

**BRITISH COLUMBIA  
MINISTRY OF FORESTS, LANDS,  
NATURAL RESOURCE OPERATIONS  
AND RURAL DEVELOPMENT**

# **Tree Farm Licence 33**

held by  
**Canoe Forest Products**

## **Rationale for Allowable Annual Cut (AAC) Determination**

**Effective December 14, 2021**

**Diane Nicholls, RPF  
Chief Forester**

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## **Objective of this document**

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL)33. This document also identifies where new or better information is needed for incorporation in future determinations.

## **Acknowledgement**

For preparation of the information I have considered in this determination, I thank Canoe Forest Products Ltd. (the licence holder) staff and staff of the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the ‘Ministry’) in the Okanagan-Shuswap Natural Resource District (OSRD), and the Forest Analysis and Inventory Branch (FAIB). I am also grateful to the First Nations, and individuals who contributed to this process.

## **Statutory framework**

Section 8 of the *Forest Act* requires the chief forester to consider a number of specified factors in determining AACs for timber supply areas (TSAs) and TFLs. Section 8 of the *Forest Act* is reproduced in full as Appendix 1 of this document.

## **Description of the TFL**

TFL 33 is located on the western slopes of the Shuswap Mountain Range. This TFL covers a total area of 8396 hectares directly north of Sicamous and adjacent to Shuswap Lake. It ranges in elevation from approximately 347 metres at lake level to approximately 1700 metres at its highest point on Queest Mountain. TFL 33 is administered by FLNRORD (the “Ministry”), Okanagan-Shuswap Natural Resource District (the “District”).

There are two biogeoclimatic (BEC) zones and six subzones within the TFL. Most of the productive forest land lies within the Interior Cedar-Hemlock (ICH) biogeoclimatic zone, where warm, dry summers and cool, wet winters support mixed-coniferous stands dominated by Douglas-fir, spruce and cedar. The remaining portion of the TFL is within the Engelmann Spruce-Subalpine Fir (ESSF) zone and is found at higher elevations. About 96 percent of the TFL area – or 8044 hectares – is considered productive forests and most – 6712 hectares – is included in the timber harvesting land base (THLB). Major tree species include Douglas-fir, western redcedar, western hemlock, spruce and sub-alpine fir, while other species such as larch, lodgepole pine, white pine, and maple also occur. The forests of the TFL have a relatively long history of harvesting, and as a result there are second-growth forests nearing maturity on the lower elevation sites that are accessible and highly productive. Almost half of the stands on the THLB are less than 60 years old which reflects the harvest history on the TFL. FAIB staff have evaluated the Old Growth Maps provided by the Old Growth Technical Advisory Panel and inform me there are 855 hectares of old growth forest estimated to be rare, ancient or big-treed. Any changes to the protected status of these areas as a result of the work of the panel will be accounted for in my next AAC determination or I may make an interim adjustment to the AAC by *Chief Forester’s Order*.

In 2016, the population of the North Okanagan-Shuswap Regional District, which surrounds the TFL, was 124,605 people. The closest community to the TFL, Sicamous, is home to approximately 2,430 residents.

The traditional territories of four Secwépemc Nation communities overlap TFL 33, including: Adams Lake Band, Little Shuswap Lake Band, Neskonlith Indian Band, and Splatsin.

## **History of the AAC**

TFL 33 was first awarded to Shuswap Timbers of Sicamous in 1959 with an AAC of 10 902 cubic metres. In 1965 Shuswap Timbers was purchased by Federated Co-operatives Ltd. and Canoe Forest Products purchased the rights to TFL 33 in 2012.

The initial AAC of 10 902 cubic metres was increased to 12 882 cubic metres in 1965. The AAC increased several times in the 1970's and early 1980's, reaching a peak of 29 000 cubic metres in 1984. The AAC was decreased to 27 500 cubic metres in 1988 and to 22 500 cubic metres in 1996. In 2011, the AAC was set at 21 000 cubic metres and has since remained at this level.

## **New AAC determination**

Effective December 14, 2021, the new AAC for TFL 33 will be 23 160 cubic metres. This AAC is 10 percent higher than the previous AAC set in 2011.

This AAC will remain in effect until a new AAC is determined, which must take place within 10 years of this determination. If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have based this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

## **Role and limitations of the technical information used**

Section 8 of the *Forest Act* requires the chief forester, in determining AACs, to consider biophysical, social and economic information. Most of the technical information used in determinations is in the form of a timber supply analysis and its inputs related to inventory, growth and yield, and management. The factors used as inputs to timber supply analysis have differing levels of uncertainty associated with them, due in part to variation in physical, biological and social conditions. The AAC determination is a strategic-level decision for which the Crown maintains a duty to consult and accommodate, as necessary, those First Nations for whom it has knowledge of claimed Aboriginal Interests that may be impacted by a proposed decision. The chief forester must consider the information provided by First Nations through engagement and the consultation process.

Computer models cannot incorporate all of the social, cultural and economic factors that are relevant when making forest management decisions. Technical information and analysis, therefore, do not necessarily provide the complete answers or solutions to forest management issues that must be considered when making decisions such as AAC determinations. Such information does provide valuable insight into potential impacts of different uncertainties about or changes to resource information and management practices, and thus forms an important component of the information I must consider in AAC determinations.

In determining this AAC, I have considered the technical information provided, including any known limitations.

## **Guiding principles for AAC determinations**

Given the large number of periodic AAC determinations required for BC's many forest management units, administrative fairness requires a reasonable degree of consistency of approach in addressing relevant factors associated with AAC determinations. In order to make my approach in these matters explicit, I have considered and adopted the following body of guiding principles, which have been developed over time by BC's chief foresters and deputy chief foresters. However, in any specific circumstance in a determination where I consider it necessary to deviate from these principles, I will explain my reasoning in detail.

When considering the factors required under Section 8, I am also aware of my obligation as a steward of the forests of British Columbia, of the mandate of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (“the Ministry”) as set out in Section 4 of the *Ministry of Forests and Range Act*, and of my responsibilities under the *Forest Act*, *Forest and Range Practices Act* (FRPA), and *Professional Governance Act*.

AAC determinations should not be construed as limiting the Crown’s obligations under court decisions in any way, and in this respect it should be noted that AAC determinations do not prescribe a particular plan of harvesting activity within the management units. They are also independent of any decisions by the Minister of Forests, Lands, Natural Resource Operations and Rural Development with respect to subsequent allocation of wood supply.

These guiding principles focus on: responding to uncertainties; incorporating information related to First Nations’ rights, title and interests; and considering information related to integrated decision making, cumulative effects, and climate change.

#### Information uncertainty

Given the complex and dynamic nature of forest ecosystems coupled with changes in resource use patterns and social priorities there is always a degree of uncertainty in the information used in AAC determinations.

Two important ways of dealing with this uncertainty are:

- (i) managing risks by evaluating the significance of specific uncertainties associated with the current information and assessing the potential current and future social, economic, and environmental risks associated with a range of possible AACs; and,
- (ii) re-determining AACs regularly to ensure they incorporate current information and knowledge, and greater frequency in cases where projections of short-term timber supply are not stable and/or substantial changes in information and management are occurring.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, it is important to reflect those factors, as closely as possible, that are a reasonable extrapolation of current practices. It is not appropriate to base decisions on proposed or potential practices that could affect the timber supply but are not consistent with legislative requirements and not substantiated by demonstrated performance.

It is not appropriate to speculate on timber supply impacts that may eventually result from land-use designations not yet finalized by government. Where specific protected areas, conservancies, or similar areas have been designated by legislation or by order in council, these areas are deducted from the THLB and are not considered to contribute any harvestable volume to the timber supply in AAC determinations, although they may contribute indirectly by providing forest cover that helps meet resource management objectives such as biodiversity.

In some cases, even when government has made a formal land-use decision, it is not necessarily possible to fully analyse and immediately account for the consequent timber supply impacts in an AAC determination. Many government land-use decisions must be followed by detailed implementation decisions requiring, for instance, further detailed planning or legislated designations such as those provided for under the *Land Act* and FRPA. In cases where government has been clear about the manner in which it intends land-use decisions to be implemented, but the implementation details have yet to be finalized, I will consider information that is relevant to the decision in a manner that is appropriate to the circumstance. The requirement for regular AAC reviews will ensure that future determinations address ongoing plan implementation decisions.

Where appropriate, information will be considered regarding the types and extent of planned and implemented silviculture practices as well as relevant scientific, empirical and analytical evidence on the likely magnitude and timing of their timber supply effects.

I acknowledge the perspective that alternate strategies for dealing with information uncertainty may be to delay AAC determinations or to generally reduce AACs in the interest of caution. However, given that there will always be uncertainty in information, and due to the significant impacts that AAC determinations can have on communities, I believe that no responsible AAC determination can be made solely on the basis of a precautionary response to uncertainty with respect to a single value.

Nevertheless, in making a determination, allowances may need to be made to address risks that arise because of uncertainty by applying judgment as to how the available information is used. Where appropriate, the social and economic interests of the government, as articulated by the Minister of Forests, Lands, Natural Resource Operations and Rural Development, can assist in evaluating this uncertainty.

