

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

Tree Farm Licence 6

held by
Western Forest Products Inc.

Rationale for Allowable Annual Cut (AAC) Determination

Effective February 10, 2012

**Jim Snetsinger RPF
Chief Forester**

Table of Contents

Objective of this document.....1

Statutory framework.....1

Description of the TFL.....1

History of the AAC1

New AAC determination.....2

Information sources used in the AAC determination2

Role and limitations of the technical information used.....5

Guiding principles for AAC determinations5

The role of the base case7

Timber supply analysis.....8

Consideration of factors as required by Section 8 of the *Forest Act*.....9

 Factors requiring additional explanatory consideration.....10

 Factors considered under Section 8(8)(a)(i).....10

 - land base contributing to timber harvesting10

 Factors considered under Section 8(8)(a)(ii)11

 Factors considered under Section 8(8)(a)(iii)11

 - fertilization.....11

 - genetic gain.....12

 - silvicultural systems.....13

 Factors considered under Section 8(8)(a)(iv).....13

 - coast log grades.....13

 Factors considered under Section 8(8)(a)(v).....14

 - visual resource emphasis.....14

 Factors considered under Section 8(8)(a)(vi).....14

 - First Nations considerations.....14

 - licence AAC and actual harvest performance17

 - alternative harvest flows17

 Factors considered under Section 8(8)(d)18

 - Minister’s letter18

 - local objectives19

 Factors considered under Section 8(8)(e)19

Reasons for Decision.....19

Determination.....20

Implementation.....21

Appendix 1: Section 8 of the *Forest Act*22
Appendix 2: Section 4 of the Ministry of Forests and Range Act.....26
Appendix 3: Minister’s letter of July 4, 2006.....27

List of Tables

Table 1. List of accepted factors..... 9

Objective of this document

This document provides an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence 6 (TFL 6). This document also identifies where new or better information is needed for incorporation in future determinations.

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 Tree Farm Licences (TFLs). Section 8 of the Act is reproduced in full as Appendix 1 of this document.

Description of the TFL

TFL 6, held by Western Forest Products Inc. (WFP, “the licensee”), is located on northern Vancouver Island in the vicinity of Quatsino Sound. It falls within the West Coast Region of the Ministry of Forests, Lands, and Natural Resource Operations (FLNR), and is administered from the North Island–Central Coast District. It is bordered by TFL 39 on the southeast, by Cape Scott Provincial Park on the northwest, by the Pacific TSA on the west, and by the Kingcome TSA in other areas.

TFL 6 encompasses 171 441 hectares of varied terrain, ranging from steep mountains in central and inland portions to gentle rolling hills in eastern and western portions. Productive forest covers 147 059 hectares (about 86 percent) of the TFL, whereas brush and wet sites occupy most of the remaining 24 382 hectares. In the base case of the timber supply analysis, 106 319 hectares (about 72 percent) of the total productive land base were estimated to be available for timber harvesting in the long term. Overall, about 63 percent of the total TFL 6 area contributes to the long-term timber harvesting land base (THLB) assumed in the analysis.

The majority of the operable forest area lies within the Coastal Western Hemlock biogeoclimatic zone. The forests are primarily composed of western hemlock, western redcedar, and amabilis fir; with lesser amounts of Sitka spruce, Douglas-fir, yellow-cedar, red alder, and shore pine. TFL 6 provides habitat for numerous wildlife species including small mammals, birds, amphibians, and fish; and large mammals such as black bears, black-tailed deer, Roosevelt elk and cougars. Several of its rivers and creeks support important runs of salmon.

The principal communities near or within the TFL are Port Hardy, Port McNeill, and Port Alice. Also present within the TFL are the smaller communities of Holberg, Winter Harbour, and Coal Harbour. The economies of these communities are highly dependent on resource-based industries including: forestry, aquaculture, tourism, and commercial and recreational fishing.

TFL 6 falls within the traditional territories of the following First Nations: the Kwakiutl First Nation, the Mamalilikulla–Qwe’Qwa’Sot’Em First Nation, the’Namgis First Nation, the Quatsino First Nation, and the Tlatlasikwala First Nation.

History of the AAC

The last AAC for TFL 6 was determined in 2001 at 1 460 000 cubic metres. It was subsequently reduced by 116 800 cubic metres (eight percent) in 2007 to account for the deletion of all the

private land in TFL 6. Following this deletion, also in 2007, the AAC determination was postponed under Section 8(3.1) of the *Forest Act*.

In 2001, 1 446 758 cubic metres of the AAC was available to the licensee; while the Small Business Forest Enterprise Program (SBFEP) was entitled to 13 242 cubic metres. With the enactment of the *Forestry Revitalization Act* in 2003, 20 percent of the AAC of major licensees, such as WFP, was reallocated to others, including: BC Timber Sales (BCTS, the successor to the SBFEP), First Nations, and small tenures such as Community Forest Agreements and Woodlot Licences. For TFL 6 the effect was the reallocation of 86 000 cubic metres from WFP to others: 69 422 cubic metres to BCTS (for a new total of 82 664 cubic metres), 11 578 cubic metres to First Nations, and 5000 cubic metres to a Community Forest Agreement.

In 2009 the Pacific TSA was created by deleting areas from TFLs, including TFL 6, and adding them to the newly created TSA. As a result of the area deletion from TFL 6, under the *Allowable Annual Cut Administration Regulation*, the AAC for TFL 6 was reduced by the volume allocated to BCTS. This volume was added to the AAC of the Pacific TSA. There was, however, no legal mechanism other than Section 8 of the *Forest Act* for adjusting the TFL 6 AAC, when the Community Forest Agreement with the North Island Community Forest Limited Partnership (“North Island CFA”) area, with an AAC of 5000 cubic metres, was deleted. As a result, the AAC in effect immediately before this determination was 1 260 536 cubic metres. I will account for the deletion of the North Island CFA in this determination. Areas for the First Nations allocation of 11 578 cubic metres also remain to be identified within TFL 6, and until these areas are identified and deleted from the TFL, the volume assigned to First Nations will form a part of the AAC I have hereby determined.

New AAC determination

Effective February 10, 2012, the new AAC for TFL 6 will be 1 160 000 cubic metres, which is eight percent less than the current AAC. This AAC will remain in effect until a new AAC is determined, which must take place within 10 years of this determination.

