Forest Appeals Commission

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DECISION NO. 2016-WFA-002(a)

In the matter of an appeal under section 39(1) of the *Wildfire Act,* S.B.C. 2004, c. 31.

BETWEEN:	Canadian National Railway Company	**APPELLANT**
AND:	Government of British Columbia	**RESPONDENT**
AND:	Forest Practices Board	**THIRD PARTY**

BEFORE: A Panel of the Forest Appeals Commission:
Gregory J. Tucker, Q.C., Panel Chair
John M. Orr, Q.C., Member
Howard Saunders, Member

DATE: March 7, 8 and 9, 2017

PLACE: Victoria, BC

APPEARING:

For the Appellant:	Aidan Cameron, Counsel Patrick Williams, Counsel
For the Respondent:	Darcie Suntjens, Counsel Cory Bargen, Counsel
For the Third Party:	Mark Haddock, Counsel Andie Britton-Foster, Co-op Student

APPEAL

[1] This appeal arises out of a wildfire that occurred on July 13, 2014, near Soda Creek, north of Williams Lake, British Columbia. The wildfire was designated C20086, and is referred to in this decision as the "Fire".

[2] Canadian National Railway Company ("CN") appeals a June 6, 2016 order that was issued as a result of the Fire under section 25(2) of the *Wildfire Act*, S.B.C. 2004, c. 31 (the "Order"). Section 25 states as follows:

25(1) After the government has carried out, for a fire on Crown land or private land, fire control authorized under section 9, the minister may

...

(b) determine the amount that is equal to the dollar value of any

(i) Crown timber,

(ii) other forest land resources,

(iii) grass land resources, and

(iv) other property

of the government damaged or destroyed as a direct or indirect result, of the fire, calculated in the prescribed manner,[1] and

(c) ….

(2) Subject to subsection (3), the minister, except in prescribed circumstances, by order may require a person to pay to the government the amounts determined under subsection (1) (a) and (b) and the costs determined under subsection (1) (c), subject to any prescribed limited, ….

[3] The Order was issued on behalf of the Minister of Forests, Lands and Natural Resource Operations (the "Minister") by the Minister's delegate, Chris Hodder, Deputy Fire Centre Manager, Coastal Fire Centre, Ministry of Forests, Lands and Natural Resource Operations (the "Ministry").

[4] Under the terms of the Order, CN was required to pay compensation of $321,929.23 in connection with the Fire. This sum represented the Minister's determination, under section 25(1)(b) of the *Wildfire Act* and section 30 of the *Wildfire Regulation*, B.C. Reg. 38/2005 (the "*Regulation*"), of the dollar value of mature Crown timber ($141,929.23), and "other forest land resources" ($180,000), damaged or destroyed as a result of the Fire.

[5] The Forest Appeals Commission has authority to hear this appeal under section 39(1) of the *Wildfire Act.* The Commission's powers on an appeal are set out in section 41(1) of that *Act*, as follows:

41(1) On an appeal under section 39 by a person or under section 40 by the board, the commission may

(a) consider the findings of the decision maker who made the order, and

(b) either

(i) confirm, vary or rescind the order, or

(ii) with or without directions, refer the matter back to the decision maker who made the order, for reconsideration.

[6] In its appeal, CN acknowledges that the Fire was caused by the operation of its railway equipment, and acknowledges responsibility for the appropriate compensation under the *Wildfire Act* and the *Regulation.* CN's appeal is restricted to the quantum of the Order. It asks the Commission to reduce the damages calculated under the legislation.

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[1] The calculations under this section have been prescribed in section 30 of the *Wildfire Regulation*, B.C. Reg. 38/2005, set out later in this Decision.

[7] The Forest Practices Board (the "Board") was added as a party to the appeal, at its request, in accordance with section 140.5 of the *Forest and Range Practices Act,* S.B.C. 2002, c. 69.

BACKGROUND

The Fire

[8] The Fire occurred approximately 20 kilometres north of Williams Lake, along the slopes above the Fraser River in the dry, mild interior Douglas-fir bioclimatic subzone. The Fire impacted approximately 177 hectares, most of which was private land. Only the impacted Crown land is at issue in this appeal.

[9] The entirety of the impacted Crown land is within the McLeese Lake Mule Deer Winter Range, designated under the Cariboo Chilcotin Land Use Plan and the *Forest and Range Practices Act* to be managed as wintering habitat for mule deer, and is a "protected area". The Fire area is also entirely situated within a permanent Old Growth Management Area established under the *Land Act*, R.S.B.C. 1996, c. 245.

[10] Most of the impacted Crown timber was interior Douglas-fir. Small amounts of ponderosa pine, lodgepole pine, spruce and aspen were also impacted.

The initial calculation of compensation under section 30 of the Regulation

[11] Section 30 prescribes the manner for calculating the dollar values in section 25(1)(b) of the *Wildfire Act*. It states as follows:

Determination of damages

30 For the purposes of section 25(1)(b) and 27(1)(c) of the Act, the manner in which the dollar value of

(a) Crown timber, if it is mature timber, is to be calculated is by ascertaining the amount of stumpage applicable to that timber under the *Forest Act* and assigning that amount as the dollar value for that timber,

(b) …[2]

(c) other forest land resources is to be calculated is by multiplying the number of hectares of other forest land resources damaged or destroyed,

(i) if in a protected area or an area that is the subject of an order under section 7, 8, 10, 12, 14 or 15 of the Government Actions Regulation, by $5 000, or

[2] Section 30(b) contains a formula for calculating the value of immature Crown timber. However, the parties have proceeded on the basis that no immature Crown timber was damaged or destroyed in the Fire. Accordingly, that formula is not relevant to this appeal.

(ii) if in any other area, by $1 000

and then assigning the product obtained as the dollar value for those other forest land resources,

(d) grass land resources is to be calculated is by multiplying by $500 the number of hectares of grass land damaged or destroyed and then assigning the product obtained as the dollar value for those grass land resources, and

(e) other property is to be calculated is by ascertaining the amount of the replacement value of that property and then assigning that amount as the dollar value for that property.

[Emphasis added]

[12] On December 18, 2015, the Ministry's Compliance and Enforcement Branch issued a report calculating the compensation payable to the Government pursuant to section 30 of the *Regulation*.

[13] According to the report, the calculation utilized a Geographic Information Systems query conducted on December 18, 2015, using Vegetation Resource Inventory ("VRI") data from the Ministry. The VRI divides terrain into irregularly shaped areas referred to as "polygons". Each polygon is then assigned several characteristics. Of relevance to the appeal, polygons are classified as "treed" or "non-treed" depending on whether the vegetation type and density meets certain thresholds.

[14] In this case, the Geographic Information Systems query provided volume and species information on mature Crown timber for the purposes of determining stumpage under section 30(a) of the *Regulation*, as well as the relevant information for determining the area of "other forest land resources" and "grass land resources" under subsections 30(c) and (d) of the *Regulation.*

[15] Dana Manhard, with the Timber Pricing Branch of the Ministry, calculated the stumpage owing to the Government for the mature Crown timber pursuant to section 103(3) of the *Forest Act*, applying the Ministry's Interior Appraisal Manual (the "Manual") and a March 31, 2015 memorandum from the Acting Director of the Timber Pricing Branch. Based upon the March 31st memorandum, a "fixed" stumpage rate from section 6.10 of the Manual was used. This resulted in a stumpage calculation of $190,669.23 for mature Crown timber.

[16] The two other resources were calculated as $322,500, consisting of 64 hectares of ungulate winter range at $5,000 per hectare ($320,000 in total), and 5 hectares of grass land at $500 per hectare ($2,500 in total).

[17] Thus, on December 18, 2015, the total compensation payable in connection with the Fire was calculated as $513,169.23.

[18] By letter dated April 28, 2016, the Ministry revised the December 18, 2015 calculation, by removing 16.86 hectares of railway right-of-way land. The adjusted total was $381,950.68, broken down as follows:

"mature timber" (stumpage) = $156,150.68 (on a volume of 3,810.8 m^3)

"other forest land resources" = $225,000.00 (45 hectares x $5,000)

"grass land resources" = $800 (1.6 hectares x $500)

[19] There were some later revisions to the calculations of compensation, which are referred to below.

The Opportunity to be Heard

[20] By letter dated March 11, 2016, Mr. Hodder advised CN that there may be grounds for an order under section 25(2) of the *Wildfire Act* as a result of the Fire, as well as several other fires which had occurred during the 2014 fire season. Mr. Hodder offered CN an opportunity to be heard ("OTBH") in connection with those wildfires.

[21] CN requested an OTBH only in connection with the Fire. CN's request was restricted to the determination of compensation payable in connection with mature Crown timber and the other resources. CN did not request an OTBH in connection with fire control costs.

[22] The OTBH took place on May 3, 2016. In the period leading up to the OTBH, CN asserted that the stumpage calculation method set out in section 6.10 of the Manual, and in the March 31, 2015 memorandum, was not authorized under the *Forest Act*, R.S.B.C. 1996, c. 157. CN took this position on the grounds that a fixed method of calculating stumpage was not consistent with the requirement, set out in section 103 of the *Forest Act* (per section 30(a) of the *Regulation*), that stumpage be calculated on the basis of the agreement that would have been entered into had the timber in question been harvested. Section 103(3)(a) of the *Forest Act* states, in part, that stumpage is to be calculated by multiplying the volume of timber that was damaged or destroyed by "the rate of stumpage that an employee of the ministry … determines would likely have applied to the timber under that section if rights to the timber had been granted under an agreement entered into under this Act".

[23] In light of this issue, Mr. Hodder requested that a revised stumpage calculation be prepared, ignoring section 6.10 of the Manual and the March 31st memorandum. That calculation was prepared by Mr. Manhard, and was set out in an email to Mr. Hodder dated May 27, 2016. Mr. Manhard prepared this new calculation on the basis of a BC Timber Sales ("BCTS") stumpage rate. Further detail concerning this calculation is set out later in this Decision. CN was not made aware of Mr. Hodder's request to Mr. Manhard, nor the revised calculation.

[24] At the OTBH, CN also challenged the Ministry's methodology in calculating the damages under subsections 30(c) and (d) of the *Regulation*, arguing that the calculation "double counted" grass land and forest land, and that the total area damaged and destroyed was not correct; the damage was less severe.

The Order

[25] On June 6, 2016, Mr. Hodder issued the Order under section 25(2) of the *Wildfire Act*. The Order dealt with the following issues.

i) Calculation of stumpage on mature timber

[26] The Order first dealt with calculation of stumpage on mature Crown timber. Mr. Hodder accepted CN's argument that section 6.10 of the Manual, and the March 31, 2015 memorandum by the Acting Director, should not be followed. Mr. Hodder noted that section 105(1)(c) of the *Forest Act* provides that, if the stumpage is payable under section 103(3) for damaged or destroyed timber, the rates of stumpage must be determined in accordance with the policies and procedures approved by the Minister. The Manual embodies those policies and procedures.

[27] Further, section 103(3)(a) of the *Forest Act* provides that the rate of stumpage is the rate that would likely have applied to the timber under section 105(1) "if rights to the timber had been granted under an agreement entered into under the Act".