### First Nations

The BC government has committed to true, lasting reconciliation with Indigenous Peoples, including fully adopting and implementing the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP). The *Declaration on the Rights of Indigenous Peoples Act* of 2019 (the ‘*Declaration Act*’) commits the provincial government to aligning provincial laws with UNDRIP. Reconciliation and implementation of UNDRIP will likely require changes to policies, programs and legislation, which will take time and involve collaborative engagement with Indigenous Peoples. While this work is undertaken, BC is committed to fulfilling its legal obligations to consult and accommodate potential impacts to established and asserted Aboriginal rights, title and/or treaty rights (‘Aboriginal Interests’) consistent with the Constitution, case law, and relevant agreements between First Nations and the government of BC.

Where First Nations and the Province are engaged in collaborative land and resource planning, the Province may make commitments regarding stewardship and other aspects of resource management. Where such commitments have been made, I will consider them when determining AACs, within the scope of my statutory authority.

Where collaborative planning between First Nations and the Province is ongoing, there may be preliminary but not yet finalized and formalized land use zones or management objectives. As is the case for land use and management planning in general, it is beyond the statutory authority of the chief forester to speculate on final outcomes. If the timber supply implications of final designations are substantial, application of the Allowable Annual Cut Administration Regulation to reduce a management unit AAC between Section 8 determinations, or a new AAC determination prior to the legislated deadline may be warranted.

Where the nature, scope and geographic extent of Aboriginal rights and title have not been established, the Crown has a constitutional obligation to consult with First Nations regarding their Aboriginal Interests in a manner proportional to the strength of their Aboriginal Interests and the degree to which they may be affected by the decision. The Crown also has a constitutional obligation to consult with First Nations regarding their treaty rights. The manner of consultation must also be consistent with commitments made in any agreements between First Nations and the Province. In this regard, full consideration will be given to:

- (i) the information provided to First Nations to explain the timber supply review process and analysis results;
- (ii) any information brought forward through consultation or engagement processes or generated during collaboration with First Nations with respect to treaty rights or Aboriginal Interests, including how these rights or interests may be impacted;
- (iii) any operational plans and/or other information that describe how First Nations' treaty rights or Aboriginal Interests are addressed through specific actions and forest practices; and,
- (iv) existing relevant agreements and policies between First Nations and the BC Government.

Treaty rights or Aboriginal Interests that may be impacted by AAC decisions will be addressed consistent with the scope of authority granted to the chief forester under Section 8 of the *Forest Act*, and with consultation obligations defined in court decisions. When information is brought forward that is outside of the chief forester's scope of statutory authority, this information will be forwarded to the appropriate decision makers for their consideration. Specific considerations identified by First Nations in relation to their treaty rights or Aboriginal Interests that could have implications for the AAC determination are addressed in the various sections of this rationale where it is within the statutory scope of the determination.

The timber on established Aboriginal title lands (meaning Aboriginal title declared by a court or defined under an agreement with necessary federal and provincial implementation legislation), Treaty Settlement Lands or Indian Reserves, is no longer likely to be provincial Crown timber, depending on the particular circumstances. Consequently, if it is not provincial Crown timber, it does not contribute to the AAC of the timber supply area or tree farm licence overlapped by those lands. Prior to establishment of Aboriginal title, it is not appropriate for the chief forester to speculate on how potential establishment of Aboriginal title in an area could affect the AAC determination, given uncertainties about the scope, nature and geographic extent of title. Unless land has been established to be Aboriginal title land, Treaty Settlement Land or reserve land it remains as provincial land managed by the Province and will contribute to timber supply.

#### Integrated decision making and cumulative effects

One of the responsibilities of the Ministry is to plan the use of forest and range resources such that the various natural resource values are coordinated and integrated. In addressing the factors outlined in Section 8 of the *Forest Act*, I will consider relevant available information on timber and non-timber resources in the management unit, including information on the interactions among those resources and the implication for timber supply.

With respect to cumulative effects, I must interpret related information according to my statutory authority. As emphasized above, the chief forester is authorized only to make decisions on allowable harvest levels, not to change or institute new management regimes for which other statutory decision makers have specific authority. However, cumulative effects information can highlight important issues and uncertainties in need of resolution through land use planning, which I can note and pass to those responsible for such planning. Information on cumulative effect can also support considerations related to Aboriginal Interests.

#### Climate change

One key area of uncertainty relates to climate change. There is substantial scientific agreement that climate is changing and that the changes will affect forest ecosystems. Forest management practices will need to be adapted to the changes, and can contribute to climate change mitigation by promoting carbon uptake and storage. Nevertheless, the potential rate, amount, and specific characteristics of



climate change in different parts of the province are uncertain. This uncertainty means that it is not possible to confidently predict the specific, quantitative impacts on timber supply.

When determining AACs, I consider available information on climate trends, potential impacts to forest ecosystems and communities that depend on forests and related values, and potential management responses. As research provides more definitive information on climate change and its effects, I will incorporate the new information in future AAC determinations. Where forest practices are implemented to mitigate or adapt to the potential effects of climate change on forest resources, or where monitoring information indicates definite trends in forest growth and other dynamics, I will consider that information in my determinations.

I note, however, that even with better information on climate change, in many cases there will be a range of reasonable management responses. For example, it is not clear if either increases or decreases to current harvest levels would be appropriate in addressing potential future increases in natural disturbance due to climate change, which appear to be likely in some areas. Hypothetically, focused harvests in at-risk forests could forestall losses of timber and allow for planting of stands better adapted to future conditions. Conversely, lower harvest levels could provide buffers against uncertainty. The appropriate mix of timber supply management approaches is ultimately a social decision.

Deciding on the preferred management approach will involve consideration of established climate change strategies, and available adaptation and mitigation options together with social, economic, cultural, and environmental objectives. Analysis will be useful for exploring options and trade-offs. Any management decisions about the appropriate approach and associated practices will be incorporated into future AAC determinations. In general, the requirement for regular AAC reviews will allow for the incorporation of new information on climate change, on its effects on forests and timber supply, and on social decisions about appropriate responses as it emerges.

### **The role of the base case**

In considering the factors required under Section 8 of the *Forest Act* to be addressed in AAC determinations, I am assisted by timber supply forecasts provided to me through the work of the Timber Supply Review (TSR) program for TSAs and TFLs.

For most AAC determinations, a timber supply analysis is carried out using an information package including data and information from three categories: land base inventory, timber growth and yield, and management practices. Using this set of data and a computer simulation model, a series of timber supply forecasts can be produced, reflecting different starting harvest levels, rates of decline or increase, and potential trade-offs between short and long-term harvest levels.

From a range of possible harvest projections, one is chosen in which an attempt is made to avoid both excessive changes from decade to decade and significant timber shortages in the future, while ensuring the long-term productivity of forest lands. This is known as the “base case” and it forms the basis for comparison when assessing the effects of uncertainty on timber supply. The base case is designed to reflect current management practices.

Because the base case represents only one in a number of theoretical projections, and because it incorporates information about which there may be some uncertainty, the base case is not an AAC recommendation. Rather, it is one possible forecast of timber supply, whose validity – as with all the other forecasts provided - depends on the validity of the data and assumptions incorporated into the computer simulation used to generate it.

Therefore, much of what follows in the considerations outlined below is an examination of the degree to which all the assumptions made in generating the base case forecast are realistic and current, and the degree to which any adjustments to its projections of timber supply must be made, if necessary, to more properly reflect the current situation.

These adjustments are made on the basis of informed judgment using currently available information about forest management, and that information may well have changed since the original information package was assembled. Forest management data are particularly subject to change during periods of legislative or regulatory change, or during the implementation of new policies, procedures, guidelines or plans.

Thus, in reviewing the considerations that lead to the AAC determination, it is important to remember that the AAC determination itself is not simply a calculation. Even though the timber supply analysis I am provided is integral to those considerations, the AAC determination is a synthesis of judgment and analysis in which numerous risks and uncertainties are weighed. Depending upon the outcome of these considerations, the AAC determined may, or may not, coincide with the base case. Judgments that in part may be based on uncertain information are essentially qualitative in nature and, as such, are subject to an element of risk. Consequently, once an AAC has been determined, no additional precision or validation would be gained by attempting a computer analysis of the combined considerations.

### **Base case for TFL 33**

The timber supply analysis used for this determination, was prepared for the licence holder, Canoe Forest Products Ltd., by Forsite Consultants Ltd. using the modelling software Patchworks™ which has been approved by FAIB for use in timber supply reviews. Patchworks is a spatially explicit forest estate model used to project timber harvesting activities following current management practices including objectives for non-timber values such as biodiversity, wildlife habitat, cultural heritage resources (CHR), recreation and visual quality. Based on the review by FAIB, as well as my own experience reviewing results from similar models, I am satisfied that Patchworks is capable of providing an appropriate projection of timber supply.