Information sources used in the AAC determination

Information considered in determining the AAC for TFL 6 includes the following:

- *Tree Farm Licence 6 Timber Supply Analysis Information Package, in Preparation of Management Plan 10–Version 2* (final); submitted February 2011 by WFP, accepted March 3, 2011 by FLNR Forest Analysis and Inventory Branch;
- Existing Stand Yields, submitted October 2010 by WFP; accepted March 3, 2011 by FLNR Forest Analysis and Inventory Branch;
- Managed stand yields/site index, submitted October 2010 by WFP; accepted January 19, 2011 by FLNR Forest Analysis and Inventory Branch;
- *Tree Farm Licence 6 Timber Supply Analysis, Management Plan 10–Version 1*, submitted May 2011 by WFP, accepted August 30, 2011 by FLNR Forest Analysis and Inventory Branch;
- *Tree Farm Licence 6 Draft Management Plan 10, Version 1*, submitted by WFP May 2011;
- Updated Procedures for Meeting Legal Obligations When Consulting First Nations – Interim; Province of British Columbia; May 7, 2010;

- Consultation Record for the Proposed Approval of Management Plan #10 and Annual Allowable Cut Determination for Tree Farm Licence 6 held by Western Forest Products Inc. within the North Island–Central Coast Resource District, November 15, 2011, FLNR;
- Summary of public input solicited by the licensee regarding *Tree Farm Licence 6 Draft Management Plan 10, Version 1*;
- Western Forest Strategy: A Program for Conserving Biodiversity on Company Tenures, September 2007, WFP;
- Tree Farm Licence 6, Tree Farm Licence 39 Block 4, and Tree Farm Licence 37 Watershed Management Strategies, October 29, 2007, WFP;
- Forest Stewardship Plan—North Vancouver Island Region Forest Operations of Western Forest Products Inc., May 22, 2007, WFP;
- Growth and foliar nutrition of juvenile western hemlock and western redcedar plantations on low- and medium-productivity sites on northern Vancouver Island: response to fertilization and planting density; 2007; R.W. Negrave, C.E. Prescott and J.E. Barker; Canadian Journal of Forest Research 37(12), pages 2587-2599;
- Salal–Cedar–Hemlock Integrated Research Program—Research Update #2: Silvicultural Practices for Regeneration of Cedar–Hemlock Sites in Coastal British Columbia, March 2002, Faculty of Forestry, University of British Columbia;
- Increases in tree growth and nutrient supply still apparent 10 to 13 years following fertilization and vegetation control of salal-dominated cedar-hemlock stands on Vancouver Island; 2003; J.N. Bennett, L.L. Blevins, J.E. Barker, D.P. Blevins and C.E. Prescott; Canadian Journal of Forest Research 33(8), pages 1516-1524;
- Summary of Dead Potential Volume Estimates for Management Units within the Coastal Forest Region. Ministry of Forests and Range. March 2006;
- Procedures for Factoring Visual Resources into Timber Supply Analyses, BC Ministry of Forests, 1998;
- Landscape Unit Planning Guide, March 1999, Province of BC;
- Vancouver Island Summary Land Use Plan, February 2000, Province of BC;
- Vancouver Island Land Use Plan Higher Level Plan Order, Effective December 2000, Province of BC;
- Identified Wildlife Management Strategy—Accounts and Measures for Managing Identified Wildlife, Version 2004, Province of BC;
- Notice—Indicators of the Amount, Distribution and Attributes of Wildlife Habitat Required for the Survival of Species at Risk in the North Island–Central Coast Forest District, March 2, 2006, BC Ministry of Environment;
- Order Establishing Provincial Non-Spatial Old Growth Objectives, June 30, 2004, BC Ministry of Sustainable Resource Management;
- Order to Establish a Landscape Unit and Objectives—San Josef Landscape Unit, effective January 26, 2005, BC Ministry of Sustainable Resource Management;
- Order—Fisheries Sensitive Watersheds—Vancouver Island, effective December 28, 2005, BC Ministry of Environment;
- Order to Identify Karst Features for the North Island–Central Coast Forest District, effective March 29, 2007, BC Ministry of Forests and Range;

- Keogh Landscape Unit—Draft Summary Biodiversity Report with Proposed Legal Objectives, March 15, 2010, WFP;
- Holberg Landscape Unit—Draft Summary Biodiversity Report with Proposed Legal Objectives, March 15, 2010, WFP;
- Neroutsos Landscape Unit—Draft Summary Biodiversity Report with Proposed Legal Objectives, March 15, 2010, WFP;
- Mahatta Landscape Unit: WFP Tenures—Draft Summary Biodiversity Report with Proposed Legal Objectives, March 15, 2010, WFP;
- Ministerial Order—Land Use Objectives for Old Growth Management Areas (OGMAs) within the Nahwitti, Tsulquate and Marble Landscape Units situated on northern Vancouver Island within the North Island–Central Coast Forest District, July 26, 2010, BC Ministry of Agriculture and Lands;
- Order to Establish Visual Quality Objectives for Tree Farm Licence 6 and Block 7 of the Pacific TSA within the North Island Central Coast Forest District, September 24, 2010, BC Ministry of Forests and Range;
- Approved Wildlife Habitat Areas, BC Ministry of Environment, available online at <http://www.env.gov.bc.ca/wld/frpa/iwms/wha.html>;
- Approved Ungulate Winter Ranges, BC Ministry of Environment, available online at http://www.env.gov.bc.ca/wld/frpa/uwr/approved_uwr.html;
- Community Watersheds Query, BC Ministry of Environment, available online at http://www.env.gov.bc.ca/wsd/data_searches/comm_watersheds/index.html
- Tree Farm Licence 6, Instrument 84, March 6, 2002;
- Tree Farm Licence 6, Instrument 88, June 15, 2001;
- Tree Farm Licence 6, Instrument 90, July 23, 2004;
- Tree Farm Licence 6, Instrument 92, July 23, 2004;
- Tree Farm Licence 6, Instrument 94, January 31, 2007;
- Tree Farm Licence 6, Instrument 97, July 15, 2009;
- *Forestry Revitalization Act* Order No. 3(4) 7-3, January 19, 2010, BC Ministry of Forests, Mines and Lands;
- Sustainable Forest Management Plan (SFMP) — North Vancouver Island, last revised December 2010, WFP;
- *Forest Practices Code of British Columbia Act* current to March 17, 2010, and regulations and guidebooks;
- *Ministry of Forests and Range Act*;
- *Forest Act* and regulations, current to January 25, 2012;
- *Forest and Range Practices Act* and regulations, current to January 25, 2012;
- *Forestry Revitalization Act*, current to January 25, 2012;
- *Heritage Conservation Act*, current to January 25, 2012;
- TFL 6 Management Plan No. 9, May 2001, WFP;
- Tree Farm Licence 6 Rationale for Allowable Annual Cut (AAC) Determination, Effective September 1, 2001, BC Ministry of Forests;

- Chief Forester Order Respecting an AAC Determination for Tree Farm Licence No. 6, June 14, 2007, BC Ministry of Forests and Range;
- Letter from the Minister to the Chief Forester re: Economic and Social Objectives of the Crown, July 4, 2006 (Appendix 3); and
- Technical review and evaluation of information and current operating conditions through comprehensive discussions with FLNR staff, including the AAC determination meeting held in Victoria on December 8, 2011 and subsequent dialogue with staff.

