	266	266	266	266
70.0 - 74.9	240	267	267	267	267	267	267	267	267	267
75.0 - 79.9	237	265	265	265	265	265	265	265	265	265
80.0 - 84.9	234	263	263	263	263	263	263	263	263	263
85.0 - 89.9	231	261	261	261	261	261	261	261	261	261
90.0 - 94.9	227	259	259	259	259	259	259	259	259	259
95.0 - 99.9	224	257	257	257	257	257	257	257	257	257
100.0 +	221	254	254	254	254	254	254	254	254	254

Figure A.7b Lumber Recovery Factors.

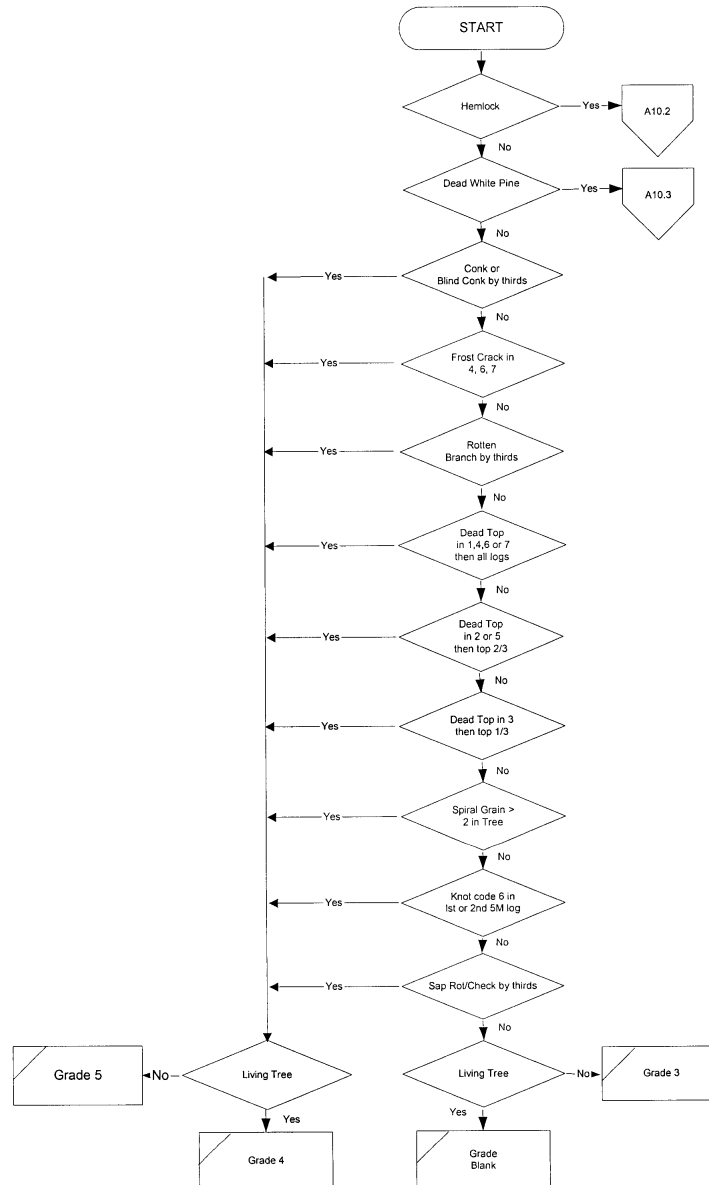
Appendix 8 Chip Yield Factors

This Appendix lists factors used to calculate chip yield (bone dry units per 100 board feet).

Fir	.098
Cedar	.067
Hemlock	.089
- Western	.089
- Mountain	.089
Balsam	.072
- White Fir	.072
- Balsam Fir	.072
- Grand Fir	.072
- Mountain Fir	.072
Spruce	.076
- Sitka	.076
- Englemann	.076
- White	.076
- Black	.076
Yellow Cedar	.091
White Pine	.078
Lodgepole Pine	.087
Albicaulis Pine	.078
Yellow Pine	.095
Larch	.119
- Tamarack	.119
- Western	.119
- Alpine	.119
Cottonwood	.065
Alder	.080
Broadleaf Maples	.102
Birch	.110
Aspen	.090