The main harvest flow objective for the base case was to balance current and future harvest rates by:

- avoiding large or abrupt disruptions in timber supply during transitions from short- to mid- to long-term periods (generally increases and decreases in steps of 10 percent per 10-year period);
- achieving a stable long-term harvest level over a planning horizon of 300 years; and,
- ensuring a non-declining growing stock on the THLB during the last 100 years of the planning horizon.

The inventory used in the base case was updated for depletions and the volumes were projected to January 1, 2020. The base case begins on January 1, 2020, and the harvest levels are reported in 10-year increments for 300 years.

In the base case, there is an initial harvest level of 23 160 cubic metres per year, which is 2160 cubic metres per year, or 9.3 percent, higher than the current AAC of 21 000 cubic metres. The initial level is maintained for 30 years, followed by an increase to 29 680 cubic metres per year. The long-term harvest level of 38 490 cubic metres per year is achieved in the seventh decade.

In addition to the base case, two alternative harvest flows were provided by the licensee. These alternative flows examine trade-offs between short-, mid- and long-term harvest levels.

The AAC for TFL 33 in place prior to this determination was set in 2011 and the decision was supported by a timber supply analysis completed in 1999. Notable changes in the timber supply analysis submitted for this determination include:

- the current analysis projects higher short-term, mid-term, and long-term harvest levels;
- LiDAR was used to update the forest inventory; and,
- a site index adjustment (SIA) project was completed.

In my determination I have also considered several sensitivity analyses. Sensitivity analyses examine how changes in the base case assumptions affect timber supply. These analyses have been helpful as I made specific considerations and reasoning in my determination as documented in the following sections. I am satisfied that the base case, and the other analyses as noted and described, represent the best information available with respect to the current projection in this TFL, and are a suitable reference for my consideration in this determination.

### **Consideration of factors as required by Section 8(8) of the *Forest Act***

I have reviewed the information for all the factors required to be considered under Section 8 of the *Forest Act*. Where I have concluded that the modelling of a factor in the base case is a reasonable reflection of current legal requirements, demonstrated forest management and the best available information, and uncertainties about the factor have little influence on the timber supply projected in the base case, no discussion is included in this rationale. These factors are listed in Table 1.

For other factors, where more uncertainty exists or where public or First Nations' input indicates contention regarding the information used, modelling, or some other aspect under consideration, this rationale incorporates an explanation of how I considered the essential issues raised and the reasoning that led to my conclusions.

Table 1. List of factors accepted as modelled

<b>Forest Act section and description</b>	<b>Factors accepted as modelled</b>
8(8)(a)(i) the composition of the forest and its expected rate of growth on the area	<ul style="list-style-type: none"> <li>• Non-forest Areas</li> <li>• Roads, Trails and Landings</li> <li>• Mountain Caribou Ungulate Winter Range</li> <li>• Queest Mountain Snowmobile Trail</li> <li>• Inoperable or Inaccessible Areas</li> <li>• Terrain Stability</li> <li>• Riparian Reserve and Management Zones for Riparian Areas</li> <li>• Non-merchantable Forest Types</li> <li>• Old Growth Management Areas</li> <li>• Wildlife Tree Retention Areas</li> <li>• Age Class Structure and Species Profile</li> <li>• Volume Estimates for Managed Stands</li> <li>• Operational Adjustment Factors for Managed Stands</li> </ul>
8 (8) (a) (ii) the expected time that it will take the forest to become re-established on the area following denudation	<ul style="list-style-type: none"> <li>• Genetic Gain</li> <li>• Backlog and Current Not Satisfactorily Restocked Areas</li> </ul>
8 (8) (a) (iii) silvicultural treatments to be applied to the area	<ul style="list-style-type: none"> <li>• Silviculture Systems</li> </ul>
8(8)(a)(iv) the standard of timber utilization and the allowance for decay, waste, and breakage expected to be applied with respect to timber harvesting on the area	<ul style="list-style-type: none"> <li>• Decay, Waste and Breakage for Natural Stands</li> <li>• Deciduous Volume</li> <li>• Cutblock Size</li> <li>• Minimum Harvestable Criteria</li> <li>• Higher Level Plans</li> <li>• Stand-level Biodiversity</li> <li>• Visual Quality Objectives</li> <li>• Mountain Caribou Ungulate Winter Range</li> <li>• Recreation Sites, Trails and Interpretive Sites</li> <li>• Shuswap Lake Lakeshore Management Zone</li> <li>• Tourism Area</li> <li>• Cutblock Adjacency and Maximum Cutblock Size</li> </ul>
8(8)(d) Economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia	<ul style="list-style-type: none"> <li>• Reference to Minister's Letter</li> <li>• Summary of Public Engagement</li> </ul>
(8)(e) Any other information that, in the Chief Forester's opinion, relates to the capability fo the area to produce timber	<ul style="list-style-type: none"> <li>• Non-recoverable Losses</li> </ul>

**Forest Act Section 8 (8)**

**In determining an allowable annual cut under this section the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider**

**(a) the rate of timber production that may be sustained on the area, taking into account**

**(i) the composition of the forest and its expected rate of growth on the area**

Land base contributing to timber harvesting

*-general comments*

The THLB is an estimate of the land where timber harvesting is considered both available and economically feasible, given the objectives for all relevant forest values, existing timber quality, market values and applicable technology. It is a strategic level estimate developed specifically for the timber supply analysis and, as such, could include some areas that may never be harvested or could exclude some areas that may be harvested.

The total area of TFL 33 is 8396 hectares. Of this total area, 6712 hectares are deemed to be currently available as THLB after deductions are applied for the factors noted above in Table 1 and in factors discussed below.

As part of the process used to define the THLB, a series of deductions were made from the forest management land base to account for various land classes that do not contribute to the TFL timber supply (e.g., non-forest areas, uneconomic areas). These deductions account for biophysical, economic or ecological factors that reduce the forested area available for harvesting. In reviewing these deductions, I am aware that some areas may fall into more than one land class. For example, an area may be both uneconomic and in unstable terrain. To ensure accuracy in defining the THLB care was taken to avoid double-counting areas with overlapping objectives. Hence, the deduction amount for a given factor stated in the analysis or in this document does not necessarily reflect the total area within that land class, as some portion of it may have been deducted earlier under another land class.

The licence holder considers the TFL to be fully operable and accessible and uses conventional ground-based, hoe chuck and cable systems to harvest timber. Information provided to me from the *Provincial Timber Management Goals, Objectives & Targets, Management Unit Targets – TFL 33 Sicamous* report shows that, for the past five years (2015-2019), harvesting has been appropriately distributed across the geographic profile of the TFL.

For this determination, I accept that the approach used to determine the THLB for the TFL 33 base case was appropriate.

As noted under ‘*Role and limitations of the technical information used*’, several of the factors considered influence the size of the THLB. Where I have concluded that there was an overestimate or underestimate in the land base available for harvesting, I have described my reasoning and conclusion in the sections below.

*-forest inventory*

The previous inventory was completed in 1977 and it was periodically updated to account for changes due to harvest, forest disturbance, growth, and silviculture practices. In 2019, Canoe Forest Products Ltd. conducted a LiDAR-enhanced forest inventory (LEFI) for the entire TFL. The LEFI was produced using aerial imagery, LiDAR data, spatial harvesting and silviculture records.

Volume estimates were generated using the Variable Density Yield Projection (VDYP) model with inputs from the updated inventory and the results were compared to both the previous inventory volume estimates and timber cruise data. This comparison showed that the volumes projected in the

new inventory more closely matched the volumes in the cruise data than those from the previous inventory. Although the use of timber cruise data provides valuable information, it tends to be biased to reflect conditions in developed areas of the TFL where cruising occurs prior to harvesting. The conditions in undeveloped areas may be different so the cruise data may not be representative of the entire TFL. The inventory is intended to capture vegetation attributes for the entire management unit; therefore, it is important that the sampling used to assess inventory accuracy be representative and unbiased.

I accept the improved inventory is more likely to represent the current volumes better than the previous inventory projected forward since 1977. However, for the next TSR, I would like a ground sampling program established following provincial standards that will provide an unbiased audit of the improved inventory as noted under '**Implementation**'.

*-site productivity*

Site productivity reflects biophysical and climatic site factors such as soil characteristics and precipitation that affect tree growth. Site index is a measure of forest productivity based on the relationship between a tree height and age. In British Columbia the site index is expressed as the height at age 50.

Prior to the analysis, the licence holder compared the site index estimates produced from three different approaches: a site index adjustment (SIA) study completed in 2003, a Change Monitoring Inventory (CMI) program implemented within the TFL between 2005 and 2006, and the improved inventory site index produced using LiDAR-generated heights as the estimated stand top-height. The comparisons showed that the overall area-weighted average site index from the SIA was reasonably close to the area-weighted average site index from the improved inventory. It was also noted that the height generated by TIPSYS using the SIA site index estimates were close but generally less than the heights obtained from LiDAR. Based on these comparisons, the licence holder concluded that the site index estimates for managed stands generated using the SIA provided a good approximation of the expected growth potential and used these estimates in the base case.