Role and limitations of the technical information used

Section 8 of the *Forest Act* requires the chief forester, in determining AACs, to consider biophysical, social and economic information. Most of the technical information used in determinations is in the form of a timber supply analysis and its inputs of inventory and growth and yield data. These are concerned primarily with biophysical factors, such as the rate of timber growth and the definition of the land base considered available for timber harvesting; and with management practices.

The analytical techniques used to assess timber supply necessarily are simplifications of the real world. Many of the factors used as inputs to timber supply analysis are uncertain, due in part to variation in physical, biological, and social conditions. Ongoing scientific studies of ecological dynamics will help reduce some of this uncertainty.

Furthermore, 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 decisions such as AAC determinations. Such information does provide valuable insight into potential impacts of different resource-use assumptions and actions, and thus forms an important component of the information I must consider in AAC determinations.

In determining this AAC for TFL 6, I have considered known limitations of the technical information provided. I am satisfied that the information provides a suitable basis for my determination.

Guiding principles for AAC determinations

Rapid changes in social values and in the understanding and management of complex forest ecosystems mean there is always uncertainty in the information used in AAC determinations. In making the large number of periodic determinations required for British Columbia's many forest management units, administrative fairness requires a reasonable degree of consistency of approach in incorporating these changes and uncertainties. To make my approach in these matters explicit, I have set out the following body of guiding principles. In any specific circumstance where I may consider it necessary to deviate from these principles, I will explain my reasoning in detail.

Two important ways of dealing with uncertainty are:

- (i) minimizing risk, in respect of which in making AAC determinations I consider particular uncertainties associated with the information before me and attempt to assess and address the various potential current and future, social, economic and environmental risks associated with a range of possible AACs; and
- (ii) redetermining AACs frequently, in cases where projections of short-term timber supply are not stable, to ensure they incorporate current information and knowledge.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, I intend to reflect, as closely as possible, those forest management factors that are a reasonable extrapolation from current practices. It is not appropriate to base my decision on unsupported speculation with respect to factors that could affect the timber supply that are not substantiated by demonstrated performance or are beyond current legal requirements.

In many areas, the timber supply implications of some legislative provisions remain uncertain, particularly when considered in combination with other factors. In each AAC determination I take this uncertainty into account to the extent possible in context of the best available information.

It is my practice not to speculate on timber supply impacts that may eventually result from land-use decisions not yet finalized by government. However, where specific protected areas, conservancies, or similar areas have been designated by legislation or by order in council, these areas are deducted from the timber harvesting land base 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 to help in meeting resource management objectives such as for biodiversity.

In some cases, even when government has made a formal land-use decision, it is not necessarily possible to fully analyse and account for the consequent timber supply impacts in a current AAC determination. Many government land-use decisions must be followed by detailed implementation decisions requiring, for instance, further detailed planning or legal designations such as those provided for under the *Land Act* and the *Forest and Range Practices Act (FRPA)*. In cases where there is a clear intent by government to implement these decisions that have not yet been 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 I will consider information on 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.

Some persons have suggested that, given the large uncertainties present with respect to much of the data in AAC determinations, any adjustments in AAC should wait until better data are available. I agree that some data are incomplete, but this will always be true where information is constantly evolving and management issues are changing. The requirement for regular AAC reviews will ensure that future determinations incorporate improved information.

Others have suggested that, in view of data uncertainties, I should immediately reduce some AACs in the interest of caution. However, any AAC determination I make must be the result of applying my judgment to the available information, taking any uncertainties into account. Given the large impacts that AAC determinations can have on communities, no responsible AAC determination can be made solely on the basis of a response to uncertainty. Nevertheless, in making my determination, I may need to make allowances for risks that arise because of uncertainty.

With respect to First Nations' issues, I am aware of the Crown's legal obligation resulting from recent court decisions to consult with First Nations regarding asserted rights and title (aboriginal interests) in a manner proportional to the strength of their aboriginal interests and the degree to which the decision may impact these interests. In this regard, I will consider the information provided to First Nations to explain the timber supply review (TSR) process and any information brought forward respecting First Nations' aboriginal interests including how these interests may

be impacted, and any operational plans and actions that describe forest practices to address First Nations' interests, before I make my decision. As I am able, within the scope of my authority under Section 8 of the *Forest Act*, where appropriate I will seek to address aboriginal interests that will be impacted by my decision. When aboriginal interests are raised that are outside my jurisdiction, I will endeavour to forward these interests for consideration by appropriate decision makers. Specific concerns identified by First Nations in relation to their aboriginal interests within the TFL are addressed in various sections of this rationale.

The AAC that I determine 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 my determination does not prescribe a particular plan of harvesting activity within TFL 6. It is also independent of any decisions by the Minister of Forests, Lands and Natural Resource Operations with respect to subsequent allocation of wood supply.

Overall, in making AAC determinations, I am mindful of my obligation as a steward of the forested land of British Columbia, of the mandate of the Ministry of Forests, Lands and Natural Resource Operations (formerly the Ministry of Forests and Range) as set out in Section 4 of the *Ministry of Forests and Range Act*, and of my responsibilities under the *Forest and Range Practices Act (FRPA)*.

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 Program for TSAs and TFLs.

For most AAC determinations, a timber supply analysis is carried out using an information package including data and information from three categories: land base inventory, timber growth and yield, and management practices. Using this set of data and a computer model, a series of timber supply forecasts can be produced to reflect 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 it 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 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 model 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 resulting predictions of timber supply must be adjusted to more properly reflect the current and foreseeable 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 forecast. 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 May 2011 timber supply analysis for TFL 6 (referred to below as the “timber supply analysis” or just the “analysis”) was prepared by licensee staff using the Remsoft Spatial Planning System. The non-spatial component of the Spatial Planning System suite, Woodstock, was used to prepare the harvest forecasts in the analysis. Woodstock may be used either in optimization or sequential simulation mode, and for this analysis the optimization mode was used. The forecasts from this timber supply model were reviewed by FLNR staff who advised me about the function of this model, and any associated implications with the harvest projections.

