

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

# **Tree Farm Licence 59**

**held by  
Weyerhaeuser Company Ltd.**

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

**Effective March 14, 2019**

**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 as Chief Forester of British Columbia (BC) in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 59. 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 licensee staff, and staff from BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development in the Thompson Okanagan Region and the Forest Analysis and Inventory Branch. I am also grateful to the First Nations and members of the public who have provided input.

## **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.

## **First Nations Overview**

The Crown has a duty to consult with and accommodate as necessary, those First Nations for whom it has knowledge of claimed or established Aboriginal rights and/or title or treaty rights (Aboriginal Interests) that may be impacted by a proposed decision, including strategic level decisions such as AAC determinations.

The Okanagan Nation asserts Aboriginal Interests over TFL 59. Five of their seven member bands, including Osoyoos Indian Band, Penticton Indian Band, Lower Similkameen Indian Band, Upper Nicola Band and Okanagan Indian Band, have asserted traditional territories over the area.

The Nlaka'pamux Nation asserts Aboriginal Interests over the western periphery of TFL 59. Ten bands have asserted traditional territories that overlap the TFL 59 area. These bands include Coldwater Indian Band, Cook's Ferry Indian Band, Siska Indian Band, Nooaitch Indian Band, Boothroyd Indian Band, Lytton First Nation, Oregon Jack Creek Indian Band, Skuppah Indian Band, Spuzzum First Nation, and Lower Nicola Indian Band.

## **Description of TFL 59**

TFL 59 is located near the communities of Osoyoos, Oliver and Okanagan Falls in the south central region of the province. Weyerhaeuser Company Limited (the "TFL holder") holds the TFL, which is administered by the Okanagan Shuswap Natural Resource District within the Thompson Okanagan Natural Resource Region.

The TFL area is situated within the Southern Interior eco-province and is characterized by a mixed topography of rolling hills and mountainous terrain ranging in elevation from 500 to 2200 metres. The productive forest lies within the Montane Spruce (MS), Engelmann Spruce Subalpine Fir (ESSF), Interior Douglas-fir (IDF), and Ponderosa Pine (PP) biogeoclimatic zones. The licence area supports a variety of commercial tree species including lodgepole pine, western larch, Douglas-fir, ponderosa pine, Engelmann spruce, and subalpine fir.

TFL 59 covers an area of approximately 46 500 hectares of which 43 000 hectares (93 percent) is considered productive forest. The remaining 3500 hectares (seven percent) are composed largely of swamp, lakes, open range, non-productive brush and other areas that do not support commercial

forest. The portion of the TFL that is anticipated to be available and suitable for timber harvesting is 36 688 hectares. Within TFL 59, there are 56 hectares of 'Schedule A' (privately owned) land.

Forestry, agriculture, and tourism are the principal forms of economic activity in the region.

## **History of the AAC**

The area currently comprised by TFL 59 was first issued as TFL 15 to Oliver Sawmills Limited in 1954. At that time, the company was authorized to harvest 15 234 cubic metres per year from a total licence area of 55 210 hectares. The AAC increased significantly under subsequent MP, largely as a result of the introduction of new provincial utilization standards.

In 1974, an AAC of 82 827 cubic metres was determined for a five-year period during which time a revised forest inventory of the TFL was initiated. In 1977, improved information from the new inventory led to 9770 cubic metre reduction in the AAC. In 1978, the TFL was assigned to Weyerhaeuser Canada Limited following the amalgamation of several companies including Northwood Properties Limited, a successor to Oliver Sawmills. Weyerhaeuser Canada Limited changed its name to Weyerhaeuser Company Limited on May 1, 2000.

During the 1980s, the AAC for the TFL remained relatively constant at approximately 72 000 cubic metres. In 1992, following a severe mountain pine beetle epidemic, the AAC was temporarily increased to 172 000 cubic metres in order to accommodate salvage harvesting. In 1994, the uplifted AAC was reduced to 137 000 cubic metres and in 1995 the deputy chief forester set the AAC to 78 000 cubic metres. A further decrease occurred in 1999 when the AAC was set to 70 000 cubic metres and again in 2005 when the AAC was set to 66 000 cubic metres.

In 2006, TFL 15 was consolidated with TFL 35 both held by Weyerhaeuser Canada Limited. In 2008, the original TFL 15 area was removed from TFL 35 and re-named TFL 59 and the AAC for the area was set to the level that was in place immediately before the consolidation, 66 000 cubic metres.

## **New AAC determination**

Effective March 14, 2019, the new AAC for TFL 59 is 60 700 cubic metres. This AAC is approximately eight percent lower than the effective AAC in place prior to this determination. This AAC will remain in effect until a new AAC is determined, which must take place within 10 years of this determination.

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

Section 8 of the *Forest Act* requires the chief forester, in determining the AAC for a TSA or TFL, 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.

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.

Appendix 4 provides a list of information sources that I considered for this determination.

### **Guiding principles for AAC determinations**

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining the AACs for timber supply areas and tree farm licences.

Given the large number of periodic AAC determinations required for British Columbia'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 *Forester's 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, titles 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 British Columbia government has committed to true, lasting reconciliation with Indigenous peoples in British Columbia, including fully adopting and implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Reconciliation and implementation of UNDRIP will likely require changes to policies, programs and legislation, which will take time and involve engagement with First Nations. While this work is undertaken, BC is committed to fulfilling its legal obligations to consult and accommodate 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 general 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.

As is the case for land use and management planning in general, where land use zones or management objectives resulting from collaborative planning between First Nations and the Province have not been finalized, 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 those Interests and the degree to which they may be affected by the decision. 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 the following:

- (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 Aboriginal Interests, including how these Interests may be impacted;
- (iii) any operational plans and/or other information that describe how First Nations' Aboriginal Interests are addressed through specific actions and forest practices; and,
- (iv) existing relevant agreements and policies between First Nations and the BC Government.

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*. 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 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.

Established Aboriginal title lands (meaning declared by a court or defined under an agreement) and other areas, such as Treaty Settlement Lands or Indian Reserves, are not provincial Crown land. Consequently, the timber on these lands does not contribute to the AAC of the timber supply area or tree farm licence with which they overlap. 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, either by court declaration or by agreement, could affect timber supply, given uncertainties about the scope, nature and geographic extent of title. Until land has been established as Aboriginal title 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 Timber Supply Areas (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 forest estate 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 forecasts, 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 forecast, and 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 forecasts, and because it incorporates information about which there may be some uncertainty, the base case forecast for a TFL 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 predictions 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.

### **Timber supply analysis**

The timber supply analysis for the TFL 59 Management Plan No. 2 (MP 2) was prepared for the TFL holder by Foresite Consultants Ltd. using the forest estate model Forest Planning Studio (FPS) – ATLAS version 6.02.0. FPS is a spatially-explicit forest estate model which schedules timber harvesting according to a range of spatial and temporal objectives in the form of targets and constraints, including: opening size, riparian buffers, seral stage distributions and patch size distributions. Based on a review by Ministry staff and my previous experience reviewing the results of this model, I am satisfied that FPS is capable of providing reasonable projections of timber supply that form a sound basis for AAC determinations.

The base case forecast included in the analysis was intended to reflect current forest management objectives and practices in TFL 59. It was developed by the TFL holder following accepted procedure established in the TSR with the intent of presenting a harvest flow that maximizes long-term sustainable timber supply while meeting established management objectives for non-timber resource values such as fish and wildlife habitat, biodiversity, visual quality and terrain stability.

The base case projects timber harvesting beginning January 1, 2016, at an initial harvest level of 66 000 cubic metres per year, which is the same level as the current AAC. This initial level is sustained for 45 years after which the harvest level increases by approximately 10 percent per decade over five decades to a long-term harvest level of 107 100 cubic metres per year, 96 years into the forecast. The long-term level is then sustained over the duration of the 300 year forecast. The projected harvest in all periods is net of estimated unsalvaged losses related to fire and wind throw.

In addition to the base case, the TFL holder presented an alternative forecast which demonstrated that an initial harvest level of 80 100 cubic metres per year could be sustained for 65 years before increasing to the long-term harvest level of 107 100 cubic metres per year (same as the base case) 95 years from now. I note that this alternative forecast demonstrates that the TFL could support an initial harvest level that is 14 100 cubic metres higher than the base case and achieves the same long-term harvest level as the base case without disrupting the non-declining mid-term harvest.

In the timber supply review, the forecast with the highest sustainable harvest level, which meets all established management objectives, is commonly selected as the base case. However, as noted above,

the TFL holder proposed a base case that is 18 percent below the maximum level that can be sustained on the TFL over the next six decades. The TFL holder's rationale for this was that a conservative, lower, initial harvest level would mitigate uncertainties related to volume estimates for natural stands, the minimum stand merchantability criteria, future habitat protection for Williamson's sapsucker and changes in management practices undertaken to address concerns raised by OIB regarding natural resources in the TFL.

These harvest forecasts are predicated on the condition of the forest, including the amount of merchantable timber growing stock, at the time the information package was assembled for this analysis. As there was no unharvested volume, from the period before 2016, to carry forward, the initial timber growing stock was not depleted to account for the potential future harvest of unharvested (undercut) AAC. Therefore, any volume harvested above the levels projected in the base case would constitute use of the growing stock at a greater rate than projected in the base case.

I have reviewed the information and I accept these projections including the base case and alternate forecasts for the purposes of this determination.

As discussed and quantified throughout this rationale, and in consideration of the items described above, I am satisfied the base case forecast and associated analyses presented in MP 2 provide an adequate basis from which I can assess the timber supply for TFL 59 in this determination.

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

I have reviewed the information for all of the factors required to be considered under Section 8 of the *Forest Act*. Where issues require additional discussion and evaluation, I will discuss these factors further in this rationale. For other factors, where uncertainty exists or where public or First Nations' input indicates differences of opinion 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.