During the summer of 2020, the CMI ground plots were remeasured and the results suggested a substantial reduction in site index compared to the SIA study. The licence holder then produced new TIPSYS yield projections for managed stands to reflect the updated CMI site index estimates and conducted a sensitivity analysis. This sensitivity analysis showed reductions relative to the base case of 0.2 percent, 18.6 percent and 23.3 percent in the short-, mid- and long-term harvest levels, respectively.

The stands selected for sampling in the SIA project were typically very young and the height measurements were projected to an estimated height at 50 years old to derive a site index value. The CMI project initially sampled older stands in 2005/2006 and now, as the plots are remeasured in 2020, the stands would be even closer to 50 years of age. FAIB growth and yield staff expressed greater confidence in the most recent site index estimates since a shorter projection is required to estimate the height at 50 years old in order to derive a site index value. However, when the ground-measured volumes in the CMI plot data were compared with the volumes estimated using the revised TIPSYS yield projections for the corresponding stands, it was found that the TIPSYS estimated volumes were significantly lower than the ground measured volumes. The same comparison using the original base case TIPSYS yield projections found no significant differences between the volumes.

Based on my review of this information and discussions with FAIB, I find there are incongruities in the information presented to me and uncertainties in the site index assumptions used in the base case. The sensitivity analysis demonstrated that changes to the site index assumptions have limited

influence on timber supply in the short term, so I will not make adjustment to account for this factor at this time. I will discuss this further ‘**Reasons for Decision**’.

I commend the work done by the licence holder to monitor young stands and the depth and thoroughness of the site index information provided to me. In preparation for the next AAC determination, I expect the licence holder and FAIB to work together to better understand the relationship between the volume measured in sample plots and volume estimated by TIPSY projections, and to clarify the circumstances that resulted in the significant revisions to site index. Additionally, for the next AAC determination I expect the CMI program to be continued or expanded in order to provide improved estimates of site index as noted under ‘**Implementation**’.

**Section 8 (8) (a) (ii) the expected time that it will take the forest to become re-established on the area following denudation**

**8 (8) (a) (iii) silvicultural treatments to be applied to the area**

*-regeneration assumptions*

Forest regeneration is the renewing of tree cover either naturally or artificially. In British Columbia, stands that were harvested prior to 1987 (i.e., stands older than 33 years of age) are generally considered unmanaged and projected using VDYP because regeneration practices were inconsistent before basic silviculture obligations were imposed. For TFL 33, the licence holder has silviculture records that show planting has occurred within the ICH since 1972 and in the ESSF since 1983. Therefore, all stands established since these dates were considered managed and projected using TIPSY in the base case.

While I agree that the assumptions reflect past and current practices, I note that the transition from the current harvest level to a higher mid-term harvest level projected in the base case is largely dependent on the volume contribution from stands harvested prior to 1987. I also note that in other management units, the volume from these stands is usually projected using VDYP which results in yields that are lower than those projected by TIPSY.

Having reviewed the information, I conclude that the regeneration assumptions used in base case are reasonable and I accept them as modelled.

**Section 8 (8) (iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area**

Integrated resource management objectives

*-timber utilization*

Utilization levels define the portion of the tree that is merchantable, and this information is used to generate growth and yield information for managed and natural volume assignment. The base case appropriately reflects the merchantability specifications that are used in current practice. However, I would like to encourage the licence holder to utilize as much wood fibre as possible in alignment with the provincial Forest Carbon Initiative. Currently, logging residue is left on site or burned to reduce the risk of wildfires and provide space for regeneration. Instead, the residue could be used for bioenergy, pulp or wood composite which could result in significant greenhouse gas reduction benefits by storing carbon in wood products or offsetting the use of fossil fuels.

*-dead potential volume*

In April 2006 new log grades were implemented for BC's Interior. Under the previous grade system, a log was scaled according to whether the tree it came from was alive or dead at the time of harvest, and logs from dead trees were not charged to the AAC. Under the current grading system, grades are based on the size and quality of the logs at the time they are scaled without regard to whether they were alive or dead when harvested. It is now possible for dead volume to contribute to the AAC under cut control calculations.

The base case did not account for the increased timber volume due to the log grade change since the inventory and yield projections only account for live volume. To estimate the amount of dead potential volume, the FAIB report *Summary of dead potential volume estimates for managed units within the Northern and Southern Interior Forests Region* was used. This report summarizes sample data that indicates that the dead potential volume for TFL 33 could be in the range of 6.6 percent of the live volume for the forested land base over 60 years of age.

In considering the underestimation associated with dead potential volume, I am cognizant that the estimate of dead potential volume represents the maximum amount of dead volume available for harvest but does not consider the actual utilization of this volume. Since I have not been provided with evidence of significant utilization of dead volume in TFL 33, I will be cautious regarding my expectation about how much dead volume will contribute to the AAC. In addition, I am mindful that dead trees provide important habitat attributes for many species of wildlife. I will discuss this further in 'Reasons for Decision'.

*-grade four credits*

The Cut Control Regulation allows licence holders to adjust downward the volume harvested in the cut control of their license by 100 percent for grade 4 volume delivered to a non-sawlog facility. The intention of this regulation is to encourage the licence holder to use low quality logs. I note that grade 4 volume is being harvested from TFL 33, however, the licence holder has not applied for any credits. As no consideration of the use of grade 4 credit was assumed in the base case, I would like to ensure that any future use of this credit does not negatively impact the mid-term timber supply or other ecosystem values. Therefore, I expect Ministry staff to monitor the use of grade 4 cut control credits and report concerns to the chief forester.

**Section 8 (8) (a) (v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production**

*-landscape-level biodiversity*

Landscape-level diversity is defined by the *Forest and Range Act (FRPA)* as "the biodiversity of plants, animals and other living organisms in all their forms and levels of organization, including the biological diversity of genes species and ecosystems". Landscape-level diversity is managed by maintaining forests with a variety of patch sizes and seral stages across a variety of ecosystems and landscapes. Given other forest management objectives that support a diversity of forest stand conditions, old-forest retention is a key landscape-level biodiversity consideration and is a requirement under FRPA.

TFL 33 follows the 2004 *Order Establishing Provincial Non-Spatial Old Growth Objectives* (NSOGO) which specifies the minimum old growth retention requirements by both landscape unit and BEC zones. As outlined in the *Order*, "old forest retention *may be reduced* by up to two-thirds in landscape units with low biodiversity emphasis landscape units to the extent necessary to address timber supply impacts." This drawdown was applied in the base case as the TFL is within a low biodiversity emphasis landscape unit. I find that in TFL 33 the application of the two-third drawdown



of old-seral objectives and associated long-term recruitment strategy was applied when targets could be met earlier especially in the ICHmw2 and ICHmw3.

Further, every effort should be made by the licence holder to recruit from stands that are coming of age to meet these requirements when there are landscape-level deficits. Harvesting activities in stands that would otherwise support old growth retention should be avoided. Additionally, the licence holder needs to be aware of recent changes to BEC zones, and to recruit for old growth management area networks, as well as to develop a more complete spatially explicit recruitment strategy to eventually meet full old seral objectives.

*-mule deer*

Ungulate winter ranges (UWR) and associated general wildlife measures (GWM) are established under the Government Actions Regulation (GAR) to provide necessary habitat and measures to meet the winter habitat requirements for specified ungulate species. A mule deer UWR has been established within TFL 33 with GWM that specify the snow interception cover (SIC) retention requirements by winter range planning cell. In the base case, all Douglas-fir leading stands older than 100 years of age were considered to provide SIC attributes.

The snow interception cover requirements modelled in the base case for each of the four planning cells that overlap with TFL 33 were determined by pro-rating the requirement specified in the GWM for the entire planning cell by the proportion that is within the TFL. Initially, two planning cells do not meet the modelled SIC requirements, and the SIC deficit is approximately 120 hectares.

While the information presented to me indicates that the SIC requirements are met over the period projected in the base case, I note that base case is initiated with two planning cells not meeting the SIC requirements. I accept the modelling assumptions reflect current management practices, however, given the need to recruit old growth and manage for wildlife, I would like to see a GAR recruitment plan developed and implemented by the licence holder to reach and maintain the SIC requirements, as noted under **'Implementation'**.

*-wildlife: marten and fisher*

Marten and fisher are keystone species that rely on mature and old coniferous- and mixed-forests for survival. In BC, fisher is a red-listed species, meaning that it is at risk of being extirpated, endangered, or is threatened and marten is blue-listed, meaning it is sensitive to human activities. The *Order Establishing Objectives in Okanagan-Shuswap LRMP Area* (2007) stipulates that forage, cover and connectivity for both species must be maintained and these habitat features can be found within TFL 33. As the stipulation can be met operationally through landscape- and stand-level retention, including coarse woody debris, no specific modelling assumptions were applied in the base case.

While I accept the licence holder's rationale for not including specific constraints for these species in the base case, I note that there has been a decline of marten and fisher populations in mountain pine beetle disturbed forests due to the loss of nesting, foraging, and concealment habitat provided by mature forests. I encourage the licence holder to give consideration to the habitat requirements for marten and fisher and to take steps to ensure the longevity of the species where appropriate.