[28] After referring to section 6.10 of the 2014 Manual, Mr. Hodder said as follows:

> ... While the A/Director's memo, which purports to set the stumpage rates for timber under section 103(3), was issued pursuant to amendment 6.10 of the Interior Appraisal Manual, which was itself developed pursuant to section 105(1)(c) of the *Forest Act*, I find that the memo is contrary to the direction in section 103(3)(a) of the *Forest Act* stipulating that the rate of stumpage is that which would likely have applied to the timber *if rights to the timber had been granted under an agreement entered into under the Forest Act*. In my view, setting a fixed rate of stumpage for timber assessed under section 103(3) is not determining the rate of stumpage that would likely have applied if rights to the timber had been granted under an agreement, unless the rate chosen can also be applied to an actual *Forest Act* agreement. [Italics in original]

[29] Mr. Hodder then advised that the Ministry had recalculated the stumpage using a methodology from the 2014 Manual, exclusive of section 6.10 and the March 2015 memorandum. The process undertaken, Mr. Hodder noted, "is more complex and site specific", and was intended to determine a rate that would likely have applied had rights to the timber been granted under an agreement entered into under the *Forest Act*. This resulted in stumpage for mature Crown timber in the amount of $141,929.23.

ii) "Double counting" of grass land and forest land

[30] Mr. Hodder noted that, in connection with determination of compensation for "other forest land resources" (section 30(c) of the *Regulation*) and "grass land resources" (section 30(d) of the *Regulation*), CN had raised, what it asserted to be,

"double counting". Mr. Hodder concluded that section 30 of the *Regulation* permits the assignment of values for different resources and property situated in the same area, according to how they are classified under section 30.

[31] Mr. Hodder concluded, however, that CN was correct in its assertion that 1.6 hectares of grass land resources had been "double-counted" as both forest land (for the purpose of determining the "other forest land resources" damaged or destroyed), and as grass land (for the purposes of determining the "grass land resources" damaged or destroyed). On that basis, Mr. Hodder excluded the grass land portion of the calculation under section 30(d) of the *Regulation*, and treated 100% of the impacted area as "other forest land resources" under section 30(c). In other words, Mr. Hodder determined that "grass land" could be treated as "forest land", with compensation payable at the higher "other forest land resources" rate of $5,000 per hectare, but that it could not be "double counted" as both "grass land" and "forest land".

iii) Severity of damage or destruction

[32] Mr. Hodder then turned to the severity of the damage and destruction resulting from the Fire. CN and the Government disagreed on the Fire boundary and disagreed as to whether, within the Fire boundary, 100% of the mature Crown timber and other resources should be treated as having been damaged or destroyed. Mr. Hodder's findings on this point are referred to in more detail below. Ultimately, Mr. Hodder reduced the volume of impacted Crown timber and the protected area for other resources.

Notice of Appeal and Board Participation

[33] On June 20, 2016, CN filed a notice of appeal with the Commission. The issues raised by CN in its notice of appeal have been re-stated and summarized as follows:

1. Mr. Hodder was wrong to rely on the post-OTBH stumpage re-calculation, set out in the May 27, 2016 email from Mr. Manhard, as CN had not been given an opportunity to respond to that re-calculation.
2. Stumpage, as calculated by Mr. Manhard, is not the stumpage that would have applied if rights to the timber had been granted under an agreement entered into under the *Forest Act*.
3. Mr. Hodder incorrectly determined the area and/or volume of Crown timber damaged or destroyed.
4. Some of the lands that were classified as "forest land" should have been classified as "grass land", with compensation payable at the lower "grass land resources" rate of $500 per hectare.

[34] With regard to the first issue, the Government accepts that section 6.10 of the Manual, and the March 31, 2015 memorandum, are not in accordance with section 103 of the *Forest Act* for the reasons stated in the Order.

[35] The Government also accepts that the revised stumpage calculation, ignoring section 6.10 of the Manual and the March 31st memorandum, should not have been undertaken without notice to CN: CN should have had notice of the proposed revised calculation and an opportunity to make submissions on it. However, given that this appeal has been heard as a "new hearing", the Panel finds that nothing turns on the initial failure to provide notice. The parties have now had a full opportunity to lead evidence and make submissions on all aspects of the stumpage calculation.

[36] By letter dated August 18, 2016, the Board asked to become a party to the appeal, and advised that its primary interest was with regard to the "double counting" issue. That is the only issue upon which the Board made submissions.

The Hearing before the Commission

[37] At the hearing, CN called one witness: Michael Greig, RPF, P.Eng. Mr. Greig has over 35 years' experience as a professional forester and, since 1994, has been principal of Enfor Consultants Ltd. Mr. Greig was qualified, without objection, as an expert on timber pricing and stumpage calculations in the interior of British Columbia, cut block design and harvest plans, and the analysis of aerial photographs and orthophotographs of forested areas.

[38] Mr. Greig testified in connection with both the extent of the timber damaged or destroyed, and the stumpage calculation that would have applied had the area been harvested under a *Forest Act* agreement, as required by the *Wildfire Act* and the *Regulation*.

[39] The Government called three witnesses: Mr. Manhard, RPF, Timothy Salkeld, and Susan Pelletier.

[40] Mr. Manhard is a Ministry employee and has been a professional forester for more than 24 years. He is an official designated by the Ministry to make determinations pursuant to section 103(3) of the *Forest Act*; that is, to determine stumpage in cases of damage to, or destruction of, Crown timber. Mr. Manhard was qualified, without objection, as an expert in timber pricing and appraisals in the interior of British Columbia, and in cutblock design and harvesting.

[41] Mr. Salkeld has been employed by the Government for 27 years in various capacities in connection with the Government's forest inventory program. Mr. Salkeld is currently acting inventory manager. He is certified as an aerial photo interpreter, and has authored various documents relevant to the inventory program and the VRI. Mr. Salkeld gave evidence regarding the VRI generally, and with the application of VRI data to analysis of the Fire. Mr. Salkeld's evidence regarding the VRI was largely uncontested.

[42] Ms. Pelletier is also a Ministry employee. Ms. Pelletier had a role in assessing the volume of mature Crown timber and other resources damaged or destroyed by the Fire, and specifically in connection with designation of certain areas as grass land. This process involved the addition of certain data to the VRI.

Post-Hearing calculations

[43] As will be evident from this Decision, the parties' positions on certain matters changed over the course of the hearing, which resulted in corresponding changes to the numbers used, or arrived at, by their experts. At the request of the Panel, the parties provided a joint submission dated March 27, 2017, summarizing their respective final positions on the issues and on the specific numbers that result from those positions. The Panel has decided this appeal based on the joint submission.

ISSUES

[44] The issues on this appeal can be broadly stated as follows:

1. What is the volume of mature Crown timber "damaged or destroyed" as a result of the Fire?
2. What rate of stumpage would have applied to the mature Crown timber, had rights to harvest that timber been granted under an agreement (some form of tenure) entered into under the *Forest Act*? There are two sub-issues:
   (a) What type of tenure should be adopted?
   (b) What is the appropriate rate of stumpage under that calculation? Depending on the tenure adopted, issue 2(b) may be either a straightforward calculation, or a complicated determination involving several factual issues.
3. What compensation is payable with respect to "other forest land resources" and "grass land resources" damaged or destroyed as a result of the Fire? This raises two sub-issues:
   (a) Can an area be treated as both "other forest land resources" and "grass land resources" for the purposes of calculating compensation?
   (b) What is the area of "other forest land resources" and "grass land resources" impacted?

RELEVANT LEGISLATION

[45] In addition to section 25 of the *Wildfire Act* and section 30 of the *Regulation* set out earlier in this Decision, section 103(3) of the *Forest Act* is relevant to this appeal.

[46] Section 103(3) of the *Forest Act* provides a methodology for calculation of stumpage on Crown timber damaged, destroyed, cut or removed in a variety of circumstances. Section 103(3) provides that stumpage is calculated:

> … by multiplying the volume or quantity of the timber that was … damaged, destroyed … as determined by an official designated by the Minister, by the sum of

> (a) the rate of stumpage that an employee of the ministry referred to in section 105 (1) determines would likely have applied to the timber under that section if rights to the timber had been granted under an agreement entered into under this Act, and
>
> (b) if applicable, the bonus bid that an employee of the ministry referred to in section 105 (1) determines would likely have been offered for the timber if rights to the timber had been granted under an agreement entered into under this Act.
>
> [Emphasis added]

[47] Pursuant to section 105(1) of the *Forest Act*, stumpage is to be determined in accordance with the "policies and procedures approved by the minister". For the area in question, the "policies and procedures approved by the minister" are set out in the Manual. The applicable version of the Manual is dated July 1, 2014.

DISCUSSION AND ANALYSIS

1. What is the volume of mature Crown timber "damaged or destroyed" as a result of the Fire?

Detailed facts and the parties' positions

[48] Overall, the Fire impacted a continuous area over 3 kilometres wide along the north bank of the Fraser River, comprised of private land and Crown land. The Crown land impacted by the Fire consists of three areas, identified by the parties as areas A, B and C. Areas A, B and C represent three non-contiguous areas in which the "top" of the Fire burned up the slope onto Crown land.

[49] Area A, at the western end of the Fire zone, is by far the largest of the three areas. Area A is up to approximately 900 metres deep and 800 metres wide.

[50] Area B is roughly 1 kilometer east of Area A, and, on the Fire boundary as ultimately agreed, is approximately 200 metres deep and 200 metres wide.

[51] Area C is just to the east of area B, and is somewhat smaller than Area B.

[52] No on-the-ground assessment of the volume of Crown timber damaged or destroyed was conducted following the Fire. In some cases, the Ministry will carry out a post-fire timber cruise, or "ground truthing" process, to determine the volume of mature Crown timber and other resources affected. That did not happen in this case. For the purpose of establishing a Fire boundary, there was a helicopter fly-over by Ministry staff using GPS information. The data gathered was then used to prepare a fire map dated March 12, 2015, showing the Fire outline. This Fire outline was referred to by the parties as the "red" fire outline, or the red Fire boundary. The area within the red Fire boundary was 64 hectares.

[53] Ministry staff then determined the volume of mature Crown timber and other resources in the Fire area by reference to VRI data, and certain related data. Ministry staff made those determinations based on a conclusion that 100% of the mature Crown timber within the red Fire boundary was damaged or destroyed. The

December 18, 2015, damage determination was based on this calculation. As noted above, this calculation was revised by letter dated April 28, 2016, when 16.86 hectares of railway right-of-way land was removed. The red Fire boundary was reduced to 45.2 hectares (rounded to 45).

[54] While there was no on-the-ground assessment for the purpose of determining the volume of mature Crown timber and other resources damaged or destroyed, there was a field visit to the Fire site by staff from the Fire Centre, Forest Health, Compliance and Enforcement and Habitat, to assess the impact of the Fire on wildlife habitat. That visit was conducted on October 23, 2014. Field observations were recorded and photographs were taken. While that visit was not undertaken for the purpose of assessing the volume of Crown timber and other resources damaged or destroyed, certain observations relevant to that issue were recorded, and were used in a subsequent report by Becky Bings, a habitat biologist employed by the Ministry.