For some factors, I have concluded that the modelling of a factor in the base case, as described in MP 2, appropriately represents current management and reflects the best available information and uncertainties about the factor have little influence on the timber supply projected in the base case. In these cases, no discussion is included in this rationale. These factors are listed in Table 1.

Table 1. List of factors accepted as modelled in the base case forecast

<b>Forest Act section and description</b>	<b>Factors accepted as modelled</b>
8(8)(a)(i) Composition of the forest and its expected rate of growth	<ul style="list-style-type: none"> <li>- Non-forest and non-productive forest</li> <li>- Utility corridors</li> <li>- Non-merchantable/low productivity forest types</li> <li>- Terrain stability</li> <li>- Problem forest types – deciduous</li> <li>- Volume estimates for natural stands</li> <li>- Volume estimates for managed stands</li> <li>- Physical operability</li> <li>- Inoperable / inaccessible</li> <li>- Marginally dry sites</li> <li>- Wildlife habitat areas</li> <li>- Ungulate winter range</li> <li>- Registered archaeological sites</li> <li>- Research sites</li> <li>- Genetic gain</li> <li>- Backlog and current non-stocked areas</li> </ul>
8(8)(a)(ii) Expected time it will take the forest to become re-established following denudation	<ul style="list-style-type: none"> <li>- Stand establishment</li> </ul>
8(8)(a)(iii) Silvicultural treatments to be applied	<ul style="list-style-type: none"> <li>- Silviculture systems</li> <li>- Incremental silviculture</li> </ul>
8(8)(a)(iv) Standard of timber utilization and allowance for decay, waste and breakage	<ul style="list-style-type: none"> <li>- Decay, waste and breakage for natural stands</li> </ul>
8(8)(a)(v) Constraints on the amount of timber produced by use of the area for purposes other than timber production	<ul style="list-style-type: none"> <li>- Higher level plans</li> <li>- Landscape level biodiversity</li> <li>- Stand level biodiversity</li> <li>- Scenic areas and visual resources</li> <li>- Adjacent cutblocks and green-up</li> <li>- Harvest rules and priority</li> <li>- Community watersheds and domestic drinking water</li> <li>- Enhanced riparian reserves</li> <li>- Fisheries sensitive watershed</li> </ul>
8(8)(a)(vi) Any other information	<ul style="list-style-type: none"> <li>- Harvest performance</li> <li>- Unharvested volume carry forward</li> </ul>
8(8)(e) Abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area	<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*

As part of the timber supply modelling process, the land base that is considered available and suitable for timber harvesting (i.e., the THLB) was derived based on consideration of ecological, economic and social factors. These considerations may be legally established no-harvest zones or may be modelling surrogates for current practices that restrict harvesting within the Crown forest management land base. As such, the THLB is a strategic-level estimate derived for the purpose of timber supply analysis, and the inclusion or exclusion of an area in the THLB may not always agree with whether or not it will be harvested operationally.

The total area of TFL 59 is approximately 46 500 hectares. Of this total area, 36 688 hectares are deemed to be within the THLB after deductions are applied for factors noted in Table 1 above and factors discussed below. I note that this THLB is 1607 hectares, or 5.7 percent, larger than the THLB specified in the previous management plan. The TFL holder indicated that the principle reason for this change, which explains 82 percent of the difference, is a change in how problem forest types are defined in the analysis.

As part of the process used to define the THLB, a series of deductions was made from the Crown forest management land base to account for various land classes that do not contribute to the TFL timber supply (e.g., non-forest areas, problem forest types). 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.

For this determination, I accept that the approach used to determine the THLB for the TFL 59 base case was appropriate.

- *existing and future roads, trails and landings*

In the derivation of the THLB, areas are excluded to account for the areas of road, trails and landings (RTL) that will not regenerate to productive forest. Separate estimates are made to account for existing roads, trails, landings and future RTL.

The TFL holder maintains a database of roads and trails located within the TFL. Existing RTL were classified into categories (e.g., mainline, branch, spur) and the average width of the non-productive area for each road category was determined from operational experience. Mapped buffers were then delineated along existing road features based on the average road width, and the non-forest area associated with existing roads was estimated from the area within the buffers.

The combined area attributed to all existing roads and removed from the THLB (after accounting for overlaps with other land base exclusions) was 604 hectares.

Landings are areas within or adjacent to cutblocks that have been modified by equipment and used to hold logs before they are transported. Although, since 1996, the TFL holder has endeavoured to

rehabilitate all existing and future landings, not all of these areas are successfully returned to production. A review of the TFL holder's rehabilitation efforts in other tenures showed that on average between 1.38 and 1.8 percent of cutblock area remain unproductive after logging. Applying these figures in the TFL 59 timber supply analysis, the TFL holder removed 171 hectares from the THLB to account for non-productive area in landings.

Since the transportation infrastructure in TFL 59 is well established and all mainline roads needed to access the THLB already exist, future road construction will be limited to operational or trail class roads. In the base case forecast, the TFL holder assumed that non-productive land in future roads would eventually cover 1.5 percent of the currently unharvested portion of the THLB. This equates to 400 hectares.

OIB expressed concern regarding forest management practices, particularly road development in wildlife habitat corridors and ungulate calving areas. OIB believes these practices have allowed for increased predator access and increased non-aboriginal hunting which diminishes the ungulate population available to OIB members when exercising their Aboriginal right to hunt. I understand that there are no legally established wildlife habitat corridors or ungulate calving areas in TFL 59 however, biodiversity corridors were identified in the past but were not granted legal status and were not included in the base case.

The FLNRORD regional ecosystems biologist stated that OIB's concerns regarding road development, an increase in predator access and increased non-aboriginal hunting may have merit; however, additional data must be collected in order to determine the possible extent of these impacts to ungulate populations. Although it is recognized that there is a link between ungulate populations and habitat disturbance, road development, predator population increase, climate change and other ecological factors, the extent of the links is unknown.

I understand that during discussion with OIB on the draft management plan, the TFL holder has offered to develop a management strategy with OIB members and to prepare an initial road deactivation plan for TFL 59 to reduce access and hunting pressure on ungulates. The TFL holder has also offered to adopt a number of management practices to address OIB concerns. Road related management practices include providing screening where forest harvesting is next to major roads and minimizing road construction or upgrades to only the extent necessary to facilitate safe hauling in order to alleviate potential impacts on the ungulate population. Other management practices include stopping the practice of developing clearcuts greater than 40 hectares in size without OIB agreement and reviewing the original biodiversity corridor mapping for use in future development planning. I support these approaches and expect this will help address the concerns voiced by the OIB.

I have reviewed the information regarding existing and future RTL and I accept that the base case has properly modelled current management practices for existing and future RTL. To facilitate the development of a stronger and more collaborative relationship and to provide a forum for discussion of concerns with forestry operations in the TFL, I encourage the development of a forestry forum between OIB, the Ministry and the TFL holder. As described under '**Implementation**' I expect Ministry staff to work with OIB and the TFL holder in order to develop a forestry forum and that it will include discussion of concerns relating to roads, trails and landings.

- *recreation resources*

Management of recreation resources in TFL 59 is undertaken through three distinct land designations, which include the following: recreation site, intensive recreation area and controlled recreation area (CRA).

There are three recreation sites within the TFL, which cover an area of 131 hectares. Since there is no management direction provided for these sites and Section 16(a)(iii) of the Forest Recreation

Regulation authorizes the recreation officer to approve harvesting in these sites, the TFL holder assumed these areas contribute to the timber supply in the base case and no reduction was applied to the THLB for this purpose.

There is one intensive recreation area in the TFL, the Inkaneep cross-country ski area, which covers 416 hectares. This area was created under a land use order for the Okanagan Shuswap LRMP; however, no forest cover requirement has been indicated in the management direction for this area. For this reason, this area was assumed to contribute to the timber supply in the base case and no reduction was applied to the THLB.

The Mount Baldy CRA covers an area of 1168 hectares within the TFL. The CRA designation for this area does not prohibit timber harvesting; however, once the area is harvested, its long-term management becomes the responsibility of the CRA holder. For this reason, the area is likely to contribute to the short-term timber supply but not the long-term timber supply for the TFL. The CRA was not accounted for in the base case forecast.

I have considered the information regarding the assumptions in the base case to account for recreation resources and I accept that the base case assumptions reflect the legal requirements for the protection of recreation sites and intensive recreation areas and are the best available information for this determination.

Although the base case forecast did not account for the CRA, I recognize that some portion of the area will not be available to support the long-term timber supply since it will revert to management by the CRA holder. This represents a potential overestimation in the long-term harvest level in the base case. For this determination, I am unable to quantify the potential overestimation; however, I believe it will be small. I will account for this in my determination as discussed in '**Reasons for Decision**'.

- *forest inventory*

The current Phase I Vegetation Resource Inventory (VRI) for TFL 59 was completed in 1997. The Phase II VRI was initiated in 2000 and completed in 2002. The inventory followed standard sampling procedures where field data were collected in an attempt to reduce standard error of the attribute estimates. However, for net merchantable volume, the sampling error achieved was 18 percent, which is three percent higher than what is normally acceptable in the timber supply review.

In the analysis for the previous management plan (MP 1), based on the Phase II results, the TFL holder applied a nine percent reduction to volume estimates for stands greater than 60 years of age. In the analysis for the current management plan (MP 2), the TFL holder concluded that a statistical adjustment of the VRI and yield estimates were not appropriate for the base case. This was primarily due to the high sampling error in the Phase II project.

The unadjusted VRI stand attributes were projected to January 1, 2014, and stand disturbances (including depletions for harvesting and wildfire) were updated to January 1, 2016.

To explore the potential impact of adjusting VRI volume estimates based on the Phase II VRI results, the TFL holder examined the sensitivity of the base case to changes in natural stand yield estimates of plus and minus 10 percent for stands over 60 years old. Results of the sensitivity analysis indicated that the short- and long-term timber supply were not affected; however, the mid-term transition began 10 years earlier for the 10 percent increase and five years later for the 10 percent decrease. The short-term harvest forecast was not sensitive to changes in natural stand yield estimates because the short-term harvest level was designed to maintain the current AAC, although a higher level was possible, until such time that a steady increase to the long-term harvest level was possible.