Based on the review by staff and my previous experience reviewing the results of this model, I am satisfied that the Spatial Planning System is capable of providing a reasonable projection of timber supply.

The harvest flow objectives for the base case included (1) achieving the long-term harvest potential; (2) minimizing the rate of change in harvest flow during the transition from the current level to the level that is sustainable in the mid-term and the long term; and (3) maximizing harvest volume over the entire 250-year analysis period subject to maintaining a growing stock on the THLB that was operable with conventional equipment and was relatively stable over the final 100 years. The latter objective was not applied to the growing stock classified as being harvestable only by helicopter, as a separate constraint was applied to that portion of the landscape limiting it to producing a maximum of 12 000 cubic metres per year, or approximately one percent of the total harvest. In order to reflect current and projected future levels of harvesting second growth on the TFL, in the model the licensee initially targeted 20 percent of the total harvest in second-growth stands and increased the proportion until the transition to harvesting second-growth stands was largely complete.

In the base case, the harvest level for the first decade was 1 160 000 cubic metres per year, which is eight percent less than the current AAC. The harvest then declined by five percent per decade through the year 2048, reaching a low of 943 500 cubic metres per year from 2049 to 2078. After that, the harvest rose over the next two decades to the sustainable long-term level of 1 060 700 cubic metres per year, which was maintained for the remainder of the analysis period.

The TFL 6 area contributing to the base case excluded all the areas deleted since the last determination in 2001. The area covered by the North Island Community Forest Agreement was also excluded. As I mentioned above under ‘History of the AAC’, no area has yet been identified for First Nations to account for the AAC of 11 578 cubic metres assigned to First Nations.

The base case forecast thus projected a mid-term dip in timber supply. Analysis of stand types in the model showed the dip to occur during the transition from natural second-growth stands to managed stands with higher volumes. Harvest levels from stands harvestable only by helicopter stayed at approximately 12 000 cubic metres per year throughout the analysis period.

In addition to the base case, the 2011 timber supply analysis report also includes a number of sensitivity analyses conducted to assess the potential implications for timber supply arising from uncertainty in data assumptions and estimates. All of these sensitivity analyses have been of assistance to me in considering the factors leading to my determination.

I have reviewed in detail the assumptions and methodology incorporated in the base case as well as the model output including growing stock projections and age class distributions over time; average age, area, and volume harvested annually; and other factors as described in my considerations below. For this determination I am satisfied that the base case harvest forecast and the sensitivity analyses have provided suitable bases for my assessment of the timber supply for TFL 6.

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

I have reviewed the information for all of the factors I am required to consider under Section 8 of the *Forest Act*. Where I have concluded that the modelling of a factor in the base case appropriately represents current management or the best available information, and where uncertainties about the factor have little influence on the timber supply projected in the base case, I have included no discussion in this rationale. These factors are listed in Table 1.

Table 1. List of accepted factors.

<i>Forest Act</i> section and description	Factors accepted as modelled
8(8)(a)(i) Composition of the forest and its expected rate of growth	Forest cover inventory Non-forest Non-productive forests Roads, trails and landings Inoperable and inaccessible areas Unstable terrain Deciduous-leading stands Site index Existing natural stand yields Regenerated stand yields Operational adjustment factors Minimum harvest age Harvest species profile and sequencing
8(8)(a)(ii) Expected time it will take the forest to become re-established following denudation	Regeneration delays Not satisfactorily restocked areas (backlog and current)
8(8)(a)(iii) Silvicultural treatments to be applied	Regeneration regimes
8(8)(a)(iv) Standard of timber utilization and allowance for decay, waste and breakage	Utilization standards Decay, waste and breakage
8(8)(a)(v) Constraints on the amount of timber produced by use of the area for other purposes	Resource inventories Riparian reserve and management zones

<i>Forest Act section and description</i>	Factors accepted as modelled
	Cultural heritage resources Caves and karst Ungulate winter range Wildlife habitat areas Recreation features inventory Adjacency considerations Watershed considerations Stand-level biodiversity Landscape-level biodiversity
8(8)(a)(vi) Any other information	Public review Western redcedar and yellow-cedar projections Vancouver Island Land Use Plan Partitioning the harvest
8(8)(d) Economic and social objectives of the government	Mill fibre requirements Community dependence
8(8)(e) Abnormal infestations in and devastation of, and major salvage program planned for, timber on the area	Unsalvaged losses

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

Factors requiring additional explanatory consideration

Section 8 (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,

Factors considered under Section 8(8)(a)(i)

In addition to the factors listed under this section in Table 1, I have also considered the following factor requiring comment or discussion.

- land base contributing to timber harvesting

The total area of TFL 6, as estimated from the licensee's inventory file, is 171 441 hectares. This is 26 672 hectares smaller than the area of the TFL at the time of the last AAC determination in

2001, due to boundary adjustments that reduced the analysis area by 122 hectares and a number of deletions of areas. Those deletions included 14 027 hectares of private land in 2007; 11 339 hectares in 2007 for creation of the Pacific TSA; 1072 hectares in 2010 for creation of the North Island Community Forest; and a total of 112 hectares since 2000 for creation of an industrial park near Port Alice and expansion of Marble River Park, Misty Lake Ecological Reserve, Cluxewe Saltmarsh Reserve, and the Kingcome TSA.

About 24 382 hectares of the total TFL area are considered non-forest or non-productive forest. In the analysis this area was deducted from the total area, leaving 147 059 hectares of productive forest land.

As part of the process used to define the THLB—the land base estimated to be biologically and economically available for harvesting—a series of area deductions was made from the productive forest land base. These deductions account for the factors that effectively reduce the suitability or availability of the productive forest area for harvest due to social, ecological, or economic reasons. For TFL 6, these deductions result in a current THLB of 107 811 hectares, which means that 39 248 hectares of productive forest (about 27 percent) are unavailable for timber harvesting for a variety of reasons.

The current THLB is 28 percent smaller than the THLB assumed in the 2001 determination. Several factors contributed incrementally to cause this decrease, principal among them being the areas deleted from the TFL as listed above.

Having reviewed all the land base deductions applied in deriving the THLB for the base case as well as the other factors related to the composition of the forest and its expected rate of growth, I agree with the information already published for the factors listed above in Table 1. As I noted under ‘History of the AAC’, however, the AAC in effect immediately before this determination was approximately 5000 cubic metres higher than it should have been, given that 1072 hectares of land were deleted from the TFL in 2010 for creation of the North Island Community Forest and the AAC was not reduced to account for the deletion. The base case did account for this deletion of land, and for clarity I will discuss this further under ‘**Reasons for Decision**’.