[55] On February 12, 2015, Ms. Bings completed a report titled "Assessment of Habitat Impacts of 2014 Fire C20086 (Soda Creek)" (the "Habitat Assessment Report"). At pages 3-7, this report includes the following description of the impacted areas (with Areas A, B and C referred to as Areas 1, 2 and 3, respectively):

> **Area 1 (approximately 37 ha)**
>
> The lower slopes of this area supported a low density of vegetation pre-fire and the fire appears to have been patchy (…), while burning on the upper slope appears to have been more severe, with more complete burning or scorching of large diameter Douglas-fir and some deciduous trees (…).
>
> **Area 2 (approximately 6 ha)**
>
> Burned trees in this mid-slope area of the fire were patchily distributed, indicating a less severe burn (…).
>
> **Area 3 (approximately 2 ha)**
>
> Area 3 appeared to be more severely burned – most trees were black, with scorched or no foliage (…).
>
> Many of the trees burned were large diameter, older Douglas-fir trees. Two trees were aged, with a 44.5 cm dbh [diameter at breast height] tree determined to be approximately 135 years and a 85.5 cm dbh tree counted to be at least 185 years. Douglas-fir trees … measured 48 to 65 cm dbh, with each likely to be over 150 years old. Deer trails were evident across the slope and at least six woodpeckers were observed foraging on the Douglas-fir trees.
>
> …

> **Forest health Concerns**
>
> The field visit was conducted about two months after the fire, and it is expected that there will be additional mortality over the next year as currently fire-stressed trees continue to die. ….

[56] The Ministry did not rely on the information obtained during the October 2015 site visit, or the Habitat Assessment Report, when determining the volume of mature Crown timber and other resources that were damaged or destroyed as a result of the Fire in the December 18, 2015 report.

[57] At the May 3, 2016 OTBH, both the Fire boundary and the volume of mature Crown timber and other resources within the Fire boundary were in dispute. CN took the position, based in part on Mr. Greig's opinions, that the March 12, 2015 red Fire boundary over-stated the impacted area. CN also asserted that less than 100% of the mature Crown timber and other resources within the Fire boundary were damaged or destroyed.

[58] In the June 6, 2016 Order, Mr. Hodder states:

> Severity of damage or destruction
>
> - In my view, in future cases, the Ministry should consider fire severity mapping and post fire analysis in determining the extent of damage and destruction of Crown timber, grass land and other forest land resources.
> - Based on the report entitled Assessment to Habitat Impacts of 2014 Fire C20086 (Soda Creek) and associated photos, there is evidence to suggest that the area experienced a variety of fire intensities, resulting in a somewhat mosaic landscape. The report suggests that not all of the area was damaged or destroyed by wildfire. I find, therefore, that a reduction in coverage should occur when calculating damages associated with grass land and other forest land resources under section 30 (c) of the Wildfire Regulation.
> - Based on the limited evidence provided, I am reducing the area of protected Crown land damaged or destroyed by 20% and have recalculated the protected area from 45 ha [hectares] down to 36 ha.

[59] After the Order was made, both CN and the Ministry carried out further investigation into these issues.

[60] In August 2016, Mr. Manhard participated in a helicopter fly-over of the Fire area and took a number of photographs. The primary purpose of the fly-over was to assess the Fire boundary.

[61] At around the same time, CN obtained a high resolution orthophoto of the Fire area. Mr. Greig reviewed the orthophoto and drew a new Fire boundary based on his conclusion as to affected areas. Mr. Greig's revised Fire line removed certain areas from within the Ministry's red Fire boundary, and added other small areas.

Overall, based on Mr. Greig's revised Fire boundary, there was a net reduction in the area impacted. The parties referred to Mr. Greig's revised Fire boundary as the "cyan" Fire boundary.

[62] Mr. Greig then prepared an assessment of the volume of mature Crown timber damaged or destroyed, on a polygon-by-polygon basis, within the cyan Fire boundary. This assessment was based on the VRI data provided by the Ministry. Mr. Greig applied values to each polygon, indicating the percentage of mature Crown timber damaged or destroyed. He did not assess other resources affected at this time.

[63] Mr. Greig's conclusions regarding both the cyan Fire boundary, and the volume of mature Crown timber damaged or destroyed, were set out in a report dated December 8, 2016, titled "Assessment of Stumpage Damages for Mature Crown Timber on Wildfire C20086". The area affected by the Fire within Mr. Greig's cyan Fire boundary was 39.9 hectares, in contrast to the Ministry's red Fire boundary at approximately 45 hectares. Within the cyan Fire boundary, Mr. Greig concluded that 91% of the mature Crown timber was damaged or destroyed. This was in distinction to the Ministry's assessment based on 100% damage or destruction within its larger red Fire boundary.

[64] Mr. Manhard issued a response report dated January 22, 2017. Mr. Manhard disagreed with Mr. Greig's conclusion that less than 100% of the mature Crown timber within the red Fire boundary was damaged or destroyed. In discussing that issue, Mr. Manhard said as follows:

> Some of the slivers of timber may have avoided damage during the fire but would need ground truthing to determine exact damage amounts as would the areas that were outside of the fire boundary. (page 1)

[65] At the outset of the hearing before the Panel, counsel for the Government advised that it now accepted the cyan Fire boundary as the correct boundary. This reduced the affected area from 45.2 hectares to 39.9 hectares, and reduced the Ministry's assessment of the volume of mature Crown timber damaged or destroyed from 3,810.8 m^3 to 3,448.8 m^3.

[66] The issue that remains in dispute is whether, within the cyan Fire boundary, 100% of the mature Crown timber was damaged or destroyed (Mr. Manhard's view) or only 91% (Mr. Greig's view). The difference, after some further adjustments agreed to during the hearing, was between 3,332 m^3 based on Mr. Manhard's view, and 3,038 m^3 based on Mr. Greig's view. This is the volume of mature Crown timber only. The parties' positions on the volume of other resources damaged or destroyed is dealt with under Issue #3.

Evidence of Mr. Greig and Mr. Manhard regarding the % of timber damaged or destroyed

[67] Both Mr. Greig and Mr. Manhard were forthright in their evidence, and agreed to some limitations on their conclusions. Mr. Greig acknowledged that his assessment of the timber damaged or destroyed primarily involved review of an

orthophoto showing a "top down" view of the Fire area. As a result, he could have missed damage that would have been visible from a side view or on-the-ground assessment. Mr. Greig acknowledged that what he characterized as "damage" was missing or scorched crowns, or similar features, and that these could possibly be considered more akin to "destroyed".

[68] During cross-examination, and with reference to a specific polygon in connection with which he had determined that there was only partial damage, Mr. Greig had difficulty, based on the orthophoto, detecting any trees that did not show visible damage.

[69] Mr. Manhard acknowledged in cross-examination, as he had in his rebuttal report, that some trees within the cyan Fire boundary may not have been damaged, although he put the number of trees in this category as "very little". Mr. Manhard noted that the only fully accurate determination would be based on an on-the-ground assessment. While an on-the-ground assessment would not necessarily be helpful in an area of severe damage, ground assessment could determine whether the tree had suffered no damage, or, at least, no visible damage.

The Panel's findings

[70] Before turning to a review of the evidence of Mr. Manhard and Mr. Greig on the percentage of mature Crown timber that was damaged or destroyed, three preliminary issues will be considered: what is meant by "damage", what is the relevance of no on-the-ground assessment after the Fire, and what is the relevance of the Habitat Assessment Report.

What is "damage" in the context of section 25(1) of the *Wildfire Act*?

[71] This issue raises both a factual and legal question. The factual question is whether trees, which are within the Fire area but have not suffered any apparent visible impact, should, nonetheless, be treated as "damaged".

[72] The legal question is whether, when establishing that a tree is "damaged" under this section, one must also establish a reduction in the economic value of the tree.

[73] Under section 25(1)(b) of the *Wildfire Act*, the Government may order compensation for the loss of crown timber and other resources, if they are "damaged or destroyed as a direct or indirect result" of a fire. Section 30 of the *Regulation* then prescribes the manner in which the dollar value is calculated which, in the case of mature Crown timber, is by ascertaining the applicable stumpage.

[74] In this case, there does not appear to be disagreement over when a tree is "destroyed", as that term is used in the legislation. However, the experts approached their respective evaluations of "damaged" timber differently.

[75] Mr. Manhard testified that, if Fire "touched" a tree, the tree was "probably damaged" even if there was no visible mark or impact. Mr. Manhard expressed this view on the basis that the tree may have been weakened, even in the absence of any visible damage, and may be more prone to disease or insect infestation.

[76] Mr. Greig's assessment was directed solely to visible damage, including missing or scorched crowns. Mr. Greig did not agree that all trees within the area of a fire will necessarily be "damaged".

[77] Where the physical impact on a tree is visible, in terms of missing or scorched canopy or burnt trunk or branches, it is obvious that the tree has suffered damage. Where there is no obvious visible impact, this question becomes more difficult. This is an area in which evidence from a botanist or arborist would be relevant. However, in this appeal, there is no such evidence. Rather, the evidence presented at the hearing focused on the association of "damage" with visible physical impact. Thus, the Panel does not have evidence from which it can conclude that trees in the cyan Fire boundary, which suffered no visible physical impacts, have been "damaged".

[78] Based on the evidence presented, the Panel concludes that the mature Crown timber within the cyan Fire boundary should be considered as "damaged" only if the trees sustained some visible physical damage.

[79] It is possible that, in another case, evidence could be presented that would support a finding that all trees in an area through which a fire passed had suffered damage, without any obvious visible damage; however, the Panel cannot make that finding in this case.

[80] Turning to the legal question, CN argued that economic loss must be considered in determining whether trees have been "damaged". Lack of any economic loss, CN argued, should at least be considered in deciding whether a tree has been "damaged", and should possibly preclude such a finding. If a finding of economic loss was required for a determination that a tree has been "damaged", that would obviously be very significant on this appeal, as it is highly unlikely that the timber impacted by the Fire (to use a neutral term) would ever be harvested.

[81] On this question, the Government relied heavily on a previous Commission decision in *Rustad Bros. & Co. Ltd. v. Government of British Columbia*, (Appeal No. 96/08, March 26, 1997) [*Rustad*].

[82] *Rustad* involved an interpretation of what was then section 96(1) of the *Forest Practices Code of British Columbia Act*. Section 96(1) provided that a person must not, among other things "damage or destroy" Crown timber without authorization, and set out certain discretionary penalties. During harvesting operations, a Rustad operator "scraped or rubbed" a number of trees outside the authorized cut block. The Ministry of Forests sought a contravention determination and penalty. Those findings were not sought in connection with all trees that may have been touched by the operator; they were sought only in connection with trees with "obvious visible fibre damage which would cause a reduction of one or more tree classes under a timber cruise conducted in accordance with Ministry standards".

[83] During the appeal to the Commission, Rustad argued that the word "damage" should be restricted to a situation in which there was actual economic loss arising from the wrongful act. In other words, the fact that a tree had suffered visible impact was not sufficient, on its own, to justify a finding of "damage". There would only be "damage" if the affected tree could not be harvested, or, if harvested,

would result in a lower economic return to the Province. Minor damage should be treated as "*de minimis",* and should be ignored.

[84] The Commission rejected that argument. The Commission found that physical damage to a tree, whether or not there was resulting economic loss, constituted "damage". While the "damage" on the facts of *Rustad* may have been minor (scratching of bark, etc.), there was undoubtedly some visible physical impact to the trees in question. The Commission concluded that this constituted "damage", and upheld the finding of a contravention.