I am aware that OIB expressed concern regarding the TFL holder's decision not to apply the VRI Phase II adjustment to natural-stand volume estimates, as was done in the previous management plan. I have been advised that growth and yield experts at Forest Analysis and Inventory Branch (FAIB) examined the information used to make this decision and agreed with the TFL holder's decision not to apply the volume adjustment. I also note that the sensitivity analysis conducted to test the effect of applying the Phase II adjustments did not cause harvest levels to vary significantly from the base case. For these reasons, I will not make an adjustment to the base case to account for lower natural-stand volume estimates. However, as described under '**Implementation**', I expect the TFL holder to work with Ministry staff to deal with uncertainty regarding natural-stand volume estimates prior to the next TSR.

- *Williamson's sapsucker*

Williamson's sapsucker (WISA) are listed as "endangered" under the Government of Canada's *Species at Risk Act* (SARA) and are protected by SARA measures for listed wildlife species. WISA are found within the western part of the TFL.

The Federal Government has implemented a recovery strategy with objectives of ensuring the persistence of WISA populations in Canada by maintaining them at or above the current population, and the current distribution and areas of occupancy. This strategy has spatially identified critical habitat; however, current habitat suitability in the Okanagan-Boundary may be insufficient to support the population and distribution objectives.

Forestry is the primary land management activity affecting WISA habitat suitability. To address this, the Province has established *Best Management Practices for Timber Harvesting, Roads, and Silviculture for Williamson's Sapsucker in British Columbia* with the intent to reduce the effects of forestry related activities on provincial lands within areas of occupation. These Best Management Practices (BMP) are guidelines that help developers improve operations and meet objectives for WISA. District staff advised me that the TFL holder might not yet be fully implementing these BMP in TFL 59.

The Okanagan Shuswap Land Resource Management Plan (OSLRMP) objective for WISA is to conserve critical breeding habitat. This objective is met by the intent of the federal recovery strategy and provincial BMP.

WISA management incorporated into the base case included a 304 hectare net area reduction to the THLB for approved wildlife habitat areas (WHA), a reduction to the THLB for a 50-metre buffer around 34 known nest sites, and retention of live trees in critical habitat. WISA management incorporated into a sensitivity analysis included reduction to the THLB for proposed WHA and removal of lodgepole pine-leading stands from critical habitat. The results of the sensitivity analysis showed that the proposed WHA, if removed from the THLB, would reduce the long-term timber supply in the base case by 0.9 percent but would have no impact on the short-term timber supply.

I accept that the base case has properly modelled current management practices for WISA. I am aware that additional proposed WHA may eventually be implemented in the TFL; however, as stated in my '*Guiding principles*', I will not speculate on potential changes to legal requirements. If any of these proposed WHA are approved in the future, I will consider them in subsequent AAC determinations, though I note that the sensitivity analysis indicated that the currently proposed WHA would not impact the short-term timber supply.

During the term of this AAC, I expect the license holder to implement the BMP for Williamson's sapsucker habitat and I expect Ministry staff to monitor the performance of the TFL holder with respect to BMP implementation and the effectiveness as described under '**Implementation**'.



- *riparian reserve and management zones*

Objectives and practice requirements to protect riparian areas along streams, rivers, lakes and wetlands are described in the Forest Planning and Practices Regulation (FPPR). The OSLRMP provides management alternatives for non-legal objectives for S4 and S6 classified streams. The Okanagan Shuswap Natural Resource District (OSNRD) indicates that management of non-legal objectives by government and the TFL holder have, to date, followed or exceeded the intention of the OSLRMP.

In the MP 2 base case scenario, riparian management objectives were accounted for by defining the riparian reserve zone (RRZ) and the riparian management zones (RMZ) along streams, lakes and wetlands. The widths of the RRZ and RMZ were variable by stream classification. The RRZs were removed from the THLB and the RMZs were partially excluded from the THLB.

The gross area covered by RRZ was 881 hectares while the net area was 487 hectares. The gross area covered by RMZ was 1853 hectares while the net area was 309 hectares.

The net RMZ area included a THLB reduction of 36 hectares to account for the OSLMRP non-legal requirement to leave 50 percent retention within RMZs of non-fish streams larger than 1.5 metres.

District staff have advised me that the TFL holder's management of streams, lakes and wetlands has met, or exceeded, the FPPR legal requirements (e.g., basal area retention for all streams is higher than required by FPPR), has met the OSLRMP non-legal requirements and has exceeded OSLRMP basal area requirements for S5 and larger S6 streams. I am also aware that Forest and Range Evaluation Program (FREP) sampling has been completed for five samples within the TFL holder's forestry operations in the Okanagan TSA. The results of these samples indicate that practices requirements for streams and riparian management area are being met and sampled stream reaches are in the top two functioning categories.

OIB expressed concerns regarding adverse impacts to watersheds caused by harvest practices including insufficient riparian buffer widths. OIB has indicated that these impacts include watershed degradation, erosion, flooding, fish habitat degradation, water quality degradation, sedimentation of streams, decreases in fish populations, wildlife habitat fragmentation and decreases in ungulate populations.

In response to OIB concerns I note that the TFL holder is meeting or exceeding FPPR practice requirements and OSLRMP non-legal requirements for streams and FREP monitoring results indicate that the TFL holder's management practices in riparian areas are adequate. I am also aware that, in direct response to OIB concerns communicated during the TSR process, the TFL holder has offered to further improve riparian protection through increased riparian buffers with retention of merchantable stems, non-merchantable stems, and other vegetation.

Overall, I am satisfied that the base case provides a reasonable representation of current practice in relation to riparian reserve zones and riparian management zones and, with respect to riparian management, is an appropriate basis for determining the AAC for TFL 59. However, I am mindful of the concerns identified by OIB and their statement that current practices are not sufficient to address their Aboriginal Interests. I see value in further investigating the relationship between riparian reserve width and watershed sustainability and as described under '**Implementation**' I expect that Ministry to investigate the relationship between riparian reserve width and watershed sustainability and to make this information available for the next timber supply review. This issue is linked to information on cumulative effects, and is further discussed under the cumulative effects section of the rationale.

- *cultural heritage resources*

Cultural heritage resources (CHR) is defined under the *Forest Act* as “an object, site or location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community, or an aboriginal people”. CHR include, but are not limited to, archaeological sites, structural features, heritage landscape features and traditional use sites. Many of these sites may overlap with areas already excluded from the THLB to account for non-timber resources due to *Forest and Range Practices Act* (FRPA) constraints such as riparian area, ungulate winter range, wildlife habitat areas, wildlife tree retention areas, and old growth management areas. For this reason no area reductions were made to the THLB for cultural heritage resources that was incremental to the reductions made for management objectives.

In MP 2, the TFL holder described its commitment to the identification and protection of cultural heritage resource sites and First Nation values. The TFL holder described their program for sharing proposed development with local First Nations and supporting preliminary field reconnaissance by trained First Nations crews. When supported by field reconnaissance, management measures are incorporated into site-level plans that direct operational forestry activities including, but not limited to, harvesting, road construction, and site preparation. Management may include the protection of the site or value by reserving the area from harvest.

Cultural heritage resources found within TFL 59 and identified by OIB include hunting, gathering and fishing grounds; a previously undisturbed spiritual area and cultural camps. The concentration of these sites in TFL 59 is demonstrated by the results of several limited Use and Occupancy Mapping Studies undertaken by OIB in 2013, 2014 and 2017, which were provided to me in map form on April 3, 2018. OIB commented that these studies reveal significant usage and affirm the continued existence, exercise and/or practice of OIB Title and Rights throughout the TFL 59 area. For example, OIB pointed to valuable medicinal plant populations within TFL 59, whose continued existence is critical to OIB members’ ability to meaningfully exercise Aboriginal harvesting and cultural rights. OIB advises that, due to the lack of recognition of these CHR, there have been significant impacts to cultural and medicinal plant gathering areas.

I have reviewed the information regarding cultural heritage resources provided by the TFL holder and OIB and I recognize that, beyond a small reduction for archaeological sites, the base case did not apply specific assumptions regarding unregistered and not yet discovered archaeological sites or contemporary cultural heritage features in the TFL. In the case of known archaeological sites, I accept that the amount of area reserved under current management practices for these sites, considering overlap with other resource values, was adequately accounted for in the base case. While I accept that the area needed to protect sites identified in the future may largely overlap with areas reserved from harvesting to protect other resource values, and that the licensee chose a base case that is 18 percent lower than the maximum level that can be sustained on the TFL over the next six decades, I also expect that, given the extensive First Nations history in the area, effectively managing for these CHR will require possible additional reserve area and/or altered forest management practices, to that already accounted for in the base case. As a result, I will take into account an overestimation of the base case forecast on this account and discuss this further under ‘**Reasons for Decision**’.

In keeping with my ‘*Guiding principles*’, should new significant information become available regarding First Nations archaeological sites and cultural heritage resources, including any new findings or recommendations by government, I may revisit the AAC determination for TFL 59 prior to the 10-year deadline provided for in legislation. For this determination, I note that the AAC I determine does not prescribe any particular plan of harvesting activity within the TFL by requiring any particular area to be harvested or to remain unharvested. Harvesting activities are guided by

requirements such as those contained in the *Heritage Conservation Act*, *Forest Act*, *FRPA*, and other resource management legislation.