*-cultural heritage resources*

A cultural heritage resource (CHR) is defined in the *Forest Act* as "an object, site or location of a traditional societal practice that is of historical, cultural, or archeological significance to the province, community, or an aboriginal people". CHRs include, but are not limited to, archeological sites, structural features, heritage landscape features, important harvest areas and traditional use sites.

To identify and protect cultural heritage sites and First Nations values, the licence holder refers all proposed development to potentially affected First Nations and field reconnaissance surveys are conducted by First Nations crews in these areas. Based on this collaboration, no sites of interest have been identified to date. For this reason, no area reductions were applied in the base case for cultural heritage resources.

I accept that CHR were appropriately addressed in the base case. Should sites be identified in the future, including any new findings or recommendations by government, that result in significant new areas of protection, I may revisit the AAC determination for TFL 33 prior to the 10-year deadline provided for in legislation.

*-Marble Point Properties*

Marble Point Properties are housing developments adjacent to TFL 33 and located near the Marble Point site of Shuswap Lake Marine Park. Over the years, property owners have expressed operational concerns over terrain stability, old growth management areas, water intake and riparian reserves. In response, the licence holder identified the area above Marble Point in the base case and restricted the harvest level there to no more than three hectares per year. This requirement was achieved throughout the projection with many years where the harvest was well below this level. I would like to commend the licence holder for addressing the public concerns near Marble Point and I am satisfied that the modelling assumptions reflect the management practice in the TFL.

**Section 8 (8) (a) (vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber**

Other information

*-accumulated volume*

In January 2018 the Ministry introduced a *Policy Regarding the Administration of Unharvested Volumes, Uncommitted Volumes and Unused BCTS Volumes* (collectively referred to as accumulated volume). The policy sets out process steps that should be followed to determine the unharvested volume that may be made available in the next AAC determination period (i.e., after a Section 8 determination is made), including consideration by the chief forester of the amount of unharvested volume when determining the AAC for the management unit.

For TFL 33, Regional Forest Tenure staff indicates that there is an accumulated volume of 42 760 cubic metres. This volume has accumulated over a number of cut control periods and, at the time of this determination, a disposition plan is under development for this unit.

The base case is predicated on the condition of the forest, including the amount of merchantable timber growing stock present as of the date on the timber supply analysis. This growing stock was not depleted to account for potential harvesting of the accumulated volume through disposition to new licences. From this, I conclude that if accumulated volume is made available for disposition, the growing stock supporting the base case would be diminished and the initial harvest level may no longer be sustainable depending on the location of harvest, the conservation of old growth stands, and the imperative to recruit stands to support old growth objectives. I will discuss this factor further in 'Reasons for Decision'.

*-natural disturbance modelling*

Natural forest disturbances, such as insect outbreak or wildfires, are discrete events that alter ecological communities, the pattern of forest succession across the landscape and the structure of vegetation within stands. For the central Interior there has been a recent increase in the frequency of wildfires and bark beetle infestations.

The base case accounted for the volume of mature timber lost each year due to periodic natural disturbances that cannot be salvaged based on aerial overview survey data and mapped fire perimeters. These modelled non-recoverable losses address natural disturbances occurring within the THLB but do not account for disturbance outside of the THLB. I note this can have a potential impact to other land base management requirements such as the retention of old-seral forest. In consideration of my request for a UWR recruitment plan, it would be insightful to see disturbance regimes modelled to account for the periodic changes to the landscape that are outside of the THLB to validate that UWR and other management requirements can be achieved in the base case. For the next AAC determination I would like to see this information provided for TFL 33 as noted under **'Implementation'**.

*-climate change*

Climate change is projected to impact forest ecosystems in a number of ways including a general increase in temperature, change in precipitation patterns, and an increase in the frequency and severity of disturbances including wildfires, floods, landslides, and occurrences of insects and disease above endemic levels. While trends are consistent, the specific magnitude of these changes, and their spatial and temporal distributions, are uncertain.

TFL 33 lies primarily in the Interior Cedar Hemlock (ICH), Engelmann Spruce Sub-alpine Fir (ESSF) and BEC zones. In general, the ICH and ESSF are expected to shift upward in elevation, while their range shifts northward. The ICH area is projected to increase, while the ESSF area is expected to decrease in the mid term.

There is significant uncertainty with the short- and long-term impacts from climate change. Continued dialogue with federal and provincial agencies, First Nations, universities and forest licensees is important to deepen the understanding of climate change impact and develop appropriate climate change mitigation and adaptation strategies.

While projected climate change will likely affect forest productivity and growth, the dynamics of natural disturbances, forest pests and hydrological balances mean the magnitude, extent and timing of impacts are uncertain. It is likely that the best approach in the short term is to monitor for changes to enable timely adaptive responses and to undertake analysis to increase our understanding over time.

For the next timber supply review, I encourage the licence holder to ensure they are following the seed planning guidelines for regeneration silviculture and to consider biogeoclimatic changes to ensure adaptation of reforestation stock has best results. I also suggest that the licence holder conduct a climate change risk vulnerability assessment that would take natural disturbance into consideration for their operations and build a climate change mitigation plan accordingly.

*-First Nations consideration and consultation*

The Crown maintains a duty to consult and accommodate, as necessary, those First Nations for whom it has knowledge of claimed Aboriginal Interests that may be impacted by a proposed decision, including strategic-level decisions such as AAC determinations. The AAC determination is a strategic decision that sets the stage for other decisions such as AAC apportionment and disposition, leading to issuance of cutting authorities. AAC determinations do not determine particular harvesting

areas or patterns, and as a result do not relate directly to the manner in which timber is utilized or managed on the ground.

The AAC considers the sustainable harvest level from a geographic area, which may include lands claimed as Aboriginal title lands but not yet declared by a court to be such. While under claim, such lands remain Crown lands and are part of the harvestable land base. Whether timber is ultimately harvested from those lands is an issue that is subject to allocation decisions, and the AAC determination does not determine allocation. However, the timber harvesting authorized through the AAC may affect various resource values and therefore the ability of Aboriginal Peoples to meaningfully exercise their Aboriginal rights. Information gained through consultation with potentially affected First Nation communities about their Aboriginal Interests has been considered in the development of this AAC determination.

TFL 33 overlaps the territories of four Secwépemc communities of the Shuswap Lakes Division (the Pespesellkwe te Secwépemc). For this AAC determination, engagement with the Secwépemc, Adams Lake Indian Band, Little Shuswap Lake Band, Neskonlith Indian Band, and Splatsin was done in accordance with the Forest Consultation and Revenue Sharing agreements signed by each First Nation. Additionally, consultations were undertaken with the Qualminte Secwépemc following the information sharing agreement with the licence holder.

First Nations engagement processes and accommodation for the impacts that forestry decisions may have on Aboriginal Interests may be components of Government-to-Government agreements. For the TFL 33 AAC determination, engagement with Adams Lake Band, Little Shuswap Lake Band, Neskonlith Indian Band and Splatsin was conducted in accordance with the Forest Consultation and Revenue Sharing Agreement (FCRSA) signed by each Nation.

The Okanagan-Shuswap Natural Resource District First Nations Relations and Stewardship department staff led the consultation process for the *TFL 33 Draft Management Plan* and the Timber Supply Review supporting this AAC determination. Preliminary consultations with First Nations started on October 29, 2019. All potentially affected First Nations were sent engagement letters, which included an overview of the process and timeline. On February 28, 2020, a copy of the draft *Information Package* was sent to the First Nations for the first phase of consultation for a period of 60 days.

The second 60-days consultation phase began on September 17, 2020. The consultation was extended to 74 days due to the Covid-19 pandemic. An additional 30-day extension was provided to Adams Lake Indian Band following the reception of initial input by district staff. Draft Management Plan letters and copies of the TFL 33 spatial boundary were sent to all the identified First Nations. The Province engaged with First Nations through socially distanced communications during both referral phases and the consultation period was extended beyond the initial 60-day period.

*- Little Shuswap Lake Band*

Following the preliminary consultation on October 29, 2019, the licence holder met with the Little Shuswap Lake Band to present an overview of the timber supply review process. Following this meeting, Little Shuswap Lake Band submitted a letter to the District about operational concerns and requested preliminary field reviews to be completed prior to harvest.

During the first referral stage the Little Shuswap Lake Band conveyed concerns on the protection of cultural heritage resources within the TFL area and re-asserted their request to be involved in field assessments. District staff shared these responses with Canoe Forest Products Ltd. as they rely on First Nations crew for CHR reconnaissance surveys.

*- Adams Lake Indian Band*

During the first referral stage, on April 1, 2020, Adams Lake Indian Band requested a shapefile for TFL 33 which was provided by district staff.

During the second referral stage, Adams Lake Indian Band expressed concerns about the potential overlap of traditional use sites, traditional trails, archeological sites, and intersecting Cariboo zones. They requested a meeting with Pespesellkwe to develop a consultation plan. In December 2020, district staff responded to Adams Lake Indian Band to inquire about their concerns. After the referral period closed January 4, 2021, follow-up emails and telephone calls from district staff occurred in January and February but no further responses were received.

*- Neskonlith*

On March 6, 2020, the Neskonlith requested, and received, a spatial boundary for TFL 33. No further comments or communications were received.