[85] There are some differences in statutory context between *Rustad* and this case. In *Rustad* the penalty under consideration was discretionary, and was subject to a ceiling. In the present case, there is an automatic entitlement to full hypothetical stumpage in connection with all of the trees damaged or destroyed. Does that difference in the statutory framework justify a different result?

[86] There are two aspects to this question. First, is the fact that the Government may not have suffered any economic loss as a result of any physical impact on the timber relevant to the question of whether that timber has been "damaged"? In the Panel's view, the answer to this question is clear.

[87] The Panel finds that it is not necessary that the Government demonstrate economic loss in order to recover the hypothetical stumpage on the timber in question. On this question, the statutory language is determinative. Where timber has been damaged or destroyed, the Government is entitled to the "value" of that timber under section 25 of the *Wildfire Act*. That "value" is determined on the basis of stumpage that would have applied had the timber been harvested (section 30 of the *Regulation* and section 103 of the *Forest Act*). The economic value of the timber is, of course, relevant to determining the applicable stumpage, and that issue is considered below. However, the economic value of the timber, or lack of such value, cannot determine whether a tree has been "damaged" so as to trigger section 25 of the *Wildfire Act*.

[88] This conclusion, required on the relevant wording, is also consistent with the underlying purpose of the statutory regime. While compensation for damaged or destroyed timber is determined on the basis of the hypothetical economic return to the Government in the form of stumpage, the value of the timber, and the interests protected, are clearly not restricted to economic return. The interests protected include environmental, recreational and general public purposes. The "loss" to the Government in connection with damage to, or destruction of, timber on Crown land is not restricted to the loss of associated stumpage, notwithstanding the fact that hypothetical stumpage is the formula by which that loss is quantified.

[89] The second aspect to this question is whether, as discussed in *Rustad,* there should be some *de minimis* test applied when assessing "damage". Is there a level below which physical impact to a tree, which may be visible but is very minor, should be ignored for purposes of determining whether a tree has been "damaged"? The Commission rejected that argument in *Rustad.* However, in *Rustad*, the penalty was discretionary. Further, on the particular facts in *Rustad*, the Commission upheld a decision of the acting district manager that there should be a finding of a contravention by Rustad, but that no penalty should be imposed. On

the facts here, by contrast, if there is a finding of "damage", the Government is entitled to full hypothetical stumpage for the timber in question.

[90] It is possible that, at some level, physical impact to a tree may be visible, but so minor that the tree should not be treated as having been "damaged" for purposes of section 25 of the *Wildfire Act.* To take an extreme example, if a fire results in no impact other than a few lost leaves, the tree in question surely has not been damaged. That issue does not have to be considered in this case. The damage assessment in this case was based primarily on photographs, including aerial photographs and an orthophoto. On that kind of evidence, very minor impacts would simply not be visible. The Panel finds that any impact visible on the orthophoto, aerial photographs, or the photographs in the Habitat Assessment Report would not be "*de minimus"*. All visible impacts, on the facts of this case, constitutes "damage" and triggers section 25 of the *Wildfire Act.*

[91] The Panel wishes to point out that, in reaching the conclusion that economic loss is not a prerequisite to a finding of "damage" under the legislation, the Panel is not precluding the possibility that, in an appropriate case, a finding of economic loss alone could constitute "damage". Certainly, it would be possible to establish, on appropriate evidence, that a tree which has not suffered any visible physical impact has nonetheless suffered internal impacts, not readily apparent on a visible inspection, and that such internal impacts could constitute "damage".

[92] It may also be possible that, on appropriate evidence, a finding could be made that a tree that has not suffered any physical impact, external or internal, could be considered "damaged". For example, a tree or scattered group of trees surrounded by large swathes of destroyed timber, or at the back end of an area devastated by fire, could lose their economic value without ever actually having been touched by fire. Among other things, cost of access could no longer be supported by the remaining harvestable timber. That issue does not arise in the present case.

[93] In the present case, as already discussed, the timber had no "economic" value, in the sense that it would likely never be harvested. The Panel is not saying that such loss of economic value would constitute "damage". But this decision, and the requirement for visible physical impacts in the circumstances of this case, should not be taken as precluding a finding of "damage" based on economic loss in an appropriate case.

Relevance of no on-the-ground assessment

[94] There are, in at least some circumstances, inherent limitations on the ability to carry out a precise calculation of the volume of Crown timber damaged or destroyed without a ground assessment. CN relied heavily on the fact that no such assessment was conducted. CN takes the position that the onus is on the Ministry to prove that 100% of the mature Crown timber within the Fire boundary was damaged or destroyed, and that the Government has not met that onus.

[95] The process of conducting a post-fire ground assessment is expensive and, in some circumstances, can be unsafe. Whether a ground assessment will provide useful information will depend on the circumstances.

[96] Mr. Manhard testified that estimating pre-fire volumes where, post-fire, many trees may have been destroyed, makes an accurate assessment of the amount (or percentage) of timber impacted difficult to achieve.

[97] On the other hand, when the issue is whether there has been any impact at all on certain trees, a ground assessment is more likely to provide useful information. A fly-over or aerial photography will permit a determination as to whether trees have been destroyed, or suffered obvious damage, such as substantial scorching of the canopy, but where the trees are still standing, a ground assessment can provide information on whether there has been any material degree of burning, scorching or other damage to trunks, branches or foliage. That information will be more difficult to assess based on a largely "top down" view available from aerial photographs or a fly-over.

[98] In the circumstances of this case, the Panel finds that a post-Fire ground assessment would have been useful. The Government and CN agree on the use of the VRI data, and largely, or entirely, agree on the volume of mature Crown timber which has been destroyed or suffered obvious damage. The issue is whether some trees within the Fire boundary escaped damage altogether.

[99] The volume of mature Crown timber damaged or destroyed must be determined on the best information available. The lack of a post-Fire ground assessment is a relevant factor in making this determination.

Relevance of the Habitat Assessment Report

[100] The 2015 Habitat Assessment Report describes the habitat impacts observed in Areas 1, 2 and 3 (A, B and C), and describes the burned area as "patchy" in Areas 1 and 2, and the burning as "less severe" in Area 2. The report describes Area 3 as appearing "more severely burned". The Panel finds that this report supports a finding that there was less than 100% damage to mature Crown timber within the Fire area. However, the report is not conclusive.

[101] The Habitat Assessment Report was prepared for habitat assessment purposes, not specifically to assess the volume of damaged or destroyed Crown timber. Further, the report was based upon observations and photographs from a field visit that took place in October of 2014, when the full extent of the timber damage from the Fire would not necessarily be known.

[102] Therefore, although not conclusive, the Panel finds that the report contains some relevant information, as it is based upon "on-the-ground" observations which support a finding of less than 100% damage.

Conclusion

[103] As found above, the evidence presented does not permit a conclusive determination as to whether particular trees suffered damage that may not be visible from a largely "top-down" view. Further, the evidence presented in this case does not support a conclusion that trees with *no visible physical impact* suffered "damage" for the purposes of compensation under section 25 of the *Wildfire Act*.

[104] Of the trees with visible physical damage, the Panel finds that the evidence supports a conclusion that less than 100% of mature Crown timber within the cyan Fire boundary was damaged. This is based upon the Habitat Assessment Report, the photographs tendered, and the testimony of the witnesses. However, does the evidence establish that Mr. Greig's estimate of 91% should be accepted? The Panel finds that it does not.

[105] It is clear from the evidence that Mr. Greig's analysis did not include all trees that suffered some visible damage, where that damage was less obvious. This is apparent from certain admissions which Mr. Greig quite rightly made during cross-examination, and from the evidence regarding specific polygons that were determined as having less than 100% damage but which, on the basis of admissions during cross-examination, and on the Panel's review, likely suffered damage at, or close to, 100%.

[106] Based on all of the evidence, the Panel finds that less than 100% of the trees within the cyan Fire boundary suffered damage, but that the correct figure is higher than Mr. Greig's 91%. The Panel finds that the most reasonable estimate of the mature Crown timber damaged or destroyed as a direct or indirect result of the Fire is somewhere in between the experts' estimates.

[107] In the absence of an on-the-ground assessment, the Panel finds it reasonable to estimate that 96% of the Crown timber within the cyan Fire boundary was damaged or destroyed as a direct or indirect result of the Fire. Based on the figures provided by the parties by way of the March 27, 2017 joint submission, the volume of mature coniferous timber damaged or destroyed was 2,759 m^3, and the volume mature deciduous timber damaged or destroyed was 428 m^3, for a total of 3,187 m^3. Those figures are approximately the mid-point between the Government's 100% calculation, and CN's 91% calculation.

2. What rate of stumpage would have applied to the mature Crown timber, had rights to harvest that timber been granted under an agreement (some form of tenure) entered into under the *Forest Act*?

[108] To understand the evidence in relation to this issue it is necessary to provide some background regarding the methods for calculating stumpage generally.

Forest tenures and stumpage calculation

[109] The Panel heard extensive evidence on issues related to stumpage calculation, given primarily by Mr. Grieg and Mr. Manhard.

[110] The majority of Crown timber is harvested under major forest tenures. Major forest tenures include forest licences and tree farm licences. In addition, there are miscellaneous tenures identified in chapter 6 of the Manual, which will be described further below.

[111] Stumpage calculation for these tenures can be divided into three broad categories. First, in connection with major forest tenures, stumpage is determined using the "market pricing system" ("MPS"). The MPS is based on policies set out in the Manual. Under this system, a "final estimated winning bid" ("FEWB") is

calculated based on certain market price equations. The FEWB is then adjusted to take into account certain allowances. Those allowances include "tenure obligation adjustments" ("TOAs"). TOAs are determined based on the expected obligations of a major tenure holder, such as administration, development, road management and silviculture. Details with respect to all of these matters are set out in the Manual. The method of calculating the FEWB is set out in chapter 3 of the Manual. The method of calculating TOAs is set out in chapter 4 of the Manual. Major forest tenures account for approximately 75% of Crown timber harvested in British Columbia.

[112] The second primary method of calculating stumpage is in relation to timber sale licences. This is a process involving competitive auctions carried out by BC Timber Sales, previously defined in this Decision as "BCTS". Under the BCTS system, the "market price" is calculated in a manner similar to a major forest tenure. This results in an "upset" or reserve stumpage rate. The upset rate is a percentage of the market price. The upset rate is generally set at 70% of the market price, although the upset rate is at the discretion of the BCTS and may be as high as 100% of the market price, depending on the circumstances. Competitive bidders then offer a "bonus bid", which is added to the upset rate in order to arrive at stumpage. Approximately 20% of Crown timber harvested in British Columbia is licensed through the BCTS process.

[113] The third category of stumpage consists of several types of miscellaneous timber tenures described in chapter 6 of the Manual. Chapter 6 tenures include community forest agreements, wood lot licences, road and blanket salvage permits, and specific licences to cut. Stumpage rates with respect to the various categories of tenure described in chapter 6 are set out in tables which form part of chapter 6. These "table rates" are generally fixed. Determining stumpage in connection with a particular tenure under chapter 6 is simply a matter of determining the applicable zone or region, the relevant species, and then applying the specified rate to the Crown timber in question.