I recognize that local Indigenous communities play an integral role in the identification and protection of cultural heritage resource features within the TFL. Given the importance of this information, it is imperative that new and updated information be recorded in an efficient manner. It is possible to make use of existing FLNRORD tools, such as map reserves, to identify and record CHRs to assist in avoiding potential impact to these sites. This opportunity for the use of this tool was discussed with OIB throughout the engagement process and I see value in continuing these discussions at the operational level. I am also aware that, during discussion with OIB about the draft management plan, the TFL holder has offered to work with OIB to develop a management strategy with the purpose of protecting plants of importance. I see value in proceeding with this work. The FREP also monitors the impacts of forest development activities on cultural heritage resource features to determine the effectiveness of forest practices in achieving the management objectives set out for the feature.

I see significant benefit in harmonizing the stewardship of cultural heritage resources and as described under '**Implementation**' I expect that Ministry staff, OIB and the TFL holder, through the forestry forum, embrace these opportunities for collaboration and work together to spatially identify cultural heritage resources in areas known to be of high interest to First Nations. I expect that FLNRORD staff continue to assess First Nations concerns regarding forest practices through the implementation of the FREP Cultural Heritage Resource protocol and I request that this information be available for future TSRs.

#### Expected rate of growth

##### *- dead potential volume*

The Ministry's timber volume tables do not account for volume from dead trees that could potentially be used as sawlogs. The base case analysis for TFL 59, therefore, did not include any assumed contribution for dead volume.

The report, *Summary of dead potential volume estimates for management units within the Northern and Southern Forest Region* (Ministry of Forests and Range, March 2006) indicates the dead potential volume in TFL 59 may be up to of 12.5 percent of the VRI volume.

I recognize that there is significant uncertainty regarding available estimates of dead potential volume in TFL 59. I have considered this information and discussed it with district staff. I am aware that the potential volume available from dead yet merchantable stems in harvested stands was not accounted for in the base case. I consider that some portion of this volume is likely economical to harvest and, therefore, represents a likely small unquantified level of available volume in addition to that projected in the base case; so, I will not consider it further.

##### *- operational adjustment factors for managed stands*

Two types of operational adjustment factors (OAF) were applied to the base case managed stand yield projections to reflect average operational growing conditions in the TFL. The standard OAF 1 value, which is applied to account for less than ideal tree distributions, small non-productive areas, endemic pests and disease, and random risks such as wind throw, is 15 percent. The TFL holder derived specific OAF 1 values for the TFL based on local data and expert opinion. The derived OAFs were species based and ranged between 7.5 and 15.4 percent.

The standard OAF 2 value, which is applied to account for losses due to decay, waste and breakage (DWB), is five percent. The TFL holder derived specific OAF 2 values, ranging between 2.5 and 4.0 percent for the TFL to account for metric diameter class decay, waste and breakage factor (MDDWB) overestimates of the decay, waste and breakage in managed stands.

FAIB staff advised me that the operational adjustment factor estimates applied in the base case were generated following a reviewed and accepted procedure for TSR and I conclude that they are acceptable for the base case analysis. However, I recognize the importance of managed stand monitoring and the establishment of long term, statistically rigorous, repeated measurement programs such as Young Stand Monitoring (YSM) that can be used to improve the determination of OAFs. Therefore, I expect the TFL holder and the Ministry to continue to support the YSM program, to gather improved estimates of managed stand growth and yield to support the chief forester in future AAC determinations as described under '**Implementation**'.

- *minimum harvest criteria*

Minimum harvest criteria are used to establish the minimum requirements that all stands must meet before they are eligible for harvest in a timber supply model. In the base case, the minimum harvestable age of a stand was set to the earliest age at which the stand achieves a volume of 120 cubic metres per hectares and an average piece size of 0.11 cubic metres per stem. The base case minimum harvestable criteria for regenerated (managed) stands is the age at which the stand reaches 95 percent of the culmination mean annual increment (CMAI) (i.e., the optimal point for volume production).

The minimum volume and piece size criteria were derived from five years of the TFL holder's harvest data. Available cruise summary information indicates the average merchantable volume of surveyed stands in TFL 59 is 232 cubic metres per hectares with the lowest volume being 112 cubic metres per hectares.

A sensitivity analysis for minimum harvest criteria increased and decreased the minimum harvest ages for natural stands (30 years) and managed stands (10 years). A decrease in the minimum harvest age results in younger stands becoming eligible for harvest, thereby providing increased flexibility to access volume in the mid-term without significantly affecting the MAI. When minimum harvest age decreases, the short-term timber supply is not affected, the mid-term incremental changes begin five years earlier and the long term is not affected.

An increase in the minimum harvest age results in younger stands not being eligible for harvest until later in the mid-term, and the long-term level was reduced as stands were harvested after CMAI age. When the minimum harvest age was increased, the short-term level was unchanged, the mid-term increase was delayed by 15 years and the long-term level was reduced by two percent.

I am aware that OIB commented that a reduction to the minimum harvest volumes for mature stands may lead to an AAC that could negatively impact values directly related to OIB Aboriginal Interests and the ability of its members to exercise their rights. I am also aware that the sensitivity analysis indicate that the short-term harvest level is not sensitive to these changes. I consider the minimum volume criteria used in the base case reasonable and the resulting timber supply forecast stable. I have considered this information in my decision and I am confident that the volume thresholds used in the base case were appropriately modelled. I therefore make no adjustments to the base case minimum merchantability criteria. If harvest practices related to minimum harvest volumes change, these will be reflected in future TSRs.

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

No factors considered under this section require additional comment.

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

No factors considered under this section require additional comment.

**Section 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**

- *Grade 4 credit*

Operationally, the AAC within a TFL is monitored through various tenure decisions and the billing of harvest to those tenures. Volumes attributed to Grade 4 credits under Section 17(6) of the Cut Control Regulation are an exception for which volume is not accounted against the AAC. Section 17(6) allows TFL holders to remove Grade 4 timber without having it counted against their licence's cut control position if the timber goes to a primary facility (e.g., pulp/paper, bioenergy, etc.) other than a sawmill, veneer plant, or a facility that only produces cants (time limited) and application is made to the government for a credit. Although this provision is intended to provide an incentive to licensees to utilize lower quality logs, use of Grade 4 credits can result in harvesting above the level of the AAC.

A review of harvest records (2009 to 2017) indicated that the TFL holder received an average of 4.8 percent (3285 cubic metres) Grade 4 credit of the total AAC. The majority of this volume was sent to a portable chipper that utilizes both dry pulp and dry undersize pulp.

Since Grade 4 credit volumes were not accounted for in the base case, I view their continued use constitutes a harvest amount incremental to the base case level. Although not quantified, I believe the future use of these credits is likely to fall within the average annual use during the period from 2009 to 2017. This amount reasonably falls within the buffer provided by the selection of a lower harvest level in the base case that was intended to address uncertainties about current practices. Therefore, as discussed under '**Reasons for Decision**', I see no reason to make an adjustment in the base case level to account for Grade 4 credits.

- *logging waste*

Logging waste includes standing or felled timber residue that is not reserved from cutting and remains on site upon the completion of primary logging. Waste assessments are carried out to quantify the volumes of merchantable timber and waste left on the harvested areas following the completion of primary logging. A review of waste survey results for TFL 59 indicate waste levels are below the benchmark levels of four cubic metres per hectare for dry belt areas and 20 cubic metres per hectare wet belt areas. However, OIB has noted the volume of coarse woody debris left behind on harvested areas impacts their ability to walk through these sites and access other areas including important cultural sites and that the amount of coarse woody debris is believed to have contributed to the death of OIB members' saddle horses. In response to this concern, the TFL holder has indicated to FLNRORD staff through this consultation process a willingness to consider routes and trails of importance to OIB and to apply management strategies to address them, such as reserving timber around trail locations and ensuring trails are kept clear of debris. The mitigative steps around road access considerations may also contribute to reducing impacts related to CWD.

OIB also noted that large waste piles have been left on site and that this wood could be of value to First Nation communities.

I have reviewed the waste assessment results and while I accept that waste levels are below the current benchmark, I recognize that this may not be satisfactory for OIB. As described under ‘**Implementation**’ I expect Ministry staff to work with OIB and the TFL holder in order to develop a forestry forum which will discuss measures to address OIB concerns regarding logging waste.

- *timber utilization*

The TFL licence document specifies the utilization levels for the billing of harvested timber. The specifications define the minimum diameter at breast height, minimum top diameter (inside bark) and maximum stump height. The TFL holder specified a maximum stump height of 25 centimetres; however, the default stump height parameter in VDYP 7 cannot be changed from 30 centimetres, therefore, the yield projections did not account for the volume difference between the 25 centimetre (utilization standard) and the 30 centimetre (model standard) stump heights. As a result, yield projections for existing mature spruce, subalpine fir and pine were underestimated by approximately one percent. These species represent approximately 70 percent of the short-term timber supply.

For this determination, I will take into account that yield projections for existing stands have been underestimated and that the short-term timber supply has been underestimated by approximately 0.7 percent. I will discuss this further under ‘**Reasons for Decision**’.

**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**

The Ministry is required, under the *Ministry of Forests Act* to manage, protect and conserve the forest and range resources of the Crown; and to plan the use of these resources 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. The *Forest and Range Practices Act* and other legislation provide for, or enable, the legal protection and conservation of timber and non-timber values. Accordingly, the extent to which integrated resource management (IRM) objectives for various forest resources and values affect timber supply must be considered in AAC determinations.

**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**

First Nations consultation

Aboriginal peoples of Canada have distinct, constitutionally protected rights. The Crown has a duty to consult with, and accommodate if required, those First Nations for whom it has knowledge of the potential existence of Aboriginal Interests or treaty rights that may be impacted by a proposed decision, including strategic-level decisions such as AAC determinations. In particular, recent court decisions have stated that decision makers must use credible information to consider the effects of land management decisions, including AAC determinations, on Aboriginal Interests. As chief forester, I must therefore consider information arising from the engagement process with First Nations, respecting Aboriginal Interests that may be affected by my AAC determination. As well, I will consider other relevant information available to the provincial government regarding Aboriginal Interests, including information gathered during other consultation processes.