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

Factors considered under Section 8(8)(a)(ii)

Table 1 lists each of the factors I have considered under this section for which I agree with the published information respecting current practice and with the modelling as incorporated in the base case. No factors considered under this section require additional comment.

- (iii) **silviculture treatments to be applied to the area:**

Factors considered under Section 8(8)(a)(iii)

In addition to the factors listed under this section in Table 1, I have also considered the following factors requiring comment or discussion.

- fertilization

Since 1986, nitrogen fertilizer has been applied on approximately 15 000 hectares of plantations in TFL 6. Approximately 4500 hectares have received two fertilizer treatments.

The effects of fertilization on tree growth were incorporated into the yield tables used in the base case for current and future stands. The FLNR's Table Interpolation Program for Stand Yields (TIPSY) was used to project the fertilization effect on Douglas-fir stands, whereas the impact of fertilization on hemlock, spruce, and redcedar stands was modelled by using the site index from the next higher productivity group. WFP and ministry staff advise that the projected fertilization gains for hemlock, spruce, and redcedar are supported by recent work at the site of the Salal–Cedar–Hemlock Integrated Research Program within TFL 6 near Port McNeill.

The licensee provided a sensitivity analysis to evaluate the impact of excluding future fertilization. The timber supply was not affected by excluding future fertilization for the first seven decades of the analysis period, as the treated stands in the base case were not available for harvesting until then. In the long term, however, the lack of fertilization generated harvest levels about 2.3 percent lower than the base case.

I accept that the fertilization impact as modelled reflects the best available information and current practice.

The fertilization program on TFL 6 has been contingent on government funding programs and the licensee expects the funding to continue. I consider, however, that there is a realistic risk that government funding for fertilization may be reduced or eliminated at some point in the future; which potentially could lead to harvest levels lower than those projected in the base case. I therefore request the licensee to monitor the amount of fertilization actually carried out on the TFL and report and reflect the results in the analysis for the next AAC determination.

- *genetic gain*

The licensee plants seedlings derived from genetically improved "select seed" for Douglas-fir, western hemlock, western redcedar, and yellow-cedar established in plantations on TFL 6, and plans to continue this practice in future. Projections of the average "genetic worth" or volume gain attributable to the use of select seed for these species were developed from information generated at WFP's Saanich Forestry Centre. Average values for genetic worth by species and analysis unit were then applied to current and future managed stands in the yield tables used in the analysis.

Because hemlock seedlings also regenerate naturally in many plantations on the TFL and thus dilute the genetic-worth effect of planted trees in managed stands, the genetic-worth value for hemlock on low-elevation sites was reduced in the analysis from 14 percent to 10 percent. For high-elevation sites the value was reduced from 10 percent to six percent. These reductions of four percent were based on WFP's expectations regarding the composition of managed stands at the time of harvest.

Staff from FLNR questioned whether the amount of natural regeneration may have been underestimated in the base case, and therefore the genetic worth overestimated; which could result in an overestimation of future timber supply. To address this, a sensitivity analysis was conducted to estimate the impact on timber supply if the genetic worth for hemlock in the largest analysis unit was reduced to four percent for existing stands from one to 10 years old and for future managed stands. Results showed that the maximum impact on the long-term harvest level would be about 1.2 percent.

Based on advice from staff and WFP, I am satisfied that the genetic-worth estimates incorporated in the base case adequately reflect current planting performance and experience and I accept this factor as modelled in the base case. I am concerned, however, that the abundant natural regeneration of western hemlock in TFL 6 may result in a higher proportion of natural *versus* planted hemlock trees in future managed stands than was assumed in the base case. I therefore

request that the licensee monitor the amount of planting with genetically improved stock on the TFL and report and reflect the results in the analysis for the next determination.

- silvicultural systems

In recent years, WFP has developed the Western Forest Strategy, which it is phasing in over the next few years on all its major tenures, including TFL 6. This strategy incorporates extensive use of retention silvicultural systems, in part to address objectives for conservation of biodiversity. For the analysis WFP assumed that the strategy is being fully implemented from the beginning of the analysis period.

In the base case, various levels of minimum long-term stand-level retention ranging from 10 to 20 percent were applied to individual ecosections within the resource management zones established for the area in the Vancouver Island Land Use Plan. In total, at least 40 percent of the total harvest area was modelled as being in retention-system cutblocks, with the remaining area of the THLB being in clearcuts or clearcuts with reserves. The minimum average level of stand-level retention, weighted by area, was 10.4 percent.

Overall, considering that 7.7 percent of the stand-level retention target is satisfied by requirements for wildlife tree retention, the impact of the Western Forest Strategy on TFL 6 was estimated as a reduction of 2.7 percent of the total harvest that would otherwise be possible over the analysis period. This was incorporated in the base case along with the exclusion of area for stand-level biodiversity. In addition, expected future yields were reduced to account for shading from the additional stand retention.

I have considered the information regarding silvicultural systems and I accept the information as appropriate for this determination. I request the licensee to monitor the application of retention systems on the TFL to assess whether it matches the targets and assumptions applied in the base case, and use its findings in the analysis for the next determination.

- (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:**

Factors considered under Section 8(8)(a)(iv)

In addition to the factors listed under this section in Table 1 above, I have also considered the following factor which requires additional comment.

- coast log grades

Dead western redcedar and old-growth Douglas-fir stems can remain sound and potentially suitable for milling for many years. On the coast of BC, logs from trees that were dead prior to harvest (called “dead potential” volume) have been harvested, scaled, and charged to the AAC. Dead potential volume is not currently included in inventory volume estimates, however, and therefore has not been accounted for in previous AAC determinations.

For TFL 6, the dead potential volume was estimated in the 2006 report *Summary of dead potential volume estimates for the management units within the Coastal Forest Region* at 14.3 percent. District staff note that this estimate was based on limited sample data which was incomplete and variable; and further, that much of the dead potential volume is not merchantable. WFP staff agree with the district’s conclusions but note that some dead western redcedar on the TFL may be merchantable.

Based on the 2006 report and WFP's advice, it appears that there is likely to be some merchantable dead cedar volume in TFL 6 that was not accounted for in the base case. I conclude, therefore, that this factor represents an upward pressure of a very small but unquantifiable amount on the short-term timber supply. I have considered this below in 'Reasons for Decision'.

- (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,**

Factors considered under Section 8(8)(a)(v)

In addition to the factors listed under this section in Table 1, I have also considered the following factor which requires discussion.