[114] Calculation of stumpage in this case would have been straightforward, had the table rate set out in the March 31, 2015 memorandum applied. As the parties agree that the memorandum does not apply, it is necessary for the Panel to make a factual determination concerning the stumpage that would have applied if an agreement to harvest the timber in question had been entered into. To decide this requires consideration of two sub-issues:

(a) what type of agreement would have been entered into; and

(b) what stumpage rates would have applied under that agreement?

The expert's approaches to the applicable tenure and stumpage rate

i) Mr. Manhard

[115] Mr. Manhard calculated stumpage only on the basis of a BCTS licence. Mr. Manhard started this calculation from an existing ecommerce appraisal submission for Tolko Forest Licence A20015, Cutting Permit 864, a major forest tenure. On

this basis, Mr. Manhard was able to utilize a block in reasonable proximity to the Fire location, and close in time. Mr. Manhard made certain adjustments to the calculation carried out in connection with that cutting permit to reach a hypothetical BCTS rate. The purpose of these adjustments was to convert the major forest tenure holder sale into the equivalent of a BCTS sale. Because the existing submission was for a major tenure, there was no bonus bid calculation. Mr. Manhard utilized three BCTS sales in the Kamloops area to calculate an appropriate bonus bid.

[116] This calculation was initially set out in Mr. Manhard's May 27, 2016 email provided to Mr. Hodder, and was also set out in a report dated December 7, 2016. Mr. Manhard calculated a rate for the primary timber types at an MPS 100 rate of $\$30.91/m^3$ and a bonus bid of $\$17.50/m^3$, for total stumpage of $\$48.43/m^3$. There were subsequently certain minor revisions to this figure, although not to Mr. Manhard's fundamental approach. Mr. Manhard made certain further revisions to his report during the hearing, with the result being that the BCTS MPS 100 rate would be $\$21.92/m^3$, the BCTS MPS 70 rate would be $\$15.34/m^3$, and the average bonus bid would be $\$24.59/m^3$ (based on agreement with figures relied on by Mr. Greig at the time), for a total stumpage rate of $\$39.93/m^3$.

ii) Mr. Greig

[117] Mr. Greig provided a response to Mr. Manhard's calculation in his report dated December 8, 2016, supplemented by a further report dated January 23, 2017. Mr. Greig calculated stumpage based on the three types of tenure described above; specifically: as a major forest tenure, as a BCTS sale, and as a miscellaneous tenure under chapter 6 of the Manual.

[118] Mr. Greig did not express a preference for any one of these three approaches in his report. Mr. Greig accepted the same Tolko submission relied on by Mr. Manhard as a starting point. Mr. Greig also accepted the three Kamloops BCTS sales as the starting point for a bonus bid calculation.

[119] Mr. Greig's approach differed from Mr. Manhard's on three points:

1. whether a BCTS sale is the only potentially applicable stumpage calculation;
2. if a BCTS calculation applies, whether certain cable yarding costs should be considered when calculating the FEWB; and
3. if a BCTS calculation applies, the bonus bid that should be applied.

[120] On his major forest tenure calculation, Mr. Greig calculated hypothetical TOAs for the Fire area. Mr. Greig calculated hypothetical TOAs for this block based on estimated administration and development costs, including access to the Fire site and in-block roads. Mr. Greig calculated a FEWB of $\$24.61/m^3$, and a tenure obligation adjustment of $\$26.69/m^3$. Mr. Greig's hypothetical TOAs are higher than the total FEWB. The only stumpage payable in that situation, on a major tenure

basis, would be calculated at a nominal reserve stumpage rate of 0.25/m^3. This resulted in stumpage of $865.12 for the entire Fire area.[3]

[121] With regard to the BCTS stumpage, Mr. Greig opined that there must be substantial downward adjustments to both the FEWB and the bonus bid, relative to the comparables. There are two key issues on which Mr. Greig opined that the FEWB and bonus bid should be adjusted: the cost of cable harvesting and road/access costs. With regard to cable harvesting, Mr. Greig concluded that the only realistic means to log certain steeper sections would be by use of cable yarding. With regard to roads, Mr. Greig concluded that it would be necessary to construct roads and to obtain access agreements to access the Fire area from private land at the bottom of the slope. Consequently, Mr. Greig was of the view that an adjustment was necessary to the Kamloops area comparables.

[122] On the basis of those adjustments, Mr. Greig calculated a FEWB of $19.52/$m^3$, a MPS 70 price of $13.66/$m^3$, and a bonus bid of $8.89/$m^3$ (after certain adjustments made at the hearing, and after addition of another recent sale as a comparable). This resulted in a final stumpage rate of $24.34/$m^3$, or approximately $15/$m^3$ less than Mr. Manhard's calculation of $39.93. This gave a total stumpage calculation of $63,860.44, compared to Mr. Manhard's $114,981.82.

[123] With regard to chapter 6 stumpage, Mr. Greig calculated stumpage based on table 6-3, which sets out stumpage for certain types of miscellaneous tenures, including "specific licences to cut" (section 6.7). The specific licence to cut is also known as an "occupant licence to cut". This form of tenure was described as a "linear tenure" in the prior 2012 version of the Manual, in keeping with its primary purpose as involving cutting on rights-of-way.

[124] With regard to miscellaneous tenures or "specific licences to cut", the rates set in table 6-3 of the Manual are subject to certain fixed adjustments. There is no allowance for TOAs, and no bonus bid. Stumpage is $23.62/$m^3$, with interior basic silviculture cost adjustments ranging from $2.50/$m^3$ to $4.84/$m^3$, for total stumpage of $26.12/$m^3$ to $28.46/$m^3$. This gave a total stumpage calculation of $74,323.27.

[125] As noted above, Mr. Greig did not express any preference in his reports for one approach over the other. However, at the hearing Mr. Greig testified that he was not comfortable with the BCTS calculation, essentially because of the difficulty and uncertainty inherent in carrying out a hypothetical BCTS calculation for timber that would never be logged, based on limited data. Mr. Greig described the chapter 6 calculation as "compelling", in part, due to its simplicity.

Mr. Manhard's response

[126] Mr. Manhard disagreed with Mr. Grieg's view that a major forest tenure would potentially have been granted for the Fire area. Mr. Manhard expressed the view that, given the limited access to the site, the various restrictions on harvesting

[3] The calculations in Mr. Greig's reports are based upon his estimate that 91% of the timber was damaged or destroyed (a volume of 3038 m^3).

(such as the ungulate winter range designation), and the fact that the Fire area was in a BCTS operating area, a major tenure holder would have no interest in the area, and a major tenure would not be granted. For those reasons, Mr. Manhard did not prepare a stumpage calculation based on a major forest tenure analysis. Mr. Manhard did note that the TOAs, as calculated by Mr. Greig, were far higher than average Interior TOAs.

[127] On the BCTS calculation, Mr. Manhard disagreed with Mr. Greig in connection with both the FEWB and the bonus bid adjustments. With regard to the FEWB adjustment, Mr. Manhard opined that cable harvesting would not be necessary, and that all areas of the site could be logged with skidders, potentially with long lines on certain steeper slopes.

[128] Notwithstanding this opinion, it turned out that Mr. Manhard's calculation included an allowance for a limited amount of cable harvesting. This was due to the fact that Mr. Manhard had run some analyses, including cable harvesting, and unintentionally left those results in his final calculations. Accordingly, at the end of the day, the difference in the two experts' opinions on this matter was effectively over the amount of cable harvesting that would have been required. With regard to road and access costs, Mr. Manhard opined that an adjustment similar to that used by Mr. Greig in the Kamloops comparables was appropriate.

[129] With regard to the chapter 6 tenures, Mr. Manhard expressed the view that none of those tenures applied, and that none would be granted. With regard to the occupant licence to cut, the method favoured by Mr. Greig, Mr. Manhard was of the view that this method simply would not be applicable given the nature and purpose of the occupant licence to cut. Mr. Manhard emphasized the narrow and specific circumstances in which the various chapter 6 licences were authorized, and in which those licences would realistically be granted.

New information provided before the hearing

[130] Shortly before the hearing there was further investigation into the characteristics and types of tenures in existence in the vicinity of the Fire. As a result of those investigations, an additional binder of documents was produced containing various maps and other documents.

[131] The parties determined that the Fire area is located within the BCTS Hawks Creek Operating Area. The southern boundary of the Hawks Creek Operating Area is approximately 8 kilometres north of Williams Lake. The Hawks Creek Operating Area is adjacent to the Meldrum Operating Area to the west and the Bells Operating Area to the east.

[132] There are several types of licences in the vicinity of the Fire, including within the BCTS Hawks Creek Operating Area. These include major forest licences, wood lot licences, occupant licences to cut, and BCTS sales. The major forest licences and wood lot licences are historic, and likely pre-date creation of the BCTS system in 2003.

[133] Two more recent licences, which formed part of the new information, should be specifically mentioned. BC Hydro was issued an occupant licence to cut in 2013

for an area approximately 4 kilometres west of the Fire area, and within the Hawks Creek Operating Area. This was a linear licence to cut along a right-of-way. The stumpage rate was $\$13.70/m^3$, presumably calculated under the applicable table in chapter 6.

[134] The parties also learned of Timber Sale A94812, dated January 20, 2017 ("Sale A94812"). This very recent sale post-dated preparation of both experts' reports. The sale became known to the parties only a few days prior to the hearing. This was a BCTS sale in the vicinity of the Fire area. It was issued in connection with the removal of insect infested trees and included designated protections such as ungulate winter range.

[135] Sale A94812 is discussed further below.

The Panel's findings

(a) What type of tenure should be adopted?

[136] In some cases, determining the applicable type of agreement and stumpage rate will be straightforward. If a logging contractor has to pay compensation for a fire started in an area being harvested, there will be no question of the type of agreement (major forest tenure, BCTS agreement or miscellaneous tenure), and the stumpage rate to be applied under section 103 of the *Forest Act*. That will already have been determined.

[137] The present situation is more difficult. Not only is there no existing tenure, but the experts were in agreement that the area is highly unlikely to be subject to any tenure due to location, access, terrain, lack of connection to existing harvesting, and restrictions resulting from the ungulate winter range and other designations. Both Mr. Greig and Mr. Manhard agreed that it is very unlikely that a commercial operator would actually seek to harvest this site, on its own (i.e., unconnected with other operations). The fact is that this site would likely never be harvested, absent a need to harvest due to insect kill or other similar considerations.

[138] The Panel has considered the evidence and arguments under each of the tenures/stumpage options discussed.

i) Major forest tenure

[139] CN argues that the major forest tenure calculation would be appropriate as, statistically, major tenure holders make up the majority of licensees in the Province. Therefore, notwithstanding the fact that the Fire area is outside of any existing major forest tenure, CN asserts that this is the calculation that should be adopted. CN points out that approximately 75% of the wood harvested in the Province is under major licences. On that basis, CN argues that a major forest tenure calculation should apply, or should be the default calculation.

[140] The Government argues that statistical prevalence cannot be relevant. If a major tenure calculation had to be accepted based on statistical prevalence, this

would render the considerations under section 103(3) of the *Forest Act* meaningless. Statistically, a major licence would always apply.