As a strategic statutory decision, 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 relationship to claims of Aboriginal title is not a direct one. AAC determinations consider the sustainable harvest level from a particular 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 considered to be 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 that matter.

Aboriginal rights may be connected to biophysical, spatial, social, cultural, spiritual or experiential values. AAC determinations may affect other decisions which can affect various resource values and therefore the ability of First Nations peoples to meaningfully exercise their Aboriginal rights. Information gained through consultation with potentially affected First Nations about Aboriginal rights claims was taken into account in the development of this determination.

The Province, through Ministry of Indigenous Relations and Reconciliation (MIRR), continues to work with First Nations to develop agreements including tenure opportunities related to forestry. These agreements include but are not limited to, Reconciliation Agreements and Strategic Engagement Agreements (SEAs), Forest Consultation and Revenue Sharing Agreements (FCRSAs), as well as other treaty related agreements.

In the Okanagan area, Lower Similkameen Indian Band and Okanagan Indian Band currently have signed FCRSAs with consultative areas that overlap TFL 59. FCRSAs provide First Nations communities with economic benefits returning directly to their community based on harvest activities in their traditional territory. OIB and Penticton Indian Band (PIB) had active FCRSA agreements at the time consultation was initiated for TFL 59, both of which expired in spring 2017. MIRR has offered to work with OIB and PIB on new FCRSAs, however, at the time of this determination new agreements had not been signed.

- *consultation process*

Ministry staff led the consultation process for TFL 59 in two stages, with stage one including the review of the draft Information Package, and stage two including the review of the timber supply analysis and draft Management Plan No. 2.

In October 2016, an initial letter was sent to all First Nations with territory overlapping TFL 59 advising them that a new TSR was being initiated. In accordance with the Ministry's Forest and Range Consultation Matrix, and with FCRSAs in effect at the time, consultation was initiated at the "normal" level for all First Nations. The consultation level progressed to a deeper level with OIB as concerns were identified.

Initial consultation letters for stage one, including a link to the full Information Package, were provided to each First Nation on November 18, 2016. Follow-up letters for stage two, including a link to the timber supply analysis and draft Management Plan No. 2 were sent to First Nations on October 24, 2017. Ministry staff engaged with all First Nations that responded to consultation letters. Each First Nation was asked to review the timber supply analysis and draft Management Plan No. 2 and provide comments or concerns regarding the information contained in the documents and to inform the Ministry of how their Aboriginal Interests might be impacted by the AAC determination. Ministry staff offered to meet with First Nations to discuss the information provided.

Initial responses were received from Lower Similkameen Indian Band and PIB however, no further engagement occurred after follow-up efforts were made by Ministry staff.

No responses were received from other First Nations.

- *Osoyoos Indian Band concerns*

Extensive engagement took place with OIB, including community meetings, a field trip, and a series of technical team discussions. The TFL holder also engaged OIB through letter correspondence, community meetings, and field trips. OIB expressed concerns during these meetings and through a letter to the Ministry dated November 14, 2017. A response to this letter was provided to OIB on December 18, 2017 and followed up with a face-to-face meeting that I attended with OIB Chief, staff members, and community members at the OIB office on January 12, 2018. Following this meeting I encouraged the continuation of dialogue between Ministry staff and OIB staff through the creation of a technical working group to collaboratively address OIB concerns.

A technical working group was established, consisting of Ministry staff and OIB technical staff, with the objective of collaborating on the development of factors (resource values) put forward for consideration in the AAC determination, sharing information, and discussing concerns and mitigation and accommodations measures to address them. Ministry staff proposed co-writing of decision-support documentation, in hopes of reaching consensus on the materials that would be considered in the AAC determination. OIB indicated that instead they would provide comments by way of letter, which was received April 3, 2018.

A response to the April 3, 2018 letter was provided on April 19, 2018, and to further address and discuss the issues raised, I participated in a conference call with OIB on April 24, 2018. OIB provided additional comments on May 8, 2018, to which a response was provided on July 12, 2018.

On August 23, 2018 OIB provided an additional letter stating that a shared consent-based decision-making process was required for the AAC determination. In response to the May 8 and August 23, 2018 letters, I met face-to-face with OIB Chief and staff members on September 25, 2018. In response to this meeting, Ministry staff provided OIB with a letter on November 29, 2018 with further analysis of potential impacts of the AAC determination on OIB's Aboriginal Interests. OIB responded to this letter on January 29, 2019. All correspondence was reviewed and considered as part of this AAC determination process.

Through the meetings and letters noted above, OIB identified a number of concerns regarding forestry activities in TFL 59. Concerns regarding road density, impacts to ungulates, hunting, riparian impacts and cumulative effects are discussed in the corresponding sections of this rationale document. Concerns were raised relating to impacts to cultural heritage resources and impacts to culturally significant plants and gathering sites; how these concerns were considered are shown in the '*cultural heritage resources*' section of this rationale document. Other concerns identified by OIB are described below.

Throughout the engagement process, OIB identified their concern that Syilx Traditional Ecological Values were not being followed and that high-value forest areas were not being retained, thereby impacting ungulate and other wildlife populations. OIB also identified concerns regarding impacts of the AAC level to their Aboriginal Interests, stating that the AAC was too high. I understand that as an initial accommodation measure, the timber supply analysis report recommended the lower base case harvest flow of 66 000 cubic metres per year rather than an initial harvest level of 80 100 cubic metres per year. This lower initial harvest level, relative to the maximum that could be sustained under current practice, allows for a buffer whereby some uncertainties can be addressed or whereby adjustments to current practices can be made to mitigate potential impacts without further reduction to the AAC. I have given this consideration and will discuss the implications of the alternate harvest flow that was presented in the timber supply analysis under '**Reasons for Decision**'.

OIB also stated their concern that the TFL holder had only achieved the AAC twice since 2010 and the TFL holder's history of annual harvest level fluctuations promotes cumulative effects on OIB



Aboriginal Interests. I have been informed that in recent years the TFL holder has directed their harvesting to other areas outside the TFL, which are predominantly pine-leading stands, in order to address the issues created by the mountain pine beetle. The TFL holder's harvest performance is in accordance to policy regarding the AAC cut control period and the TFL holder has informed me that they will maintain a more consistent level of harvest going forward now that the mountain pine beetle issue has been addressed. Ministry staff have suggested that this pattern of large and infrequent pulses of harvesting may more closely mimic natural disturbance processes more than a consistent harvest level and therefore may not necessarily promote additional impacts to biodiversity in the area.

OIB, through the May 8, 2018, letter, suggests that harvesting activities have impacted snowmelts and led to increased erosion on steep or unstable terrain, causing corresponding flooding during the 2018 spring floods. However, even though snowmelt can be impacted by forest practices, an overview of the Inkaneep Creek slide area by FLNRORD research geomorphologist found that the probable cause of the slide was above normal snow accumulation (150 percent of normal) and wet antecedent soil moisture conditions. Although I recognize OIBs concern regarding this issue, as well as their concern regarding potential impacts to fish and aquatic life from forestry activities, I understand that these recent flooding event were not primarily caused by harvesting practices in TFL 59.

Throughout the engagement process and in response to OIB's concerns, the TFL holder has offered to implement the following proposals and management practices:

- stop practice of large clearcuts, larger than 40 hectares, unless where agreed to by OIB for salvage or other reasons;
- incorporate practice of providing screening where harvesting is next to major roads;
- minimize road construction or upgrades to only the extent necessary to facilitate safe hauling in lower elevation areas;
- prepare an initial road deactivation plan for TFL 59 to reduce road access to hunting areas;
- utilize small patch cuts and/or selection harvesting when harvesting in lower elevation Douglas-fir stands;
- revisit the original wildlife travel corridor mapping for applying to future development;
- increase buffers with retention of merchantable stems, non-merchantable stems and other vegetation to improve riparian protection;
- give consideration to OIB trails in management strategies;
- develop a management strategy with hunters;
- work with OIB to develop a management strategy with the purpose of protecting plants of importance to OIB; and,
- forward information to OIB for those cutblocks where harvesting and waste surveys have been completed for Band member awareness of where wood is available for use.

In addition to the items listed above, the Province has proposed to address OIB concerns through the use of map reserves to identify cultural sites during operational planning and through the submission of funding applications to support OIB involvement in forestry related studies. I am of the opinion that these measures will address many of the potential impacts that OIB has brought forward during this process.

It is important to point out that several of the comments expressed through the consultation process relate to impacts that OIB and its members have experienced on the ground that are believed to be the result of recent harvesting activities. I believe that the potential for adverse impacts upon Aboriginal Interests within the area of TFL 59 stemming from forestry operations that occur subsequent to the AAC determination can be addressed through meaningful engagement between the Ministry, OIB and

the TFL holder during operational planning stages and during the consultation that must occur prior to those subsequent operations. As described under ‘**Implementation**’, I expect FLNRORD staff to work with OIB and the TFL holder in order to develop a forestry forum which will discuss and implement measures to address concerns regarding forestry operations in the TFL, including roads, trails and landings, riparian reserve and management zones, cultural heritage resources, logging waste and cumulative effects.

Although the changes from current practice and other measures necessary to mitigate the potential impacts on OIB Aboriginal Interests have not yet been established, I believe it is judicious to consider the potential effect of these change on the TFL timber supply. As noted previously, I view that a determination based on the base case and not the maximum that could be sustained under current practice allows for a buffer whereby adjustments to current practices can be made. I am also mindful that adaptations to forest management practices to address impacts to OIB’s Aboriginal Interests related to cultural, watershed and wildlife habitat values and to account for the protection of cultural heritage features within the boundaries of the TFL may require harvest levels to fall below the base case level and I will discuss this further under ‘**Reasons for Decision**’.