- visual resource emphasis

The visual landscape inventory for TFL 6 was updated between 2003 and 2005, and it was accepted by the FLNR District Manager in June 2010. This inventory was used for the process of legally establishing visual quality objectives (VQOs) within scenic areas under the *Government Actions Regulation* of the *FRPA*. On September 24, 2010, the DM signed the *Order to Establish Visual Quality Objectives for Tree Farm Licence 6 and Block 7 of the Pacific TSA within the North Island–Central Coast Forest District*.

The VQO classes established under this order were similar to the classes used in the base case, but the boundaries of some VQO polygons were different. As a result, 97 hectares of THLB affected by VQOs were not captured in the base case.

The licensee provided a sensitivity analysis that explored the impacts of reducing the allowable disturbance in VQO classes M (modification), PR (partial retention) and R (retention) to 20, 10, and 2.5 percent, respectively. The results showed that the short-term harvest was unaffected, as there was sufficient inventory outside the visually sensitive areas to maintain the base case harvest levels. Commencing in 2079, however, the more restrictive visual quality management assumptions (relative to the base case) began having a very small timber supply impact, with the long-term harvest level being reduced by 600 cubic metres per year.

Based on this information, I conclude that the 97 hectare underestimate of the area subject to VQO objectives exerts an unknown but very small downward pressure on the long-term timber supply, and I return to this matter below in 'Reasons for Decision'.

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

Factors considered under Section 8(8)(a)(vi)

In addition to the factors listed under this section in Table 1, I have also considered the following factors which require comment or discussion.

- First Nations considerations

The Crown has a duty to consult with and, where appropriate, accommodate those First Nations for whom it has knowledge of proven or claimed aboriginal rights and title or treaty rights that may be affected by a proposed decision, including strategic-level decisions such as AAC

determinations. For this AAC determination, I must consider information arising from the consultation process that occurred with First Nations who have claimed aboriginal rights and title (aboriginal interests) and with one First Nation who holds treaty rights that may be affected by my AAC determination. As well, I will consider other relevant information available to the ministry regarding aboriginal interests and treaty rights, including information gathered during other consultation processes.

Five First Nations have asserted traditional territory covering all or part of TFL 6: the Kwakiutl First Nation (KFN), the Mamalilikulla–Qwe’Qwa’Sot’Em First Nation (MQFN), the ’Namgis First Nation (NFN), the Quatsino First Nation (QFN), and the Tlatlasikwala First Nation (TFN). There is significant evidence to support First Nations use and occupation over portions of the TFL.

The traditional territory of the QFN overlaps with approximately 90 percent of TFL 6. The KFN, who are signatory to an 1851 Douglas treaty, have a traditional territory that overlaps with approximately 11 percent of the TFL. The traditional territories of the NFN, TFN, and MQFN all have relatively small areas of overlap with TFL 6 (less than four percent), much of which are also subject to competing claims.

The NFN, QFN, and TFN are involved in the BC Treaty Commission process and are negotiating at Stage 4, working towards an Agreement in Principle. The NFN, QFN and MQFN each have a new Forest and Range Consultation and Revenue Sharing Agreement (FRCSA) with the Province. The FRCSA provides economic benefits to the First Nations and may contain provisions for consultation on administrative decisions, including AAC determinations, as is the case with the NFN and QFN. The consultation provisions for the MQFN are guided by the consultation processes set out in the Nanwakolas/British Columbia Framework Agreement signed in December 2009.

Prior to commencing consultation on the AAC determination, FLNR staff undertook an initial review of available information to assess the nature of the known aboriginal interests of each First Nation, to understand how the proposed AAC determination would impact those interests. As well, initial consideration was given to possible measures to address specific impacts, if such accommodation measures were deemed appropriate later in the consultation process. This information was assessed in order to arrive at a suggested level of consultation.

Based upon this information review, and as guided by relevant forestry agreements, the FLNR proposed that consultation be undertaken at the “normal” level for the NFN, QFN, and TFN. Consultation with the KFN and MQFN, on the other hand, was guided by the Nanwakolas/British Columbia Framework Agreement, to which they are signatories. Under that agreement, administrative decisions such as timber supply reviews are assigned a predetermined engagement level (Level 4–Complex). District staff confirm that engagement with the KFN and MQFN during the TFL 6 AAC determination consultation process was consistent with the process outlined in the Framework Agreement.

Staff from the North Island–Central Coast Forest District initiated consultation with the five First Nations on this timber supply review on May 31, 2010 and concluded it on August 30, 2011. Procedural aspects of the consultation process were completed by the licensee, who shared information about the analysis and copies of the TSR information package and the draft management plan for the TFL with each First Nation.

The MQFN, QFN and TFN provided written responses to WFP that indicated no opposition to this AAC determination and the approval of Management Plan Number 10 for TFL 6, although they raised certain concerns that I address below. The NFN provided a response at the information-package stage that indicated they had no specific concerns, but no formal comments

were received from the NFN during the management-plan review stage. The KFN provided a written response to WFP that identified their opposition to an AAC determination that would result in the AAC for TFL 6 either remaining at its current level or increasing.

All the First Nations also cited concerns about monumental and old-growth cedar, archaeological features, and fish and wildlife. Regarding cedar, the KFN was concerned about potential overharvest, while the MQFN and TFN indicated their interest in continued access to monumental cedar for cultural purposes. The MQFN, NFN, QFN, and TFN all shared comments related to the protection of archaeological features. The KFN and TFN both provided general comments related to fish and wildlife.

WFP has analyzed the forest inventory for TFL 6 and found that there is a significant volume of old-growth cedar within the TFL; with a large portion of it occurring on land outside the THLB. WFP considers that this “non-contributing” land would be likely to contain a supply of larger cedar trees suitable for First Nations canoes, buildings, and poles. WFP has offered to meet with all of the First Nations to discuss their cultural cedar needs in additional detail, and has stated that it would be open to creating an inventory of those needs, as it has done with other First Nations.

The protection of archaeological features is guided by the *Heritage Conservation Act*, whereas cultural heritage resources are addressed through the FRPA and by commitments made by WFP in their approved North Island Forest Stewardship Plan. Meaningful engagement at the operational stage has proven to be the appropriate venue for First Nations and WFP to discuss and identify archaeological survey requirements and feature protection.

WFP and FLNR consider that existing regulations, planning, and meaningful engagement at the operational level can be used to appropriately minimize or mitigate potential adverse impacts on fish and wildlife stemming from forest development activities that will be implemented after the AAC determination. WFP maintains a strong interest in developing a positive working relationship with all of the First Nations who are shown to have traditional territories that overlap with TFL 6.