*- Splatsin*

On December 2, Splatsin requested a referral extension, and on December 4 the second referral phase was extended an additional 30 days. Further email and telephone follow-up from district staff occurred until the referral period closed January 4, 2021. No concerns or additional comments were received by the District.

Ministry staff believe any adverse impacts on Aboriginal Interests stemming from forest development activities that occur subsequent to the AAC determination can be appropriately mitigated or minimized through existing legislation, planning documents, and meaningful engagement at the operational level. I agree with this conclusion and I encourage the Ministry, District, and licence holder to work collaboratively with Adams Lake Indian Band on cultural heritage sites within the TFL to reduce the potential impact on their Aboriginal Interests.

In reviewing the First Nations consultation process with district staff, I conclude that the First Nations whose territories overlap TFL 33 were consulted in accordance with current provincial guidance and applicable case law. I am satisfied that consultations have been carried out in good faith and the Crown's process of seeking to understand potentially outstanding issues and impacts was reasonable.

**Section 8 (8) (b) the short and long-term implications to British Columbia of alternative rates of timber harvesting from the area**

Alternative rates of harvesting

*- alternative harvest projections*

In addition to the base case, two alternative rate of harvest scenarios were developed. The first scenario is based on achieving the highest possible initial harvest rate without compromising the mid- or long-term harvest level. This scenario maintains an initial harvest level of 28 190 cubic metres per year for 70 years, which is 22 percent higher than the base case. However, this harvest level is maintained for 70 years rather than 50 years and the transition to the base case long-term harvest is delayed by 20 years. Although a higher initial harvest level is possible under this scenario, the licence holder did not select it as the base case because it did not allow for a transition step to a higher mid-term harvest level and this harvest level would not provide the same level of operational flexibility.

In the second scenario, the base case harvest level is maintained for 55 years rather than 30 years and the long-term harvest level is achieved 15 years sooner. The key difference with the base case is that there is no mid-term transition step before the base case long-term harvest level is achieved.

Having reviewed this information, I am supportive of the work the licence holder has completed regarding alternative harvest rates and I accept the reasoning used by the licence holder in selecting the base case. I will discuss this further in my ‘**Reasons for Decision**’.

**Section 8 (8) (c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities**

This section of the *Forest Act* has been repealed [2003-31-2 (B.C. Reg. 401/2003)]

**Section 8 (8) (d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia**

Economic and social objectives

- *Minister’s letter*

The Minister of Forests, Lands, Natural Resource Operations and Rural Development (and the former Minister of Forests, Lands and Natural Resource Operations) have expressed the economic and social objectives of the Crown for the Province, in letters dated October 30, 2017, and April 12, 2013. The April 12, 2013 letter is focused on the Nanwakolas Reconciliation Protocol that does not apply to TFL 33.

In the letter dated October 30, 2017 (Appendix 3), the Minister emphasizes the BC government’s commitment to building a strong, sustainable innovative economy and creating well-paid jobs in the Province. The letter identifies government’s three objectives for the management of BC’s forests and Crown lands that are relevant to AAC determinations. These are:

- modernizing land-use planning to effectively and sustainably manage BC’s ecosystems, rivers, lakes, watersheds, forests and old growth forests;
- expanding investments in reforestation; and,
- collaborating to develop strategies to manage wildlife resources and habitat.

The October 30, 2017 letter also asks the chief forester to do the following when making an AAC determination:

- ensure that the Ministry’s approved strategies for delivering its forestry objectives are integrated into the timber supply review process;
- ensure AAC determinations take into consideration relevant agreements between First Nations and the Government of BC, and court decisions that define Aboriginal title and rights; and in addition, support government’s commitment to moving forward on reviewing policies, programs and legislation to determine how to bring the principles of the *United Nations Declaration on the Rights of Indigenous Peoples* into action for AAC determinations;
- consider traditional knowledge and other input from BC First Nation communities and organizations as they pertain to the AAC determination;
- consider how AAC determinations can support government’s objective to focus on planning and sustainable resource management in a way that supports robust forest recovery and timely and effective responses to emerging threats from factors such as insect infestations and wildfire while promoting forest health and values;
- ensure the timber supply review process incorporates the best available information on climate change and the cumulative effects of multiple activities on the land base and explores

management options that align with established climate change strategies, adaptation and mitigation practices;

- where the cumulative effects of timber harvesting and other land-based activities indicate a risk to natural resource values, ensure the timber supply review identifies those risks for consideration in land use planning;
- consider the environmental, social and economic needs of local communities as expressed by the public during the timber supply review processes, including strategies that contribute to community economic stability, and the jobs that the forest sector creates in communities, where these are consistent with government’s broader objectives; and,
- when faced with necessary reductions in AACs, that those reductions be no larger than necessary to avoid significant longer-term impacts.

During my consideration of the factors required under Section 8 of the *Forest Act*, I have been mindful of the Section 8 (8) (d) objectives articulated in the Minister’s October 30, 2017 letter. I have reviewed the District’s consultation process with First Nations, and the public review process and am satisfied that they were appropriately conducted. I have considered the feedback received in the applicable factors in this determination. I have addressed the considerations noted above that the Minister has asked to take into account such as climate change and cumulative effects. On this basis, I am satisfied that this determination accords with the objectives of government as expressed by the Minister.

## Reasons for Decision

In reaching my AAC determination for TFL 33, I have considered all the factors required under Section 8 of the *Forest Act* and I have reasoned as follows.

The base case shows that an initial harvest level of 23 160 cubic metres per year can be maintained for 30 years before stepping up to 29 680 cubic metres per year for the next 40 years. The long-term harvest level of 38 490 cubic metres per year is achieved by the seventh decade of the 300-years harvest projection.

I am satisfied that the assumptions applied in the base case for most of the factors applicable to TFL 33 were appropriate, including those detailed in Table 1 or as described in my considerations described previously in this rationale. However, I have identified some factors, which, considered separately, indicate that the timber supply may be either greater or less than projected in the base case. Some of these factors can be readily quantified and their impact on harvest projections assessed with reliability.

I have identified the following factor that indicates a potential underestimation of timber supply projected in the base case:

- *Dead potential volume* - stand yield projections used in the base case did not account for dead potential volume, which was estimated to be up to 6.6 percent of the mature live volume in the forested land base.

I have identified the following factor that indicates a potential overestimation in the base case timber supply:

- *Unharvested volume* - a total of 42 760 cubic metres of accumulated volume is available for disposition to new licences within the TFL at the direction of Regional Executive Director which would deplete the growing stock supporting the base case.

I have identified the following factor that indicates uncertainty in the base case timber supply:

- *Site productivity estimates* - recent ground sample data suggest that a previous site index adjustment project significantly overestimated site productivity, however additional analysis based on the new sample data showed incongruous results.

In aggregate these factors suggest that the base case may be underestimated in the short term and overestimated in the mid- and long-term.

Considering the underestimation of timber supply that may result from not including dead potential volume in the base case, I am mindful of uncertainty regarding the utilization of this volume. The estimate of the dead potential inventory represents the maximum amount of useable dead timber but does not consider how much of this volume is actually utilized. Lacking evidence of significant utilization of dead volume in TFL 33, I will not make an adjustment to the base case for this factor. However, I do recognize that the short-term timber supply may be slightly more robust than projected in the base case for this reason.

In considering the uncertainty in the base case associated with site productivity estimates, I have considered the projected transition of the timber supply from existing natural stands to managed stands and how this transition affects mid- and long-term harvest levels. I have reasoned that this uncertainty will have little impact on the harvest level projected in the short term.

I acknowledge that a sum of 42 790 cubic metres has accumulated from unharvested volume, uncommitted or unused BCTS volume and it is available for disposition to new licences within the TFL. I recognize a higher alternative rate of timber harvesting is possible in the short term albeit with a reduced mid-term harvest level. I note that if the accumulated volume is issued to new licences, there may be a risk to the sustainability of the AAC I set depending on the location of harvest, the conservation of old-growth stands, and the imperative to recruit stands to support old-seral biodiversity objectives.

In considering the higher short-term level discussed in '*alternative rates of harvest*', I am mindful of several factors that may act to offset an increase in timber supply. In TFL 33, the area of old forest is currently in deficit of the full old-seral retention requirements for biodiversity, and old forest recruitment will be needed to meet the requirements in the future. Furthermore, uncertainties surrounding site index estimates and the potential disposition of unharvested volume in TFL 33 may both act to offset an increase in timber supply above the level in the base case. In conclusion, I support the initial harvest level presented in the base case proposed by the licence holder.

## **Determination**

I have considered and reviewed all the factors as documented above, including the risks and uncertainties from the information provided, and the information on Aboriginal Interests gained through consultation with potentially affected First Nation communities. It is my determination that a timber harvest level that accommodates objectives for all forest resources during the next 10 years and that reflects current management practices as well as Aboriginal Interests and the socio-economic objectives of the crown, can best be achieved in TFL 33 by establishing an AAC of 23 160 cubic metres. This is approximately a 10 percent increase to the previous AAC of 21 000 cubic metres.