OIB, through their letters of November 14, 2017, April 3, 2018, May 8, 2018, August 23, 2018, October 31, 2018, and January 29, 2019, requested that the Province engage in consent-based decision making. I recognize there were numerous attempts, particularly at the beginning 2018, for FLNRORD staff and OIB technical staff to seek to achieve consensus on the analysis of impacts on OIB Aboriginal Interests as well as measures to appropriately address such impacts. Ideally, these processes would have resulted in joint recommendations to the chief forester in relation to the factors I am required to consider under the *Forest Act* regarding the AAC determination, but that consensus was unfortunately not achieved. I respectfully acknowledge OIB’s position that the AAC determination for TFL 59 should be made by way of a shared consent-based decision making processes, however, the current legislative framework guiding my AAC determinations requires that I exercise this decision making authority independently and consistently within the scope granted to me under Section 8 of the *Forest Act*. I also acknowledge that the provincial government has committed to implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and to working collaboratively and respectfully with Indigenous leaders to establish a clear cross-governmental vision to guide UNDRIP implementation and the necessary changes to provincial laws, policies and practices. Until this guidance has been provided and changes to laws, policies and practices have been made, the Ministry will consult with First Nations in accordance to Provincial legislation, policy and Canadian case law.

- *summary of First Nations engagement*

I recognize that TFL 59 overlaps with the consultative areas of several First Nation communities, with OIB being the most proximal community. I acknowledge all of the First Nation’s concerns identified through this process. Based on my review of the engagement processes followed, the Aboriginal Interests information available to Ministry staff, and the potential impact my decision may have on these interests, I conclude that the Province has engaged in consultation in accordance with applicable case law and current provincial guidance. Furthermore, I note that Ministry staff will continue to and consult with First Nations on issues at both operational and landscape-level planning levels.

I have considered the information received from First Nations and, where appropriate, I have addressed these concerns in my decision. Some concerns were identified that are not within my authority under Section 8 of the *Forest Act*, and other concerns were identified that are being or can be addressed through meaningful engagement between the Ministry and OIB during operational planning stages and during the consultation that must occur prior to those subsequent forestry operations.

I have reviewed the information regarding the consultation undertaken with First Nations and discussed it in detail with Ministry staff. I am satisfied that the engagement with First Nations was conducted appropriately and that reasonable efforts were made by Ministry staff to inform, engage, and collaborate with First Nations in the TSR process. Through the consultation and engagement process First Nations' interests and concerns were discussed in an effort to understand how these interests may or may not be affected by the AAC determination. I have also participated directly with OIB in an attempt to increase my understanding of their concerns and to collaborate on information to be considered in the determination related to potential impacts to their Aboriginal Interests.

I am of the view that the issues and concerns raised have been appropriately addressed, given the information available at this time. If new information regarding First Nations' Aboriginal Interests becomes available that significantly varies from the information that was available for this determination or legislative changes are enacted that affect the AAC determination, I am prepared to revisit this determination sooner than the 10 years required by legislation.

### Other considerations

#### - *climate change*

Current climate projections for the Thompson-Okanagan Region suggest that the region could see an increase in mean annual temperature of 1.6 to 4.4 degrees Celsius, changes in precipitation patterns, and an increase in the frequency and severity of disturbances including wildfires, floods, landslides, and occurrences of insects and disease. The region may experience more winter precipitation, in the form of rain, and less summer precipitation and while the trends are generally consistent, the specific magnitude of these changes, and their spatial and temporal distribution, are uncertain.

Projections for the mid-century suggest increased spring precipitation, reduced snowpack and earlier snow pack melt, which may affect water supply available to the trees and streamflow. It is believed that fires will become more frequent and pests, such as Douglas-fir beetle, Spruce Beetle, and Western Balsam Bark Beetle may increase as changes in precipitation stresses and weakens stands that were established under previous climatic conditions.

In very general terms, longer growing seasons will be a benefit for many tree species however this will likely be offset where summer drought conditions increase, which appears likely for TFL 59. It is projected that over the next three to six decades there will be a significant reduction in the amount of area in the Montane spruce biogeoclimatic zone (BGCZ) and a moderate reduction in the amount of Englemann spruce subalpine fir BGCZ. During this same time period there will be a significant increase in Interior Douglas-fir, Bunchgrass and Ponderosa pine BGCZs.

Projections indicate that extreme events, either beneficial or detrimental to species such as lodgepole pine will increase, Douglas-fir will continue growing well, and the amount of spruce available will decline due to an increase in frequency of outbreaks of pests affecting spruce.

OIB commented that current estimates for non-recoverable losses due to mountain pine beetle (MPB) and fire are not well captured in the *Analysis Report* and are likely well underestimated and that climate change is likely to exacerbate these losses and affect other aspects of forest growth, representing a negative pressure on the sustainable harvest level. While projected climate change will likely affect forest productivity and growth, the dynamics of natural disturbances, forest pests and hydrological balances (e.g., drought stress) mean the magnitude, extent and timing of impacts are uncertain. It will be worthwhile, during the term of this determination, for the Province to continue to consult and collaborate with federal government agencies, First Nations, universities, and forest licensees to better understand climate adaptation and mitigation challenges and opportunities in relation to forest management.

The best approach in the short term is to monitor for changes to enable timely adaptive responses, such as selection of seed sources based on climate-based seed transfer (CBST) policy, and to increase our understanding of climate change related impacts over time.

In determining AACs it is not my practice to account for the potential climate change effects on timber supply and other resource values in any single AAC determination. However, due to the requirement for regular AAC determinations, these changes will be accounted for over time. However, without knowing what the magnitude or management responses to climate change will be I have not accounted for them in this AAC determination.

I have provided a more detailed description of how I account for climate change in AAC decisions under the ‘*Guiding principles for AAC determinations*’ section of this rationale.

- *cumulative effects / fish stream habitat*

Cumulative effects are changes to social, economic and environmental conditions caused by the combined impact of past, present and potential human activities or natural events. The provincial cumulative effects team is focusing on implementing cumulative effects assessments across the province, building assessment procedures for values, and developing policies and procedures. The Government of British Columbia supports the phased implementation of the Cumulative Effects Framework (CEF) that aims to provide relevant information and supporting policy. The framework will ultimately provide information related to a number of environmental, social and economic factors including biodiversity, riparian conditions, water and air quality, fish and wildlife impacts, cultural and heritage concerns, community needs and economic development opportunities. The CEF provides resource managers with procedures and tools to inform decisions that support sustainable management and the needs of many different users.

Many of the current objectives and management approaches applied in TFL 59 are intended to mitigate the negative effects of forest development activities. Such objectives that are reflected in the timber supply analysis include: OSLRMP objectives, *Forest and Range Practices Act* (FRPA) objectives; visual quality objectives; landscape-level biodiversity objectives; cutblock adjacency objectives; non-spatial and spatial old-growth objectives; wildlife tree retention and stand-level retention objectives; wildlife habitat areas and special reserves; recreation reductions; recognition of sensitive soils, unstable terrain and avalanche areas; riparian reserve and management zones; cultural heritage reductions; watershed objectives; and the use of different harvest systems to address issues associated with differing terrain.

In a letter sent on November 14, 2017, OIB stated that activities and the management of this AAC within TFL 59 adversely impact their Aboriginal Interests and result in cumulative effects that have the potential to not only infringe their Aboriginal Interests, but completely erode them for future generations. In response to OIB’s concerns, a cumulative effects assessment for TFL 59 was undertaken by the Ministry and was shared with OIB on March 16, 2018.

The cumulative effects assessment for fish stream habitat assessed those hazards associated with the potential for sediment input, the potential for high peak flows that may affect channel stability and forest management practices near riparian areas. The assessment indicates that riparian hazards have increased and despite compliance with existing legal objectives and regulations, the assessed risk to fish and fish habitat has increased during the last 13 years. The assessment also indicates that objectives and guidance for Fisheries Sensitive Watersheds (FSW) are not being achieved for the Vaseux Creek watershed; the only designated FSW in TFL 59. This increase in riparian hazard and risk to fish and fish habitat may be related to historic harvesting in riparian areas as well as impacts from private land management and range tenures adjacent to riparian areas, with the latter two being outside the influence of the TFL holder.

The potential for high peak flows has also increased, primarily driven by forest harvesting in the upper snow-contributing zone of the watershed where, after an area has been harvested, both winter snow accumulation and spring melt rates increase. This effect is less important at lower elevations, since the snow disappears before peak flow while harvesting at higher elevations will have the greatest impact.

Although Ministry reports indicate that the TFL holder's management of stream riparian areas has met, or exceeded the FPPR legal requirements and has also met the OSLRMP non-legal requirements and exceeded the basal area requirement for S5 and larger S6 streams, changes in forest practices may be required to manage watershed condition to support fish stream habitat. It is important to note that historic impacts may persist, and natural events may occur, thereby increasing cumulative impacts despite efforts to mitigate them.

Recommendations from the cumulative effects assessment call for FLNRORD district and regional staff to review TFL holder's FSP strategies to ensure management of equivalent clearcut area (ECA) is applied using updated hydrologic recovery curves, to monitor riparian condition to determine the extent of harvesting and cattle-related effects and to implement site-level mitigations as required. These include a recommendation that Ministry staff, the TFL holder and OIB work together to develop and implement improved small-stream riparian practices that align with Provincial Riparian Management Guidance and research-which recommend 10-metre retention buffers on small streams. Finally, there is a recommendation that the Ministry review strategies and operating procedures for all natural resource sectors to ensure consistency with the FSW objectives for Vaseux Creek.

I support these recommendations, however, I am aware that increasing the riparian widths would apply a downward pressure on timber supply and the implementation of a legal order to increase RMZ widths is not within the statutory decision-making abilities of this decision. I do recognize that although the TFL holder currently exceeds the required riparian retention requirements, the cumulative effects assessment results indicate that riparian hazards have increased since 2003 therefore I support further study of the relationship between riparian management area widths and practices and watershed sustainability. I am also aware that the resource values assessed are of particular importance to First Nations.