In addition to reviewing the information received through the formal consultation process, I have been advised on the existence, nature, and content of various other sources of information that have been considered by ministry and licensee staff in respect of First Nations’ aboriginal interests and treaty rights associated with this AAC determination. This information has been considered in relation to the strength of aboriginal interests; cultural heritage resources; archaeological resources; traditional use sites; and the management of elk and deer and other hunting and fishing interests.

I am aware that the KFN filed a petition on April 11, 2008 against the Minister of Forests and Range on the decision to allow WFP to remove private lands from within TFL 6; and against the District Manager of the North Island–Central Coast District for his approval of WFP’s North Island Forest Stewardship Plan; citing inadequate consultation and accommodation on both decisions. WFP and the Attorney General of Canada were also named in the petition. I note that on March 31, 2011, the KFN filed an amended petition against the same respondents; still citing inadequate consultation and accommodation on the two decisions but amending their claim for relief to include a court declaration that the KFN possess a *prima facie* case for unextinguished Aboriginal title and rights to the KFN territory. This litigation is still proceeding and has not yet undergone a judicial review. In keeping with my guiding principles for AAC determinations outlined above, in making my determination I will not speculate on the outcome of the petition or its potential effect on the timber supply.

I am satisfied that, for this AAC determination for TFL 6, the North Island–Central Coast Forest District has engaged in consultation with all potentially affected First Nations in accordance with

current government guidance and with existing agreements. The level of consultation was appropriate, given the aboriginal interests or treaty rights expressed by each First Nation, the available information regarding their respective interests or treaty rights, and the potential impact that this AAC determination may have on those interests or treaty rights. The level of consultation was also consistent with that set out in the process agreements that were in effect. The determination of an AAC does not, in itself, change the forest practices, the management method, the layout of operations on the ground, or the consideration of aboriginal interests or treaty rights at the operational level. Under current practice, the TFL area will be managed under the FRPA legislation, which maintains a level of protection for a range of forest values such as watershed integrity, wildlife, and biodiversity. For operational and administrative decisions subsequent to this AAC determination, consultation with First Nations will continue.

Overall, I believe a good foundation has been established in TFL 6 from which to move forward in managing the TFL on the basis of continuing good dialogue and cooperation with the area's First Nations.

- licence AAC and actual harvest performance

As noted above, the AAC for TFL 6 has been reduced twice since the last determination, to account for deletion of private lands and for creation of the Pacific TSA. Records of the annual harvest by year show that the average harvest has been very close to the AAC since 2001.

Information was not provided during the analysis to document the amount of harvesting that has been conducted on the TFL using cable, ground-based, and helicopter harvesting methods. Because the economic viability of the TFL could potentially be compromised if harvesting was avoided for lengthy periods in the more challenging terrain, it will be important to know, when the AAC is next determined, whether the various harvesting methods have been applied on the ground in approximately the proportions indicated in the operability classes defined by the licensee.

I therefore request the licensee to monitor its harvesting performance on areas classified as being harvestable by cable, ground-based, and helicopter methods; and report on the results to the chief forester at the time of the next TSR.

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

- alternative harvest flows

The nature of the transition from harvesting old-growth forests to harvesting second-growth forests is a major consideration in determining AACs in many parts of the province. In the short term, the presence of large timber volumes in older forests often permits harvesting above long-term levels without jeopardizing the future timber supply. In keeping with the objectives of good forest stewardship, AACs in British Columbia have been and continue to be determined to ensure that current and mid-term harvest levels will be compatible with a smooth transition toward usually (but not always) the lower long-term harvest level. Thus, the timber supply should remain sufficiently stable that there will be no inordinately adverse impacts on current or future generations. To achieve this, the AAC determined must not be so high as to cause later disruptive shortfalls in supply nor so low as to cause immediate social and economic impacts that are not required to maintain forest productivity and future harvest stability.

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

The first alternative flow was prepared to examine the impact of maintaining the current AAC for 10 years. After 10 years, the harvest level declined over the next two decades to approximately the long-term level, then fell below it (and below the base case level) for a further 80 years before increasing to a long-term harvest level of 1 060 700 cubic metres per year in the eleventh decade. This long-term harvest level is the same as the base case long-term harvest level.

The second alternative flow illustrated the effects of maintaining the current AAC for 10 years and then increasing the mid-term timber supply by harvesting young trees earlier. It resulted in a more stable harvest level during the fifth through tenth decades, but the resulting long-term harvest level was 4900 cubic metres per year lower than the long-term level in the base case.

In the third alternative flow, the objective was to examine the effect on timber supply of maintaining a non-declining even-flow harvest forecast. In that scenario, a harvest level of 1 031 000 cubic metres per year could be maintained throughout the forecast period. Short-term harvest levels were significantly lower than in the base case, but the mid-term dip in timber supply was eliminated.

I have considered these alternatives in my determination. I note that the current AAC of 1 255 500 cubic metres per year cannot be sustained any further in the short term without causing a shortfall in the mid-term. The base case and alternative harvest forecasts provided suggest that it would now be appropriate to initiate the transition to the mid-term harvest level for TFL 6, and I have been mindful of this in my determination.

- (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)].

- (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;**

Factors considered under Section 8(8)(d)

In addition to the factors listed under this section in Table 1, I have also considered the following factors which require comment or discussion.

. - Minister's letter

The Minister of Forests, Lands and Natural Resource Operations has expressed the economic and social objectives of the Crown for the province in a letter to the chief forester, dated July 4, 2006 (attached as Appendix 3). The letter stresses the importance of a stable timber supply to maintain a competitive and sustainable forest industry while being mindful of other forest values. In respect of this, one of the base case harvest forecast objectives was to attain a stable, long-term harvest level where the growing stock becomes stable, neither increasing nor decreasing over time. In my determination, I have been mindful of the need for the allowable harvest level in the short term to remain consistent with maintaining the integrity of the timber supply projection throughout the planning horizon. The base case and alternative forecasts demonstrate the feasibility of attaining this objective. I have also considered with care the adequacy of the provisions made in current practice, and assumed in the analyses, for maintaining a range of forest values.

The letter also notes the period of significant change and transition being experienced in coastal areas. The Minister asks that when making AAC determinations, the chief forester consider the nature of timber supply that can contribute to a sustainable Coast forest industry, while reflecting decisions made in land and resource management plans. I note that the harvest flow and other assumptions incorporated in the base case are consistent with this objective.