[141] The Panel agrees that statistical prevalence cannot be relevant. In each case, the question must be what stumpage rate would have applied had an agreement been issued for the timber in question. In this case, the Panel agrees with Mr. Manhard that it is unlikely that a major tenure would have been granted for this site given that the limited access, the various restrictions on harvesting (such as the ungulate winter range designation), and given that the Fire area was in a BCTS operating area. It is also unlikely that a major tenure holder would have any interest in the area.

ii) BCTS tenure

[142] The fact that the Fire area is located in the BCTS operating area is relevant, and supports a conclusion that a BCTS stumpage calculation should be adopted. Although this factor is not conclusive, as other forms of licence can be granted in a BCTS operating area (e.g., the recent BC Hydro occupant licence to cut), the fact that the Fire area is located within a BCTS operating area supports a BCTS licence as the *prima facie* choice, barring other factors.

iii) Chapter 6 tenures

[143] As explained above, licences under chapter 6 of the Manual are issued in a variety of situations. Most chapter 6 licences can be issued only for a specific purpose. Some are highly specific. For example, a section 6.2.1.a.(ii) licence to cut refers to a situation in which a licence is issued to remove damaged timber from natural stands, where at least 70% of the total volume of all species have been damaged by mountain pine beetle, and subject to certain specific criteria in terms of age and stem diameter. Other sections, as noted above, refer to community forest agreements, road building, and salvage.

[144] A chapter 6 tenure may be appropriate under section 103 of the *Forest Act*, but only where the evidence establishes that this is the most likely tenure to have been issued had an agreement been made prior to the Fire.

[145] The tenure favoured by Mr. Greig is a specific licence to cut under section 6.7. Section 6.7 applies to master licences to cut, occupant licences to cut, and certain specific forestry licences to cut. A master licence to cut is issued for cutting that is necessary in connection with an oil and gas activity, and does not apply to the present case.

[146] A forestry licence to cut can be issued in a variety of specific circumstances. The circumstances referred to in section 6.7 are:

1. licences issued under section 47.6(3) of the *Forest Act* and funded out of a BCTS account;
2. a licence issued in conjunction with a works contract other than BCTS; or
3. a licence issued for construction or protection of a fence line.

[147] The matters referred to in section 47.6(3), or a non-BCTS works contract, would be with respect to road-building by BCTS, and for such matters as reforestation. None of those circumstances apply to the present case.

[148] An occupant licence to cut can be issued only to a person who has been previously granted rights with respect to the Crown land in question. As noted above, section 6.7 was titled "Linear Tenures" in the 2012 version of the Manual, and applied specifically to cutting in connection with right-of-ways, transmission lines and similar construction. While the section is no longer restricted to "linear" tenures, the section remains restricted to "occupants" of the land; i.e., those with pre-existing rights. The one licence that appears to have been issued in the vicinity of the Fire area under this section was, as noted above, a licence to cut for a hydro right-of-way, issued to BC Hydro in April 2014.

[149] The Panel finds that the pre-conditions necessary for issuance of an occupant licence to cut simply do not exist in the present case. There was no occupant of this land, so there is no evidence supporting an occupant licence to cut.

[150] In the Panel's view, chapter 6 of the Manual (or the corresponding chapter in the Coast Appraisal Manual) may be considered in the determination of stumpage under section 103 of the *Forest Act* where, prior to the fire, conditions existed that would have justified a specific licence type under chapter 6. An obvious example is salvage. Section 6.3 and 6.4 refer to salvage permits (and, in 6.3, road building permits) for, among other things, timber damaged by insects or by fire. If, prior to a fire, the timber in question had been damaged by insects, a stumpage calculation under section 6.3/6.4 may well be appropriate. However, where there is no such evidence with respect to a pre-fire condition, a chapter 6 calculation, based on salvage, is not appropriate.

[151] Similarly, an occupant licence to cut may be the assumed tenure type when there is evidence that, prior to the fire, some or all of the subject timber may have been subject to such a licence. That, however, would require evidence that there was an occupant of the Crown land who would potentially apply for an occupant licence to cut, and that such a licence may have been granted. In the absence of such evidence, a rate calculated on an occupant licence to cut basis cannot be considered.

[152] There is an attraction to the argument that a chapter 6 rate should be adopted due its simplicity. That argument is particularly attractive when the difficulties of reaching an accurate hypothetical BCTS calculation are considered. However, ease of calculation cannot be used as justification for ignoring the wording of the *Wildfire Act* and the *Forest Act*. A chapter 6 calculation is only appropriate where there is evidence of a pre-fire condition that justifies the particular calculation. In this case, that evidence is lacking.

Conclusion on the applicable tenure type

[153] The Fire area is not within any existing tenure. Thus, the type of licences previously issued in the vicinity of the Fire may be a relevant factor. However, the context and circumstances of those licences must be considered.

[154] While there have been a variety of licence types issued in the general vicinity of the Fire area over the years, most existing tenures were granted prior to creation of BCTS in 2003. It cannot be assumed that a licence granted today would be of the same type.

[155] There was evidence of only two recent licences, as discussed above: a BCTS licence (Sale A94812) and a "linear" licence issued to BC Hydro for clearing of a right-of-way. There do not appear to have been any other chapter 6 or miscellaneous licences. The BCTS licence has some characteristics similar to the Fire area. These include designated protections, such as ungulate winter range, and certain other matters referred to above.

[156] As stated above, the Fire area is in a BCTS Operating Area and, *prima facie*, a BCTS calculation applies. The Panel finds that the existence of past tenures (specifically, Sale A94812) provides further support for a BCTS form of tenure.

[157] Given the characteristics of the Fire area, the facts do not support application of a major tenure or any of the chapter 6 licence types. The Panel finds that there is nothing to overcome the presumption that a BCTS licence should apply.

[158] In this case, the Panel concludes that a BCTS licence calculation is the applicable agreement under section 103 of the *Forest Act*.

(b) What is the appropriate rate of stumpage under a BCTS calculation?

[159] As outlined above, the parties are in agreement as to the method of calculating BCTS stumpage. The parties are also in general agreement as to the starting point, and parameters, for the calculation in this case, having both adopted the Tolko forest licence described above, and the use of the three Kamloops comparables as the starting point for the bonus bid calculation.

[160] At the end of the day, there were three issues on which Mr. Manhard and Mr. Greig disagreed:

i. What adjustment should be applied to the FEWB based on required cable yarding?

ii. Should a bonus bid adjustment be applied based on road construction and other access costs?

iii. Should the bonus bid be adjusted downward based on use of the recent BCTS sale (Sale A94812) as a comparable?[4]

[161] The Panel will consider each of these three issues.

[4] These issues are relevant only to calculation of stumpage on coniferous species. The parties agree that a fixed $0.50/m³ rate applies to deciduous species.

i. What adjustment should be applied to the FEWB based on required cable yarding?

[162] Cable yarding, where required, is one of the inputs in the FEWB calculation. Mr. Greig concluded that cable yarding would be necessary in two locations: a portion of the east side of Area A, and a small portion of the top of Area B. Mr. Greig reached this conclusion on the basis that any area with a slope over 40% is generally not suitable for conventional skidder harvesting.

[163] Both of the areas for which Mr. Greig applied a cable harvesting allowance have slopes of over 40%. The portion of Area A to which Mr. Greig applied cable yarding has a slope of approximately 50-55%. The portion of Area B to which Mr. Greig applied a cable harvesting allowance has a slope of approximately 70%.

[164] Mr. Greig acknowledged in cross-examination that, potentially, long line skidder harvesting could be feasible in both of the areas for which he applied a cable yarding adjustment. However, in his view such a determination could only be made after an assessment of the exact conditions on the ground. In the absence of such an assessment, a cable harvesting allowance should be applied.

[165] Mr. Manhard agreed that skidder harvesting becomes more difficult at slopes above 40%, but testified that it is, nonetheless, often carried out. In accordance with the highest stumpage principle, an operator must utilize the most economical method of harvesting, consistent with safety and other operational factors. Mr. Manhard noted that he has designed cut blocks for skidder harvesting with slopes of up to 70%, albeit only over short distances. Mr. Manhard noted that the portion of Area B, to which Mr. Greig applied a cable harvesting allowance, only included approximately 5 loads of timber. Mr. Manhard expressed the view that, even with the very steep slopes on this portion of Area B, and given the very small area, long line skidding would be feasible by utilizing angled skid trails.

[166] Mr. Manhard also noted that, given the ungulate winter range designation, cable harvesting would not be permitted in the Fire area. If the timber was actually being harvested, heli-logging would be necessary for any areas on which skidder harvesting was not feasible. Heli-logging would be more expensive than cable yarding, but no estimates were provided by the witnesses for heli-logging costs.

[167] In the course of preparing his assessment, Mr. Manhard carried out a calculation based on 800 m^3 of cable yarding. Mr. Manhard then, unintentionally, did not back that number out of his subsequent calculations. As a result, notwithstanding Mr. Manhard's opinion that no cable yarding would be necessary, Mr. Manhard's calculations included an allowance for 800 m^3 of cable yarding. That is about half of Mr. Greig's cable yarding allowance.

[168] When it was determined, prior to the hearing, that Mr. Manhard's calculations included an allowance for 800 m^3 of cable harvesting, the Government did not resile from those figures. Accordingly, the real dispute is over approximately one half of Mr. Greig's total cable yarding allowance.

[169] The Panel finds that no allowance should be made for cable yarding beyond that in Mr. Manhard's calculation. Based on all of the evidence, including the testimony of both Mr. Greig and Mr. Manhard, as well as the various photographs

and contour maps, the Panel finds that long line skidding would likely have been feasible on at least the portion of Area A to which Mr. Greig applied a cable harvesting allowance. To the extent that long line skidding may not have been feasible on the very small portion of Area B to which a cable harvesting allowance was applied, Mr. Manhard's calculation applies a sufficient cable harvesting allowance to accommodate that area. Thus, the Panel accepts Mr. Manhard's BCTS MPS 70 stumpage rate of $15.34.

ii. Should a bonus bid adjustment be applied based on road construction and other access costs?

[170] The Fire area is bordered by private lands towards the Fraser River, and an undeveloped plateau to the north. There has been some past logging on the plateau, but there are no existing roads. Mr. Greig opines that any operator harvesting the Fire area would be required to construct a primary access road from the south, across private land. The operator would also have to construct certain additional in-block roads. The primary access road would be 2.7 kilometres. Cost would be approximately $12,000 based on the road cost tabular rates set out in the Manual.

[171] Mr. Greig opines that it would also be necessary to design and construct a temporary rail crossing (as the primary access road would cross the CN main line). Mr. Greig's estimated cost of that crossing is $10,000.

[172] In addition, Mr. Greig built in an allowance for assumed easement charges.

[173] Mr. Greig expressed the view that access from the bottom of the Fire area was the only realistic option. Access from the plateau would likely not be feasible, given the very steep slopes at the top of the Fire area, at least in some sections.

[174] Mr. Manhard takes issue with this calculation on several bases. First, and most fundamentally, Mr. Manhard opines that a BCTS bidder would not generally be required to incur primary road costs. Where a BCTS sale is involved (as opposed to a major forest tenure), primary access costs are generally incurred by BCTS. He states that BCTS would, itself, likely retain a contractor to construct the primary access road.

[175] Second, Mr. Manhard opines that the more likely, and more economical, access would be from the top of the Fire area, off the plateau. Road building costs would still be incurred, but would be less.