I have considered the information on cumulative effects, including comments from First Nations, and I must interpret related information according to my statutory authority and my '*Guiding principles*' for AAC determinations. I am aware that to implement a 10-meter wide riparian reserve zone on small streams could result in a four percent reduction in the AAC. I am also aware that the base case used an initial harvest level of 66 000 cubic metres per year which is 18 percent lower than the alternative harvest level of 80 100 cubic metres per year. I have considered this buffering effect and I discuss it further under '**Reasons for Decision**'.

I conclude that the base case reflects current management, the current status of the effects of past and present industrial activity on the land base, and the legal objectives established by government for various non-timber resources. I will make no adjustments on this account. Changes in management, as the implications of cumulative effects are more directly considered, will be addressed in future AAC determinations.

Therefore as described under '**Implementation**', I expect Ministry staff to review FSP strategies to ensure management of ECA is applied using updated hydrologic recovery curves, to monitor riparian condition in watersheds to determine extent of harvesting and cattle-related effects and to implement site-level mitigations. Also, as described in the discussion on '*riparian reserve and management zones*', I expect the Ministry to continue to study the relationship between riparian management area widths and practices and watershed sustainability and to make this information available for the next timber supply review. Furthermore, I expect Ministry staff to work with OIB and the TFL holder in

order to develop a forestry forum, which will discuss strategies to improve riparian retention practices on small streams to recommended levels.

- *American marten*

American marten are an important trapped species in BC and are identified as a Goal 2, Priority 4 species in BC's Conservation Framework. Marten are dependent on attributes associated with old and mature forests. The Province recognizes that First Nations have stated strong Aboriginal Interests in sustaining marten, and the Ministry has consistently heard from First Nations that sound stewardship of American marten is very important.

A Land Use Order Regulation (LUOR) legally established marten areas identified through the OSLRMP. The stated objective for marten is "To maintain forage, cover and connectivity for marten." As the LUOR contained no forest cover constraints for marten habitat and the TFL holder's FSP results and strategies do not include mature and old forest retention requirements or forest cover constraints for the marten management zone, the base case did not include any consideration for marten habitat requirements.

In response to OIB concerns regarding marten, existing suitable marten habitats were modelled and the area and arrangement of suitable habitats were spatially evaluated using an assessment procedure developed in consultation with regional and provincial experts.

Uncertainty exists regarding actual marten use of modelled moderate to lower-suitability habitats. If assumptions about marten use and dispersal throughout the moderate and lower-suitability habitats are incorrect, marten populations may be more greatly impacted. A number of recommendations have been put forward by FLNRORD to address this uncertainty and to undertake a review of existing policy, regulations and strategies to ensure OSLRMP objectives for American marten can be achieved. Given the particular importance of marten populations to OIB, I have included an instruction under '**Implementation**' that Ministry staff continue to work with First Nations and the TFL holder on actions proposed by FLNRORD in order to gain further insight into marten use in the area and to review existing policy/regulations to determine if additional measures for habitat protection are required to maintain local populations consistent with OSLRMP objectives.

I have reviewed the analysis assumptions for marten and I conclude that the best available information was used in the base case and although there could be an unquantifiable downward pressure on the AAC, at this time no accounting is required in respect to this factor.

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

Alternative harvest forecasts

The base case projects an initial harvest level of 66 000 cubic metres per year that is sustained for the first 45 years of the 300-year forecast. This harvest level then increases over the next five decades when it reaches a sustainable level of 107 100 cubic metres per year. An alternative initial harvest level of 80 100 cubic metres per year was also analyzed. This harvest level could be maintained for 65 years before increasing to a sustainable level of 107 000 cubic metres per year. I am aware that a decision was made to use 66 000 cubic metres a year as it would mitigate uncertainties related to volume estimates for natural stands, the minimum stand merchantability criteria, future habitat protection for Williamson's sapsucker and changes in management practices that may be required to address concerns raised by First Nations about natural resources in the TFL.

Having reviewed the information regarding the assumptions used in the selection of the initial base case harvest level and having discussed this information with staff, I support the decision to utilize an

initial harvest level of 66 000 cubic metres per year as a basis for my considerations prior to making necessary adjustments as discussed under ‘**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 has expressed the economic and social objectives of the Crown for the province, in a letter dated October 30, 2017. In it, he 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:

1. modernizing land-use planning to effectively and sustainably manage BC’s ecosystems, rivers, lakes, watersheds, forests and old growth forests;
2. expanding investments in reforestation; and,
3. developing strategies for the management of wildlife resources and habitat (in collaboration with relevant Natural Resource Ministries, indigenous partners, and industry).

The October 30, 2017, letter also asks that I ensure the Ministry’s approved strategies for delivering its forestry objectives are integrated into the TSR process.

With respect to First Nations, the letter asks that I 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. In addition, it confirms the Government’s commitment to moving forward on reviewing policies, programs, and legislation to determine how to bring the United Declaration on the Rights of Indigenous Peoples (UNDRIP) into action with respect to AAC determinations. It asks that I consider traditional knowledge and other input from BC First Nation communities and organizations as they pertain to the AAC determination.

The Minister asked for consideration as to 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.

As well, the Minister asks that I ensure the TSR 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 TSR identifies those risks for consideration in land use planning.

Finally, the minister suggested the chief forester should consider the environmental, social and economic needs of local communities as expressed by the public during TSR 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. When faced with

necessary reductions in AACs, that those reductions be no larger than necessary to avoid significant longer term impacts.

With respect to the Minister's letter, I note that the base case and alternative harvest projections prepared for this determination have a primary objective of attaining a stable, long-term harvest level where the growing stock is also stable. I am satisfied that the base case has incorporated the best available information regarding the impacts of insect infestations and wildfire while promoting forest health and values in TFL 59.

During my consideration of the factors required under Section 8 of the *Forest Act*, I have considered both the local objectives, as provided in the OSLRMP and associated plans and orders, as well as the objectives of First Nations. I have considered the socio-economic objectives expressed in the 2017 letter in this determination for TFL 59, and have reviewed the public consultation process undertaken by the region and considered the input received in making my determination. 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 59 I have considered all the factors required under Section 8 of the *Forest Act*. I have made the considerations documented above, all of which are integral to the reasons for my decision, and from which I have reasoned further as follows.

I note that the base case suggests an initial harvest level of 66 000 cubic metres per year could be maintained for 45 years before increasing each decade for 50 years to the long-term harvest level of 107 100 cubic metres per year 96 years into the forecast. The long-term harvest level was maintained for the remainder of the 300 year forecast.

I am satisfied that the assumptions applied in the base case for the majority of factors I considered were appropriately modelled and reasonably reflect current legal requirements, demonstrated forest management and the best available information for TFL 59. However, I have identified a number of factors which, considered separately, indicate that the short-term timber supply may be either greater or less than that projected in the base case. Some of these factors can be readily quantified and their impact on the harvest level assessed with reliability. The others may influence timber supply by adding an element of uncertainty to the projection but cannot be reliably quantified at this time. In this section, I have summarized my considerations related to these factors.

I have identified the following factors that indicate an underestimation in the base case timber supply.

- *Timber utilization* – there is a discrepancy between the stump height indicated in the timber utilization standards applicable to TFL 59 and the stump height assumptions applied in the base case for existing, natural, spruce-leading, subalpine fir-leading and pine-leading stands. As a result, yield projections for these stand types were underestimated by approximately one percent. These stand types represent approximately 70 percent of the short-term timber supply in the base case forecast.
- *Dead potential volume* – the volume available from dead yet merchantable stems was not accounted for in the base case. I consider that some portion of this dead potential volume is likely economical to harvest and, therefore, represents an additional volume to the short-term harvest projected in the base case. However, given the lack of information about past utilization the additional harvest contribution from dead potential, the underestimation in the base case cannot be reliably quantified at this time.



I have identified the following factors that have a potential to influence timber supply to a degree that currently cannot be quantified with accuracy.

- *Recreation resources* - the Mount Baldy Ski Resort is a controlled recreational area (CRA). The master development agreement between the Province and the Mount Baldy Ski Corporation has the potential to effect operations in the CRA that would reduce the TFL long-term timber supply projected in the base case by an unquantified amount.
- *Cultural heritage resources* - the area needed to protect CHR sites may largely overlap with areas reserved for other resource values, however, given the extensive First Nations history in the area, effectively managing for these CHR may require additional area to be reserved that would reduce the short-term timber supply projected in the base case by an unquantified amount.
- *Grade 4 credits* - as the result of the expected continued use of Grade 4 credit by the licensee in TFL 59, the short-term timber supply is overestimated by an unquantified amount that is likely less than 4.8 percent of base case level, which is the average use of Grade 4 credits in the period 2009-2017.
- *Aboriginal Interests* - forest management practices to address impacts to OIB's Aboriginal Interests related to cultural, watershed and wildlife habitat values within the boundaries of the TFL is likely to require the short-term harvest levels to fall below the base case level by an unquantified amount.
- *Fish stream habitat* - a cumulative effects assessment indicates that changes in forest practices may be required to address increases in riparian hazard and to manage watershed condition to support fish stream habitat with the TFL. The recommendations include changes to riparian retention practices on small streams which could reduce the short-term timber supply for the TFL by an unqualified amount that is likely less than four percent.

For this determination, I was presented with an alternative harvest flow scenario, developed by the TFL holder, that showed the initial harvest level can be sustained in the short term at 80 100 cubic metres per year. The TFL holder's rationale for proceeding with a base case of 66 000 cubic metres per year, and not recommending an AAC at this higher level, centred on the desire to buffer against a number of uncertainties that may affect the timber supply in the TFL over the term of the AAC. These uncertainties relate to volume estimates for natural stands, the minimum stand merchantability criteria, future habitat protection for Williamson's sapsucker and changes in management practices undertaken to address concerns raised by OIB regarding natural resources in the TFL. In my view, the buffer provided by the lower harvest level in the base case also addresses the likely net overestimation of the base case timber supply indicated by the aggregate of factors related to timber utilization standards, dead potential volume, recreation resources, Grade 4 credits and changes in management practices that may be required to address risks to fish stream habitat.