This determination is effective December 14, 2021, and will remain in effect until a new AAC is determined, which must take place within 10 years of the effective date of this determination.



## Implementation

In the period following this decision and leading to subsequent determination, I expect the licence holder, FAIB, District staff and, where appropriate, other licence holders to undertake or support the following tasks and studies noted below, the particular benefits of which are described in appropriate sections of this rationale document. I recognize that the ability of all parties to undertake or support these projects is dependent on provincial priorities and available resources. However, these projects are important to help reduce the risk and uncertainty associated with key factors that affect timber supply in TFL 33.

1. Natural Disturbance Modelling - I expect the licence holder to include natural disturbance modelling for the entire CFLB for the next TSR to ensure that forest management requirements modelled in the base case that are reliant on the entire CFLB can be reliably achieved
2. Forest Inventory - I expect the licence holder to establish a ground sampling program to ensure LiDAR-based inventory is statistically sound.
3. Mule Deer Ungulate Winter Range - I expect the licence holder to develop and implement a recruitment plan to ensure the targets under the GAR order are achieved as quickly as possible.
4. Site Productivity - I expect the licence holder to continue the CMI program to provide a better understanding of site productivity within the TFL.



Diane Nicholls, RPF  
Chief Forester

December 14, 2021



## **Appendix 1: Section 8 of the *Forest Act***

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, c. 157, (current to November 24, 2021), reads as follows:

### **Allowable annual cut**

**8** (1)The chief forester must determine an allowable annual cut at least once every 10 years after the date of the last determination, for

(a)the Crown land in each timber supply area, excluding the Crown land in the following areas:

- (i)tree farm licence areas;
- (ii)community forest agreement areas;
- (iii)first nations woodland licence areas;
- (iv)woodlot licence areas, and

(b)each tree farm licence area.

(2)If the minister

- (a)makes an order under section 7 (b) respecting a timber supply area, or
- (b)amends or enters into a tree farm licence to accomplish a result set out under section 39 (2) or (3),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

- (c)within 10 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and
- (d)after the determination under paragraph (c), at least once every 10 years after the date of the last determination.

(3)If

- (a)the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and
- (b)the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 10 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

(3.1)If, in respect of the allowable annual cut for a timber supply area or tree farm licence area, the chief forester considers that the allowable annual cut that was determined under

subsection (1) is not likely to be changed significantly with a new determination, then, despite subsections (1) to (3), the chief forester

(a) by written order may postpone the next determination under subsection (1) to a date that is up to 15 years after the date of the relevant last determination, and

(b) must give written reasons for the postponement.

(3.2) If the chief forester, having made an order under subsection (3.1), considers that because of changed circumstances the allowable annual cut that was determined under subsection (1) for a timber supply area or tree farm licence area is likely to be changed significantly with a new determination, he or she

(a) by written order may rescind the order made under subsection (3.1) and set an earlier date for the next determination under subsection (1), and

(b) must give written reasons for setting the earlier date.

(4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).

(5) In respect of an allowable annual cut determined under subsection (1), the chief forester may, at any time, specify that portions of the allowable annual cut are attributable to one or more of the following:

(a) different types of timber or terrain in different parts of Crown land within a timber supply area or tree farm licence area;

(a.1) different areas of Crown land within a timber supply area or tree farm licence area;

(b) different types of timber or terrain in different parts of private land within a tree farm licence area.

(c) [Repealed 1999-10-1.]

(5.1) The chief forester may, at any time, amend or cancel a specification made under subsection (5).

(6) The minister must determine an allowable annual cut for each woodlot licence area in accordance with the woodlot licence for that area.

(7) The minister must determine an allowable annual cut for

(a) each community forest agreement area in accordance with the community forest agreement for that area, and

(b)each first nations woodland licence area in accordance with the first nations woodland licence for that area.

(8)In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a)the rate of timber production that may be sustained on the area, taking into account

(i)the composition of the forest and its expected rate of growth on the area,

(ii)the expected time that it will take the forest to become re-established on the area following denudation,

(iii)silviculture treatments to be applied to the area,

(iv)the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

(v)the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and

(vi)any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

(b)the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,

(c)[Repealed 2003-31-2.]

(d)the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and

(e)abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

(9)Subsections (1) to (4) of this section do not apply in respect of the management area, as defined in section 1 (1) of the **Haida Gwaii Reconciliation Act**.

(10)Within one year after the chief forester receives notice under section 5 (4) (a) of the **Haida Gwaii Reconciliation Act**, the chief forester must determine, in accordance with this section, the allowable annual cut for

(a)the Crown land in each timber supply area, except the areas excluded under subsection (1) (a) of this section, and

(b)each tree farm licence area

in the management area, as defined in section 1 (1) of the **Haida Gwaii Reconciliation Act**.

(11)The aggregate of the allowable annual cuts determined under subsections (6), (7) and (10) that apply in the management area, as defined in section 1 (1) of the **Haida Gwaii Reconciliation Act**, must not exceed the amount set out in a notice to the chief forester under section 5 (4) (a) of that Act.

## **Appendix 2: Section 4 of the *Ministry of Forests and Range Act***

Section 4 of the *Ministry of Forests and Range Act* (current to November 24, 2021) reads as follows:

### **Purposes and functions of ministry**

- 4 The purposes and functions of the ministry are, under the direction of the minister, to do the following:
- (a) encourage maximum productivity of the forest and range resources in British Columbia;
  - (b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;
  - (c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the government and with the private sector;
  - (d) encourage a vigorous, efficient and world competitive
    - (i) timber processing industry, and
    - (ii) ranching sectorin British Columbia;
  - (e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.

## Appendix 3: Minister's letter of October 30, 2017



Reference: 230810

October 30, 2017

Diane Nicholls, Chief Forester and Assistant Deputy Minister  
Ministry of Forests, Lands, Natural Resource Operations  
and Rural Development  
Victoria, British Columbia  
V8W 2H1

*Dear Diane*

The British Columbia *Forest Act* conveys the responsibility to determine an Allowable Annual Cut (AAC) to the Chief Forester of the Province of BC for each timber supply area and tree farm licence in the province. It also specifies considerations that must be brought to bear during the course of such determinations including, among others, the economic and social objectives of the government.

This letter is intended to provide you with guidance regarding the objectives of the British Columbia (BC) government that require your consideration when determining an AAC.

Your office implements a rigorous Timber Supply Review Process to help ensure that each AAC you determine responds to a broad array of objectives and aligns with land use and management decisions established by provincial statutes and regulations. The objectives identified below are to be considered and as part of the review process to ensure that AAC determinations, and the timber harvest rates they enable, continue to support government goals.

This letter replaces two letters previously issued by the Minister of Forests and Range to the chief forester, dated July 4, 2006 and October 27, 2010. It is intended to be used in concert with direction provided by the Minister of Forests, Lands and Natural Resource Operations to the chief forester in a letter dated April 12, 2013, concerning objectives outlined in the Shared Decision Making Process pursuant to the Nanwakolas Reconciliation Protocol.

The BC government has committed to building a strong, sustainable, innovative economy and creating well paid jobs in the province. The health of the forest sector, and its ability to respond to an array of short and long term social, economic and environmental interests, is a key to delivering on this commitment. As such, Government has identified specific objectives for the management of BC's forests and Crown lands. Those relevant to AAC determinations include:

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Ministry of Forests, Lands,  
Natural Resource Operations  
and Rural Development

Office of the Minister

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Website: [www.gov.bc.ca/for](http://www.gov.bc.ca/for)

Diane Nicholls, Chief Forester and Assistant Deputy Minister

- modernizing land-use planning to effectively and sustainably manage BC's ecosystems, rivers, lakes, watersheds, forests and old growth forests
- expanding investments in reforestation; and
- collaborating to develop strategies to manage wildlife resources and habitat

Strategies for delivering on these objectives will be developed in collaboration with the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, relevant Natural Resource Ministries, indigenous partners and industry. Once approved by government, I ask that you ensure such strategies are integrated into the Timber Supply Review Process to support AAC determinations.

The BC government has committed to full and lasting reconciliation with Indigenous peoples. As chief forester, your responsibility includes continuing to ensure that AAC determinations take into consideration relevant agreements between First Nations and the Government of BC, court decisions that define Aboriginal title and rights as well as moving forward on reviewing policies, programs, and legislation to determine how to bring the principles of the United Nations Declaration on the Rights of Indigenous Peoples into action for AAC determinations. You also have a responsibility to continue to carefully consider traditional knowledge and other input from BC First Nation communities and organizations in the course of AAC determinations as they pertain to the AAC determination.

The *Forest Act* requires that the chief forester consider a range of forest health issues as part of AAC determinations, including the impacts of circumstances such as infestations, devastations and salvage programs. This is particularly relevant as BC's forest sector emerges from a period of significant, compounding challenges. The infestation of the Mountain Pine Beetle that peaked in the late 2000s has largely subsided but with continuing effects to the size and composition of the forest inventory. Currently, the north area is experiencing Spruce Beetle infestations which also pose impacts. Recently, the Province has experienced record levels of wildfires that have impacted timber supply, community stability and multiple forest values.