Appendix 10 Interior Log Grade Algorithm

A10.1 Interior Log Grade Algorithm

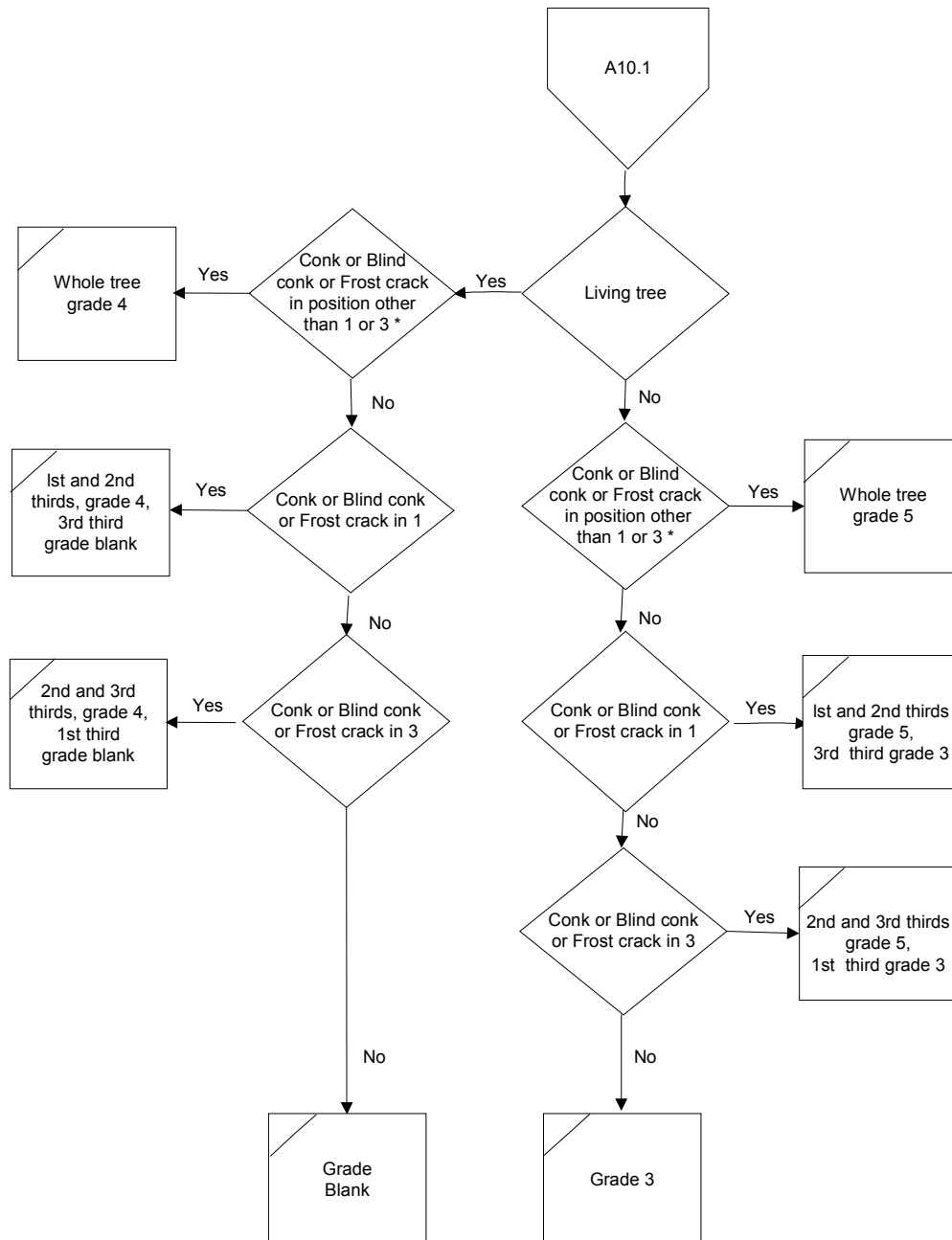


If the sum of the reported grade percents is not exactly 100 percent (due to rounding), then add or subtract from the grade with the highest percent to make the total 100 percent. If there is a tie for the largest grade percent, then adjust the grade in sequence from Blank to 5.

A10.2 Interior Hemlock

The use of Appendix A10.2 is mandatory for Interior Hemlock.

Begin at the start of A10.1. A “YES” answer at the Hemlock decision box directs the log to A10.2.



Pathological codes are required for tree classes 3, 7 and 9 for Hemlock in the **Interior**.

* 1 and 3 is other than 1 or 3.