As noted previously, I am mindful that a determination at the base case level would account for some changes in forestry practices to address OIB's Aboriginal Interests. However, I believe that all anticipated changes committed to by the TFL holder, which include stopping the practice of harvesting large clearcuts, increasing the utilization of small patch cuts, developing an access management strategy to reduce impacts of roads and reviewing original wildlife travel corridors, and the need to account for the protection of cultural heritage features will require the AAC to be below the base case level. The magnitude of the incremental reduction needed to account for these residual factors was not assessed in the timber supply analysis, however, based on my understanding of the likely nature of these changes, I believe the reduction is reasonably quantified to be eight percent of the base case harvest level or 5300 cubic metres per year. This will reduce the projected short-term

timber supply in the base case to 60 700 cubic metres per year, which is 24 percent lower than the maximum sustainable harvest level identified in the analysis.

## Determination

I have considered and reviewed all the factors as documented above, including the risks and uncertainties of the information provided. 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 the socio-economic objectives of the Crown, can be best achieved in TFL 59 by establishing an AAC of 60 700 cubic metres.

This determination is effective March 14, 2019, 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.

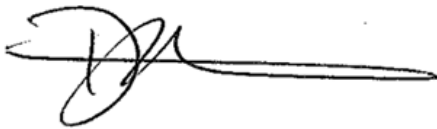
If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

## Implementation

In the period following this decision and leading to the subsequent determination, I encourage Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) staff and the TFL holder to undertake or support the 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, including funding. However, these projects are important to help reduce the risk and uncertainty associated with key factors that affect the timber supply in TFL 59.

1. *Forest inventory*: I expect FAIB staff to improve the accuracy of the natural stand yield estimates found in the Vegetation Resource Inventory and quantify the impacts prior to the next TSR.
2. *Williamson's sapsucker*: I expect FLNRORD staff to monitor forestry practices in Williamson's sapsucker areas of occupation to determine if the established Best Management Practices are effective and if the stand retention assumptions applied in the analysis adequately reflect practice.
3. *Operational adjustment factors for managed stands*: I expect FLNRORD staff to conduct Young Stand Monitoring in TFL 59 in order to assess and improve managed stand yield estimates.
4. *Riparian reserve and management zones*: I expect the Ministry to investigate the relationship between riparian reserve width and watershed sustainability and to make this information available for the next timber supply review.
5. *Cultural heritage resources*: I expect FLNRORD staff, First Nations and the TFL holder to work together to spatially identify cultural heritage resources in areas known to be of high interest to First Nations. I expect that FLNRORD staff continue to assess First Nations concerns regarding forest practices through the implementation of the Forest and Range Evaluation Program Cultural Heritage Resource protocol and I request that this information be available for future TSRs.

6. *American Marten*: I expect FLNRORD staff to work with First Nations and the TFL holder on actions proposed by FLNRORD in order to gain further insight into marten use in the area and to review existing policy and regulations to determine if additional measures for habitat protection are required to maintain local populations consistent with OSLRMP objectives.
7. *Forestry forum*: I expect FLNRORD staff to work with OIB and the TFL holder in order to develop a forestry forum to develop a stronger and more collaborative relationship between the parties and to discuss and implement measures to address concerns regarding forestry operations in the TFL, including roads, trails and landings, riparian reserve and management zones, cultural heritage resources, logging waste and cumulative effects.
8. *Assessment of cumulative effects*: I expect FLNRORD staff to review FSP strategies to ensure management of equivalent clearcut area is applied using updated hydrologic recovery curves, to monitor riparian condition in watersheds to determine extent of harvesting and cattle-related effects and to implement site level mitigations. Furthermore, I expect Ministry staff to work with OIB and the TFL holder in order to develop a forestry forum, which will discuss strategies to improve riparian retention practices on small streams to recommended levels.



Diane Nicholls, RPF  
Chief Forester

March 14, 2019



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

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, c. 157, (current to March 6, 2019), 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 tree farm licence areas, community forest agreement areas and 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 determining an allowable annual cut under subsection (1) the chief forester may 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.]

(6) The regional manager or district manager must determine an allowable annual cut for each woodlot licence area, according to the licence.

(7) The regional manager or the regional manager's designate must determine an allowable annual cut for each community forest agreement area, in accordance with

(a) the community forest agreement, and

(b) any directions of the chief forester.

(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 March 6, 2019) 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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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.

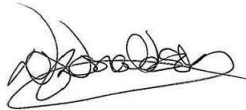
In order to ensure that AAC determinations align with government objectives to modernize land-use planning and sustainably manage B.C.'s ecosystems, rivers, lakes, watersheds, forests and old growth forests, the Timber Supply Review process should incorporate the best available information on climate 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 over a horizontal line.

Doug Donaldson  
Minister

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

The information sources considered in determining this AAC for TFL 59 include the following:

- *Legislation*

- Government of Canada. S.C. 2002, c.29. *Species at Risk Act*. Ottawa, Ont. Current to February 14, 2019. <https://laws-lois.justice.gc.ca/eng/acts/s-15.3/FullText.html>;
- Province of British Columbia. 2004. *Forest and Range Practices Act*. Victoria, BC. [http://www.bclaws.ca/civix/document/id/lc/statreg/02069\\_01](http://www.bclaws.ca/civix/document/id/lc/statreg/02069_01) Current to March 6, 2019;
- Province of British Columbia. 2004. Forest Planning and Practices Regulation. Victoria, BC. [http://www.bclaws.ca/Recon/document/ID/freeside/14\\_2004](http://www.bclaws.ca/Recon/document/ID/freeside/14_2004). Current to March 5, 2019;
- 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 March 5, 2019;
- Province of British Columbia. 2009. Allowable Annual Cut Administration Regulation. Victoria, BC. [http://www.bclaws.ca/Recon/document/ID/freeside/69\\_2009](http://www.bclaws.ca/Recon/document/ID/freeside/69_2009). Current to March 5, 2019;
- Province of British Columbia. RSBC 1996. *Forest Act*. Section 8 – Allowable annual cut. [http://www.bclaws.ca/civix/document/id/complete/statreg/96157\\_02](http://www.bclaws.ca/civix/document/id/complete/statreg/96157_02). Current to March 6, 2019;
- 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 March 6, 2019;
- Province of British Columbia. RSBC 1996. *Land Act*. Victoria, BC. [http://www.bclaws.ca/civix/document/id/complete/statreg/96245\\_01](http://www.bclaws.ca/civix/document/id/complete/statreg/96245_01). Current to March 6, 2019;
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- Province of British Columbia. RSBC 1996. *Ministry of Lands, Parks and Housing Act*. Victoria, BC. [http://www.bclaws.ca/civix/document/id/complete/statreg/96307\\_01](http://www.bclaws.ca/civix/document/id/complete/statreg/96307_01). Current to March 6, 2019;
- Province of British Columbia. SBC 2006. *Resort Timber Administration Act*. Victoria, BC. [http://www.bclaws.ca/Recon/document/ID/freeside/00\\_06030\\_01](http://www.bclaws.ca/Recon/document/ID/freeside/00_06030_01). Current to March 6, 2019.

- *First Nations*
  - Haida Nation v. British Columbia (Minister of Forests), [2004] 3 S.C.R. 511, 2004 SCC 73;
  - Letter from Osoyoos Indian Band to Ministry of Forests, Lands and Natural Resource Operations. April 3, 2018. Regarding consultation on TFL 59;
  - Letter from Osoyoos Indian Band to the Ministry of Forests, Lands and Natural Resource Operations and to the Minister of Environment and Climate Change Strategy. November 14, 2017. Regarding Tree Farm Licence 59;
  - Letter from Osoyoos Indian Band to Weyerhaeuser Company Limited. October 20, 2016. Regarding concerns about TFL 59;
  - Letter from Weyerhaeuser Company Limited to Osoyoos Indian Band. October 24, 2017. Regarding draft management plan #2 for TFL 59;
  - Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2018. First Nations Consultation Record. TFL 59 – AAC Determination. Consultation Report and Tracking System;
  - Province of British Columbia. 2010. Updated Procedures for Meeting Legal Obligations when Consulting First Nations. [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations/legal\\_obligations\\_when\\_consulting\\_with\\_first\\_nations.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations/legal_obligations_when_consulting_with_first_nations.pdf);
  - United Nations. 2008. United Nations Declaration on the Rights of Indigenous Peoples. [http://www.un.org/esa/socdev/unpfii/documents/DRIPS\\_en.pdf](http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf).
  
- *TFL holder Plans and Timber Supply Review Documents*
  - AAC Determination Binder for TFL 59 - including input received from First Nations through the consultation process and comprehensive discussions with Ministry staff, including the AAC determination meeting held in Vernon on April 25, 2018;
  - Forsite Consultants Limited. 2017. Tree Farm Licence 59 Management Plan No. 2 Version 1.0. Project 516-12. Prepared for Weyerhaeuser Company Limited;
  - Forsite Consultants Limited. 2017. Weyerhaeuser Company Limited Tree Farm Licence 59 Management Plan 2 Timber Supply Analysis Information Package Project 519 12. Prepared for Weyerhaeuser Company Limited;
  - Forsite Consultants Limited. 2017. Weyerhaeuser Company Limited Tree Farm Licence 59 Management Plan 2 Timber Supply Analysis Base Case Documentation Project 519-12. Prepared for Weyerhaeuser Company Limited;
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  - Weyerhaeuser Company Limited. 2016. TFL 59 Management Plan #2 Proposed Referral and Public Review Strategy.

- *Minister's Letter*
  - 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.
- *Land Use, Forest Practices and other Documents*
  - B.C. Ministry of Agriculture and Lands. 2007. Order Establishing Objectives in Okanagan-Shuswap LRMP Area. <https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions/thompson-okanagan/okanaganshuswap-lrmp>
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