In response to these challenges, it is a government objective to focus on planning and sustainable resource management in a way that supports robust forest recovery and timely and effective responses to emerging threats. Please consider how your AAC determinations can support these objectives while promoting forest health and values. In some cases AAC determinations may encourage management practices that avert another infestation in the province's forests. In certain regions, they will need to reflect the reality of a lower timber supply. Some regions will require expanded investment in reforestation and/or an increased focus on timber utilization and recovery. In the wake of extensive natural disasters, the extent of damage in certain areas may also warrant re-determining AACs earlier than scheduled.

In order to ensure that AAC determinations align with government objectives to modernize land-use planning and sustainably manage B.C.'s ecosystems, rivers, lakes, watersheds, forests and old growth forests, the Timber Supply Review process should incorporate the best available information on climate change and the cumulative effects of multiple activities on the land base. Management options that align with established climate change strategies, adaptation and mitigation practices should be explored. Where the cumulative effects of timber harvesting and other land based activities indicate a risk to natural resource values, the process should identify those risks for consideration in land-use planning.

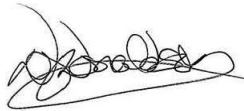


Diane Nicholls, Chief Forester and Assistant Deputy Minister

This government recognises that the forest sector is of critical importance to BC. The needs of rural communities and forest based industries are evolving in response to a number of the factors mentioned above. To support BC's forest-dependent communities, I ask that your AAC determinations consider the environmental, social and economic needs of local communities as expressed by the public during Timber Supply Review processes, including strategies that contribute to community economic stability, and the jobs that the forest sector creates in communities, where these are consistent with the government's broader objectives. I also ask that when faced with necessary reductions in AAC's, that those reductions be no larger than necessary to avoid significant longer term impacts.

Thank you Diane, for your continued service and considerable efforts in these regards.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doug Donaldson', written in a cursive style.

Doug Donaldson  
Minister

## Appendix 4: Information sources used in the AAC determination

The information sources considered in determining the AAC for TFL 33 include the following:

### Legislation

- Province of British Columbia. 2004. Cut Control Regulation. Victoria, BC. [http://www.bclaws.ca/Recon/document/ID/freeside/17\\_578\\_2004](http://www.bclaws.ca/Recon/document/ID/freeside/17_578_2004). Current to November 23, 2021;
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- Province of British Columbia. 2004. *Forest and Range Practices Act*. Victoria, BC. [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/02069\\_01](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/02069_01). Current to November 24, 2021;
- Province of British Columbia. 2004. Forest Planning and Practices Regulation. Victoria, BC. [http://www.bclaws.ca/civix/document/id/complete/statreg/14\\_2004](http://www.bclaws.ca/civix/document/id/complete/statreg/14_2004). Current to November 23, 2021;
- Province of British Columbia. 2004. Government Actions Regulation. Victoria, BC. [http://www.bclaws.ca/civix/document/id/complete/statreg/582\\_2004](http://www.bclaws.ca/civix/document/id/complete/statreg/582_2004). Current to November 23, 2021;
- Province of British Columbia. RSBC 1996. *Heritage Conservation Act*. Victoria, BC. [http://www.bclaws.ca/civix/document/id/complete/statreg/96187\\_01](http://www.bclaws.ca/civix/document/id/complete/statreg/96187_01). Current to November 24, 2021;
- Province of British Columbia. RSBC 1996. *Land Act*. Victoria, BC. [http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/00\\_96245\\_01](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96245_01). Current to November 24, 2021;
- Province of British Columbia. RSBC 1996. *Ministry of Forests and Range Act*. Section 4 – Purposes and functions of Ministry. [http://www.bclaws.ca/civix/document/id/complete/statreg/96300\\_01](http://www.bclaws.ca/civix/document/id/complete/statreg/96300_01). Current to November 24, 2021.

### TFL Holder Plans and Timber Supply Review Documents

- AAC Determination Binder for TFL 33 - including input received from First Nations through the consultation process and comprehensive discussions with Ministry staff, including the AAC determination meeting held in online on March 25, 2021;
- Canoe Forest Products Ltd. 2020. Tree Farm Licence 33 Management Plan No. 10. Referral and Public Review Strategy;
- Canoe Forest Products Ltd. 2021. Tree Farm Licence 33 Management Plan No. 10;
- Forsite Consultants Limited. 2020. Tree Farm Licence 33 Management Plan No. 10. Information Package. Prepared for Canoe Forest Products Ltd.;
- Forsite Consultants Limited. 2020. Tree Farm Licence 33 Management Plan No. 10. Timber Supply Analysis Report. Prepared for Canoe Forest Products Ltd.;

- Letter from the Minister of Forests, Lands, Natural Resource Operations and Rural Development to the chief forester stating the economic and social objectives of the Crown, BC Government October 30, 2017;
- Gorman Group. 2015. Okanagan Shuswap FSP. Forest Stewardship Plan 2018 – 2023.

### **Land Use, Forest Practices and other Documents**

- Ministry of Sustainable Resource Management. 2005. Order Establishing Resource Management Zones and Resource Management Zone Objectives Within the Area Covered by the Revelstoke Land Use Plan as a Higher Level Plan;
- B.C. Ministry of Environment. 2006. Order – Ungulate Winter Range #U 8-001. Mule Deer – Okanagan Shuswap.  
[http://www.env.gov.bc.ca/wld/documents/uwr/u-8-001\\_ord.pdf](http://www.env.gov.bc.ca/wld/documents/uwr/u-8-001_ord.pdf);
- B.C. Ministry of Environment. 2009. Order – Ungulate Winter Range #U 3-005. Mountain Caribou - Revelstoke Shuswap Planning Unit.  
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<https://www.for.gov.bc.ca/hre/becweb/program/climate%20change/index.html>;
- B.C. Ministry of Forests, Lands and Natural Resource Operations and Rural Development. 2018. Policy Regarding the Administration of Unharvested Volumes, Uncommitted Volumes and Unused BCTS Volumes. [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/timber-tenure-bulletins-policies-procedure/policy\\_regarding\\_the\\_administration\\_of\\_unharvested\\_volumes\\_uncommitted\\_volumes\\_and\\_unused\\_bcts\\_volumes.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/timber-tenure-bulletins-policies-procedure/policy_regarding_the_administration_of_unharvested_volumes_uncommitted_volumes_and_unused_bcts_volumes.pdf);
- B.C. Ministry of Forests, Lands and Natural Resource Operations and Rural Development. 2019. Tree Farm Licence 33. Sicamous. <https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/tree-farm-licence/licences/tfl-33-lic-06-march-01-2019.pdf>;
- B.C. Ministry of Forests, Lands and Natural Resource Operations and Rural Development. 2020. Provincial Timber Management Goals, Objectives & Targets Management Unit Targets - TFL 33 Sicamous;
- B.C. Ministry of Forests. 2005. Provincial Logging & Waste Measurement Procedures Manual, as amended from time to time. Provincial Logging Residue and Waste Measurements Procedure Manual - Province of British Columbia (gov.bc.ca);
- Hamann, A. and Wang, T. 2006. Potential Effects of Climate Change on Ecosystem and Tree Species Distribution in British Columbia.  
[https://sites.ualberta.ca/~ahamann/publications/pdfs/Hamann\\_Wang\\_2006.pdf](https://sites.ualberta.ca/~ahamann/publications/pdfs/Hamann_Wang_2006.pdf);
- Anon. 2001. Okanagan-Shuswap Land and Resource Management Plan.  
[https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/thompsonokanagan-region/okanaganshuswap-lrmp/okanagan\\_shuswap\\_lrmp.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/thompsonokanagan-region/okanaganshuswap-lrmp/okanagan_shuswap_lrmp.pdf);

- Ministry of Agriculture and Lands. Ministerial Order. 2007. Order Establishing Objectives Set by Government in the Area Covered by the Okanagan-Shuswap Land and Resource Management Plan in the Okanagan Shuswap Forest District.  
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- Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2020. Chief Forester's Standards for Seed Use.  
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- Woods, A.J., D. Heppner, H.H. Kope, J. Burleigh and L. Maclauchlan. [2009]. Forest health and climate change: A British Columbia perspective. The Forestry Chronicle 2010 Volume 86 No 4. [http://frst318.forestry.ubc.ca/files/2013/01/Forest\\_Health\\_CC.pdf](http://frst318.forestry.ubc.ca/files/2013/01/Forest_Health_CC.pdf).

### **First Nations**

- Email from Ktunaxa Nation to Ministry of Forests, Lands and Natural Resource Operations and Rural Development. March 23, 2020. Regarding consultation on TFL 56;
- Haida Nation v. British Columbia (Minister of Forests), [2004] 3 S.C.R. 511, 2004 SCC 73;
- Province of British Columbia. 2010. Updated Procedures for Meeting Legal Obligations when Consulting First Nations. <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations>;
- Tsilhqot'in Nation v. British Columbia, 2014 SCC 44, [2014] 2 S.C.R.;
- United Nations. 2007. *United Nations Declaration on the Rights of Indigenous Peoples*. <https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html>;
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