[176] Third, Mr. Manhard opines that, in a BCTS sale context, the tabular road building costs in the Manual likely over-state actual road-building costs. He states that an operator assessing a bonus bid would do so based on the cost at which the operator could likely get the road built, which would generally be less than the tabular road building costs in the Manual.

[177] Fourth, Mr. Manhard notes that a portion of the hypothetical access road follows an existing track, visible on the aerial photographs, and that this would further reduce road construction costs.

[178] Mr. Manhard did not provide any alternative access costs. Mr. Manhard's primary point was that no adjustment would be necessary for access costs to whatever allowance may have been made in connection with the three Kamloops BCTS sales. Mr. Manhard agreed in cross-examination that access costs across the plateau may not, in fact, be less than access costs from below the Fire area.

[179] In considering the impact of access costs on the hypothetical bonus bid, the first question is whether it is appropriate to consider primary access costs at all. Because BCTS will generally construct primary road access to the operating area, the Government asserts that those costs should not be considered, as they will not be paid by the successful bidder. This raises the question of what hypothetical facts can be considered when determining the stumpage rate that would have applied. Is it appropriate to calculate stumpage on the assumption that non-existent roads would be provided prior to a BCTS sale? The Panel concludes that this would not be appropriate in this case.

[180] While BCTS generally provides primary access, this is not an invariable rule. There is no requirement that BCTS do so, and it would be open to BCTS to require an operator to provide primary access. The road construction costs are costs that would have to be incurred in order to harvest this site. When determining compensation payable as a result of the Fire, the facts, as they exist, have to be considered.

[181] Just as it is not appropriate to assume that the Fire area has a hypothetical operator for the purposes of applying an occupant licence to cut stumpage calculation, it is not appropriate to assume the existence of infrastructure that is not present. This is especially so considering that the purpose of the hypothetical stumpage calculation is to determine compensation payable to the Government. Costs that would have to be incurred to access the Fire area should properly be considered when determining compensation payable to the Government. For those reasons, the Panel finds that primary road access costs must be considered.

[182] The second question is whether there should be any adjustment beyond whatever road building costs would have been considered in connection with the Kamloops area comparables.

[183] The evidence and argument on this point supports the conclusion that some adjustment should be made to the Kamloops comparables in order to take access costs into account. There is no evidence that there were any unusual access costs associated with those licences. It may well be that, in accordance with common practice, BCTS provided primary road access, at its cost. If so, an adjustment to the bonus bid paid under those licences is appropriate.

[184] The next question that must be considered is the quantum of hypothetical road, and other access costs, that should be applied.

[185] The Panel finds that use of the tabular road building rates from the Manual is appropriate, at least as a starting point for road building costs. In the absence of any detailed evidence regarding road building costs from the plateau, the Panel finds that it is appropriate to consider access costs that would have been incurred to access the site from the Fraser River side, including road building costs, land use

or easement charges, and costs that would have been incurred to cross the rail line. All of this supports Mr. Grieg's calculation.

[186] However, the Panel finds that Mr. Grieg's calculation must be adjusted to take into account the fact that much of the primary road access would be along a route that was already occupied by an informal track. In that situation, the Panel concludes that full road building costs, on a "from scratch" basis, is not appropriate. Approximately 600 metres of the 2.2 kilometre primary road assumed in Mr. Greig's calculations would be new construction. The balance of the road would utilize the existing track, with a corresponding reduction in costs.

[187] Based on review of the evidence, approximately 600 metres of the total 2.2 kilometre road allowance calculated by Mr. Greig would be new construction. The balance would be over the existing track. There is no evidence before the Panel on the appropriate cost reduction for the existing track. In the absence of such evidence, the Panel finds a 50% reduction to be appropriate. Application of a 50% reduction to the portion of the road which can utilize the existing track results in a one-third reduction overall. On that basis, the Panel finds that a one-third reduction to the road cost adjustment is appropriate. Accordingly, the Panel finds that, in place of a $4.57/m³ road cost adjustment to the bonus bid, the adjustment should be $3.05/m³ (for a reduction in the adjustment of $1.52/m³). On the basis of Mr. Greig's final January 23, 2017 report, that would result in a revision of the final adjusted bonus bid from $15.70 to $17.22. Post-hearing, the parties provided an additional calculation, incorporating Sale A94812. Based on the Panel's conclusion below concerning relevance of that sale, no further adjustment is necessary.

[188] Therefore, the Panel finds that the applicable bonus bid is $24.59 (the starting figure agreed to by the experts), less adjustments for access and land use charges as determined by Mr. Greig, except with respect to primary road access costs. Primary road access costs should be treated as $3.05/m³, rather than $4.57/m³, for a total adjusted bonus bid of $17.22.

iii. Should the bonus bid be adjusted downward based on use of the recent BCTS sale (Sale A94812) as a comparable?

[189] As noted earlier, the licence area for Sale A94812 was issued in connection with the removal of insect infested trees. It consisted of several isolated blocks north-west of Williams Lake. Block 1, the largest block, was designated as ungulate winter range and, in that sense, is comparable to the Fire area in terms of restrictions. Block 1 also has somewhat similar physical characteristics to the Fire area, in that the Harvest Plan Map shows a fairly steep slope across the block down towards the Fraser River. Some blocks had road access, but some blocks may have required road construction. This is not entirely clear from the available information.

[190] The documents produced in connection with Sale A94812 show that the upset rate was $17.27/$m^3$ and the bonus bid was $3.75/$m^3$, for a total stumpage rate of $21.02/$m^3$. The $3.75/m³ bonus bid is in stark contrast to the volume weighted average bonus bid calculated by Mr. Greig (and agreed by Mr. Manhard) for the three dry fir timber sales from the Kamloops area, utilized by both experts

as comparables (prior to adjustment for access costs in the case of Mr. Greig). Mr. Greig calculated that weighted average at $24.59/m³. Accordingly, the bonus bid for Sale A94812 was only about one sixth of the average weighted bonus bids from those three Kamloops sales.

[191] Mr. Greig expressed the view that Sale A94812 would justify a further downward revision to the BCTS calculation, or was further support for the calculation as set out in his report.

[192] In its closing argument, CN put forward a revised weighted average bonus bid calculation, retaining the three Kamloops sales, but also incorporating Sale A94812. That revised bonus bid (prior to adjustment for access costs) was $19.57/m³, a reduction of approximately $5/m³ from the bonus bid based only on the three Kamloops comparables.

[193] While the location, site conditions, and Crown timber which were the subject of Sale A94812 have a number of similarities to the Fire site, the Panel finds that there is at least one key difference. Sale A94812, as indicated above, was in connection with removal of insect infested trees.

[194] It is clear from the documents produced that the licence involved selective logging only. Mr. Manhard opined that, based on the selective nature of the harvest operation contemplated, Sale A94812 is not a useful comparable. Selective logging involves a different and more labour intensive process in terms of identifying the trees to be harvested, and carrying out the harvesting itself. In his opinion, the hypothetical licence for the Fire area would involve clear-cut logging, although there would have been some very limited exceptions to the clear-cut nature of the operation.

[195] Given the parties' positions that between 91% and 100% of the mature Crown timber was damaged or destroyed, and the Panel's conclusion that 96% of the mature Crown timber was damaged or destroyed, a very small number of trees would have been left in limited areas of the Fire site. Overall, however, the site would have been largely clear-cut. That is a key characteristic shared by the Fire site and the three Kamloops area comparables relied on as indicating the applicable bonus bid before the parties learned of Sale A94812.

[196] Considering all of the evidence, the Panel finds that Sale A94812 is not a useful comparable. In the absence of any other explanation, the very large difference between the bonus bid in connection with the three Kamloops area comparables, and Sale A94812, is most likely due to the selective nature of the logging contemplated under Sale A94812. Therefore, no further adjustment is necessary based on Sale A94812.

Conclusion on Issue #2

[197] On the basis of the analysis above, the Panel finds that the applicable stumpage rate, had rights to the timber been granted under an agreement, is the BCTS stumpage rate as follows:

- MPS 70 rate: $15.34 (Mr. Manhard's figure, based on 800 m³ of cable yarding)

- Bonus Bid: $17.22 (Based on Mr. Greig's access adjustments, subject to further adjustment for reduction in Mr. Greig's road building costs)
- Final Stumpage Rate: $32.56/m³.

3. What compensation is payable with respect to "other forest land resources" and "grass land resources" damaged or destroyed as a result of the Fire?

[198] To address this issue it is necessary to understand certain aspects of the VRI.

[199] Extensive evidence regarding the VRI was given at the hearing. Certain specific features of the VRI are discussed in more detail below. The present discussion is restricted to general characteristics of the VRI, which are not in dispute.

[200] The VRI was developed by the Government to provide an ongoing inventory of forest-related resources. The VRI was created, and is updated, through a process involving interpretation of aerial photographs, backed-up by various checks, including an audit process. The audit process involves on-the-ground reconnaissance of selected areas. The VRI is updated on an ongoing basis in order to take account of events that will change the inventory, such as timber harvesting and fire. The data in the VRI is generally accurate on a timber supply area level. The data becomes less accurate when descending to very small areas.

[201] As stated earlier in this Decision, the VRI divides terrain into irregularly shaped areas referred to as "polygons". Each polygon is then assigned several characteristics. Classification involves five levels, based on whether or not the polygon is vegetated, and based on vegetation type and density. The first level of classifications is assigned based on whether the polygon is "treed" or "non-treed". A polygon is classified as "treed" if 10% of the area of the polygon, classified by crown cover, consists of trees of any species. If this threshold is not met, the polygon is classified as "non-treed". There are then a series of further designations, some of which are not relevant to this appeal.

[202] There is no designation in the VRI for "grass land". The "grass land" designation does not come from the VRI itself, but from an additional layer of analysis. For example, a particular polygon may be designated: VNUHGOP-3-60. This would refer to a polygon which is vegetated, non-treed, upland, with 3% tree cover and 60% grass cover.

Detailed facts and the parties' positions

[203] In the Order, Mr. Hodder states at page 7:

- The Ministry assessed and applied two different damage costs to the same area resulting in what CN Rail described as double counting.
- While it would appear that section 30 of the Wildfire Regulation permits the assignment of value for different resources and property situated in the same area according to how they are

> classified under section 30, in this case, I agree with CN Rail that 1.6 ha of grass land resources has been double counted as both forest and grass land when it should not have been. As a result of this, I have excluded 1.6 ha of grass land resources from the overall damage costs.

[204] Accordingly, all of the burned area was treated as "other forest land resources" under section 30(c)(i) of the *Regulation*, payable at $5,000 per hectare. None was calculated as "grass land resources" under section 30(d) of the *Regulation*, payable at $500 per hectare.

[205] Prior to the hearing, the Government accepted CN's position that, essentially, an area should be treated as forest land or grass land. In other words, the entire impacted area should not be treated as "other forest land resources". The forested areas should be treated as payable at $5,000 hectares, while the grass land should be payable at $500 hectares.

[206] Based on the Government's position at the time, which incorporated the larger (45 hectare) area within the red Fire boundary, the Government calculated the other forest land resources at 31.5 hectares, and the grass land resources at 13.5 hectares, with compensation payable $157,500 and $6,750, respectively. The Government then accepted that those figures should be reduced by 20%, based on Mr. Hodder's determination that there was only 80% damage within the red Fire boundary (for a total of 36 hectares). On this basis, the Government says that 25.2 hectares of "other forest land resources" were damaged or destroyed, and that 10.8 hectares of grass land resources were damaged or destroyed, resulting in a claim of $126,000 and $5,400, for a total of $131,400.

[207] CN agrees that each hectare can be treated as either "other forest land resources" or "grass land resources", and agrees that the areas described as grass land should be payable at the lower $500 per hectare rate. Where CN and the Government disagree is in the size of the impacted area and the volume of resources impacted.

[208] CN relies on the cyan Fire boundary, as determined by Mr. Greig, and relies on Mr. Greig's determination as to the percentage of damage and destruction within each polygon (91%), as referred to above in connection with Issue #1. CN acknowledges that the percentage calculation was prepared in connection with the volume of mature Crown timber damaged or destroyed, not the area of "other forest land resources" or "grass land resources" damaged or destroyed; however, it argues that, in the absence of other evidence, the percentage calculation is an adequate proxy on that issue. Therefore, CN applies Mr. Greig's damage percentage (91% overall) to the area within the cyan Fire boundary (25.5 hectares of "other forest land resources" and 13.4 hectares of "grass land resources"). On that basis, CN asserts that 21.5 hectares of "other forest land resources" were damaged or destroyed, and that 12.1 hectares of "grass land resources" was damaged or destroyed. This results in compensation payable of $107,500 and $6,050, respectively.

[209] The Board submits that the same area can be classified as both "grass land resources" and "other forest land resources", and that compensation can be

ordered for both on a cumulative basis. On this issue, the Board takes the position that all of the damaged areas classified as "grass land" in the augmented VRI also constitute "other forest land resources". The Board asserts that the amount payable for those areas should be $5,500 per hectare, representing the total of the "grass land resources" and "other forest land resources" figures.

(a) Can an area be treated as both "other forest land resources" and "grass land resources" for the purposes of calculating compensation?

[210] The issue is framed by the Board as follows:

> Can the Province recover damages for both grass land resources and other forest land resources for the same polygon in the VRI?

[211] The Board provided a detailed argument on this issue, and made a number of points both in written and oral argument.

[212] First, the Board refers to the definitions of "forest land" and "grass land" in section 1 of the *Wildfire Act*, as follows:

> "forest land" includes land that previously supported trees and is not in other use, but does not include land excluded from this definition by regulation;
>
> …
>
> "grass land" includes land that
>
> (a) previously supported grass and is not in other use, or
>
> (b) is in use for the production of forage or is lying fallow, having previously been used for the production of forage,
>
> but does not include land excluded from this definition by regulation;
>
> [Emphasis added]

[213] On the basis of these non-exhaustive definitions, the Board argues that "forest land" can include grass land, and that the definition of "grass land" can include forest land.

[214] Second, the Board refers to the description of "forest land resource values", set out in the *Forest Practices Code of British Columbia Act*. Although most of the *Forest Practices Code* was repealed, section 2 remains in force. It provides that "forest land resource values" include forage production, grazing and other uses suitable to grass land.

[215] The Board points out that the VRI is not legislated or created for the purpose of determining compensation payable under the *Wildfire Act*, the purpose for which it is being used in this case. It maintains that the designations under the VRI should not be determinative on this issue.

[216] The Board points out that a polygon classified as non-treed, and identified as "grass land" within the augmented VRI, may well contain trees. In fact, such a

polygon may have up to 10% tree cover, while still being classified as non-treed and, therefore, as "grass land".

[217] Third, the Board points out that "other forest land resources", which will qualify for the higher $5,000 per hectare rate set out in section 30(c)(i) of the *Regulation*, specifically includes areas such as ungulate winter range, designated under section 10 of the *Government Actions Regulation*, B.C. Reg. 582/2004. This higher rate is distinct from the $1,000 per hectare rate applicable where an area qualifies as "other forest land resources", but does not have one of the designations listed. The Board argues that areas such as ungulate grazing range would include areas that would otherwise qualify as "grass land".

[218] In support, the Board refers to Ms. Bings' 2015 Habitat Assessment Report. The report states that the area includes habitat for the flammulated owl, which, according to the Board, nests in the cavities of large diameter Douglas-fir and forages in "open forest and grass lands". The Board argues that this is the type of "other forest land resources" which exist in connection with "grass land".

[219] Fourth, the Board relies on case law to support the proposition that a particular thing can be given multiple designations under a statutory regime. The Board primarily refers to *Wrigley Canada v. R.* (1999), 164 FTR 283. In that case, the question was whether chewing gum could constitute both a "food" and a "drug" under the Federal *Food and Drug Act*. The Court found that it could. A particular product might be regulated as a food and/or a drug, depending on the purpose for which it is manufactured or sold. As the plaintiff was planning to promote the particular chewing gum as preventing cavities, for that purpose the gum would be classified as a drug and subject to the drug restrictions, notwithstanding the fact that it also fell within the definition of "food".

The Panel's findings

[220] Notwithstanding the arguments put forward, very ably, on behalf of the Board, the Panel is not able to accept the Board's position.

[221] While it is certainly correct that the definitions of "forest land" and "grass land" are not exhaustive, the use of the word "includes" cannot be used to support a conclusion that the Legislature intended the definition of "forest land" to include "grass land", or vice versa. If that were the case, there would be no need for two separate definitions. Rather, the statutory wording appears to reflect an intention to define "forest land" and "grass land" based on dominant characteristics, and to set the compensation payable accordingly.

[222] The Panel agrees with the Board that the VRI, both in its original form, and as augmented with the additional data relied upon to designate certain areas as grass land, was not created for the purpose of determining compensation payable under the *Wildfire Act*. It is possible that, in another case, expert or other evidence could be relied upon to provide a definition of "forest land", "grass land" or both, different than the definition provided under the VRI. However, CN and the Government have agreed on the use of the augmented VRI. That was clearly sensible, and resulted in substantial savings of time and expense relative to

conducting an analysis "from scratch" as to the forest land and grass land resources that were damaged or destroyed in this case.

[223] In the absence of some other evidence concerning the definition of "forest land" and "grass land", the Panel finds that it is appropriate to utilize the VRI. It is important to keep in mind that, under the VRI definitions, CN is agreeing to pay the higher, designated "other forest land resources" rate for all polygons, except those determined to have less than 10% crown cover.

[224] The fact that forest land can, under the statutory regime, support forage or other classic "grass land" uses, does not affect this conclusion. The Panel notes that lands designated as "forest land" will potentially contain large areas and/or volumes of "grass land" type resources. Large parts of the Fire area are sparsely treed. If we utilize the augmented VRI, as CN and the Government have done in this case, a particular polygon may only have 10% tree cover, and yet still be classified as "forest land". Such a polygon will clearly have potential forage and other uses associated with "grass land", but will still be classified as "forest land". Where that land has the applicable designations (such as ungulate winter range), that land will qualify for the $5,000 per hectare rate. If those designations are not present, the land will otherwise qualify for the $1,000 per hectare rate. However, where the level of tree cover drops below a certain threshold such that the land is properly described as "grass land", rather than "forest land", compensation is paid at the $500 per hectare rate.

[225] In considering the case law, the issue here is not, as in *Wrigley*, whether the same item can be regulated in two different ways depending on the purpose for which it is to be used. In the present case there is only one purpose: determining the compensation payable following a wildfire. The level of compensation payable is dependent on the basic physical characteristics of the land in question.

[226] The remaining question to be addressed is whether the impacted land constitutes forest land or grass land. If the land in question is "grass land", compensation is payable at $500 per hectare.

[227] For these reasons, the Panel finds that, based on the evidence, the "other forest land resources" and "grass land resources" amounts should not be "stacked" as suggested by the Board. The Panel finds that compensation must be on the basis that the resource at issue is either forest land or grass land, based on the augmented VRI data.

(b) What is the area of "other forest land resources" and "grass land resources impacted"?

[228] Limited time was spent on this issue at the hearing, likely consistent with the limited impact this issue has on the final quantum, and the limited importance this issue will have on future cases.

[229] On this issue, the Government takes the position that the impacted area, for the purposes of determining the other forest land and grass land resources damaged or destroyed, should be based on the original 45 hectare red Fire

boundary, reduced by 20% to take into account Mr. Hodder's conclusion regarding the percentage of resources damaged or destroyed within that Fire boundary.

[230] The difficulty with this argument is that, at the outset of the hearing, the Government accepted the cyan Fire boundary, which contains a Fire area of only 39 hectares, not 45 hectares. That is a reduction of approximately 13% from the red Fire boundary. The Government's position is that, utilizing the smaller Fire area, but assuming 100% destruction within that area, the volume remains the same.

[231] CN, utilizing the cyan Fire boundary, and Mr. Greig's 91% damage determination, comes to a lower figure.

[232] The Panel previously concluded that the proper damage percentage, in connection with mature Crown timber, is 96%, not 91% as calculated by Mr. Greig.

[233] The Panel finds that CN's approach is consistent with the evidence, and is the methodology that should be adopted. Even if the Government accepted the cyan Fire boundary only for purposes of the Crown timber assessment, that Fire boundary is more consistent with the total impacted area. The Panel finds that the total impacted area, including all impacted grass land and other forest land resources, is 39 hectares. On that basis, 39 hectares must be used as the starting point for any calculation. The question then is whether some deduction should be made.

[234] Although the Panel has already made its finding in connection with the volume of mature Crown timber, the issue here is somewhat different because the calculation is on a per hectare basis under subsections 30(c) and (d) of the *Regulation*, not a volume basis. Arguably, the reduction from the cyan Fire boundary area should be 96%, not 91%, consistent with the Panel's determination on the Crown timber determination. However, the difference here would be very small, and it is simply not possible to determine the figures with exact precision.

[235] In the circumstances, the Panel accepts CN's figures on the area of other forest land resources and grass land resources damaged or destroyed, and CN's calculation concerning compensation payable.

DECISION

[236] In making this decision, the Panel has fully considered all of the evidence and submissions made, whether or not specifically referred to in this decision.

[237] Based upon the findings above, the Panel's decision is as follows:

- The volume of Crown timber damaged or destroyed should be calculated at 96% of the volume within the cyan Fire boundary, or 2,759 m^3 coniferous and 428 m^3 deciduous.
- Stumpage should be calculated on a BCTS basis. There should be no adjustment to the FEWB for cable yarding beyond that in the Government's calculation. There should be an adjustment to the bonus bid, relative to the Kamloops comparables, for access costs. That adjustment is as calculated by Mr. Greig, but subject to a one third reduction in Mr. Greig's primary road building costs. There should not be

a further adjustment based on Sale A94812. This results in a stumpage rate of $32.56/m³. Final stumpage is $89,833.04 (coniferous) and $214 (deciduous), for a total of $90,047.04.

- Compensation is not payable for a particular polygon or hectare as both other forest land resources and grass land resources. CN's calculations are accepted. Accordingly, the applicable compensation is $107,500 for other forest land resources, and $6,050 for grass land resources.

[238] The appeal is allowed.

"Gregory Tucker"

Gregory Tucker, Q.C., Panel Chair
Forest Appeals Commission

"John M. Orr"

John M. Orr, Q.C., Member
Forest Appeals Commission

"Howard Saunders"

Howard Saunders, Member
Forest Appeals Commission

November 2, 2017