- local objectives

In the letter of July 4, 2006, the Minister also asks that I consider important local social and economic objectives expressed by the public during the Timber Supply Review process, where these are consistent with the government's broader objectives as well as any relevant information received from First Nations.

Local objectives for land and resource use in TFL 6 are captured in the *Vancouver Island Land Use Plan Higher Level Plan Order* and in orders under the *Government Actions Regulation* of the *FRPA*. The base case assumptions reflected the directions provided by these orders.

As part of the management planning process, the licensee provided the public with an opportunity to comment on the timber supply review. One respondent provided comments that dealt with operational forestry activities and access to gated roads. None of the comments related to the timber supply review.

The consultation process with First Nations, and the feedback received, was discussed above under First Nations considerations.

I am satisfied that this determination accords with the objectives of government as expressed by the Minister.

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

Factors considered under Section 8(8)(e)

Table 1 lists each of the factors I have considered under this section for which I agree with the published information respecting current practice and with the modelling as incorporated in the analysis. No factors considered under this section require additional comment.

Reasons for Decision

In reaching my AAC determination for TFL 6, I have considered all of the factors required under Section 8 of the *Forest Act* and I have reasoned as follows.

Based on my review of the licensee's base case described above, I accept it as an adequate basis from which to assess timber supply for this AAC determination. Under the assumptions applied in the base case, as discussed throughout this document, it was possible to attain an initial harvest level of 1 160 000 cubic metres per year. This harvest level then declined by five percent per decade through to the year 2048, when it reached a low of 943 500 cubic metres per year. This level was maintained until 2078. At that point the harvest rose over the next two decades to the sustainable long-term level of 1 060 700 cubic metres per year, which was maintained for the remainder of the analysis period.

In determining an AAC for TFL 6, I have identified two factors which, considered separately, indicate that the timber supply may be either greater or less than that projected in the base case.

These factors may influence the timber supply by adding an element of risk or uncertainty to the decision, but cannot be reliably quantified at this time.

I have identified the following factor in my considerations as indicating that the timber supply projected in the base case may have been overestimated:

Visual resource emphasis – the VQO inventory used in the analysis was 97 hectares smaller than the actual area affected by the District Manager’s order establishing VQO objectives for the TFL. I concluded that this exerts an unknown but very small downward pressure on the long-term timber supply.

I have identified the following factor in my considerations that indicates that timber supply projected in the base case may have been underestimated:

Coast log grades – there is likely to be some merchantable volume of dead western redcedar on the TFL that was not accounted for in the base case. No reliable estimate is available for how much of this volume exists, but I concluded that this factor represents an upward pressure of a very small but unquantifiable amount on the timber supply in the short term.

Finally, as discussed above under ‘*land base contributing to timber harvesting*’, I wish to clarify the situation regarding the deletion of 1072 hectares of land from TFL 6 in 2010 for creation of the North Island Community Forest. As I noted earlier, the harvest attributable to that area amounted to 5000 cubic metres per year, but the AAC was not reduced at the time to account for the loss of that volume from the TFL. In the base case, however, the licensee did account for the land area deletion and the reduced harvest. The base case projections of harvest levels therefore appropriately accounted for the deletion of the 1072 hectares and I make no adjustment to the AAC on this account.

In consideration of the above-mentioned influences, I observe that the two unquantified uncertainties each have a very small effect on the timber supply. The uncertainty in the visual resource emphasis assumptions affects the long term and I have therefore not made any adjustments in my determination on this account. The uncertainty in short-term timber supply associated with the additional cedar volume that should now contribute to timber supply is small and unquantified. For this determination I will consider this volume to provide a small buffer in future timber supplies as the transition from harvesting old-growth timber to second-growth timber proceeds. For this determination, having identified no other factors requiring any adjustment to the base case harvest projection at this time, I consider the base case projection to reflect the current timber supply situation on TFL 6. I therefore determine that an appropriate harvest level for TFL 6 at this time is 1 160 000 cubic metres, which is eight percent below the current AAC.

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 decade, and that reflects current management practices as well as the socio-economic objectives of the Crown, can be best achieved on TFL 6 by establishing an AAC of 1 160 000 cubic metres.

This determination is effective February 10, 2012, 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 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

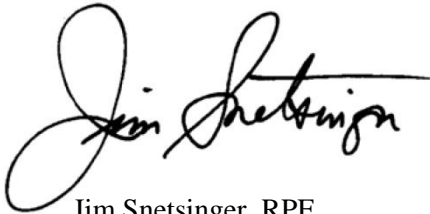
In the period following this determination and leading to the subsequent determination, I encourage the licensee to undertake the tasks and studies noted below. I have described these tasks further in the appropriate sections of this rationale. These projects are important to help reduce the risk and uncertainty associated with key factors that affect the timber supply in TFL 6:

Fertilization – I request the licensee to monitor the amount of fertilization actually carried out on the TFL and report the results in the analysis for the next AAC determination;

Genetic gain – I request that the licensee monitor the amount of planting with genetically improved stock on the TFL and report on the results in the analysis for the next AAC determination;

Silvicultural systems – I request the licensee to monitor the application of retention silviculture systems on the TFL to assess whether it matches the targets and assumptions applied in the base case, and report the results in the analysis for the next AAC determination; and

Actual harvest performance – I request the licensee to monitor its harvesting performance on areas classified as being harvestable by cable, ground-based, and helicopter methods; and report on the results to the chief forester at the time of the next TSR.



Jim Snetsinger, RPF
Chief Forester

February 10, 2012



Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, c. 157, (current to January 25, 2012), reads as follows:

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

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

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

(b) each tree farm licence area.

(2) If the minister

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

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

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

(3) If

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

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

(3.1) If, in respect of the allowable annual cut for a timber supply area or tree farm licence area, the chief forester considers that the allowable annual cut that was determined under subsection (1) is not likely to be changed significantly with a new determination, then, despite subsections (1) to (3), the chief forester

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

(b) must give written reasons for the postponement.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(b) each tree farm licence area

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

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

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

Section 4 of the *Ministry of Forests and Range Act* (current to January 25, 2012) 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 sector

in 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 July 4, 2006



JUL 04 2006

Jim Snetsinger
Chief Forester
Ministry of Forests and Range
3rd Floor, 1520 Blanshard Street
Victoria, British Columbia
V8W 3C8

Dear Jim:

Re: Economic and Social Objectives of the Crown

The *Forest Act* gives you the responsibility for determining Allowable Annual Cuts—decisions with significant implications for the province's economy, communities and environment. This letter outlines the economic and social objectives of the Crown you should consider in determining Allowable Annual Cuts, as required by Section 8 of the *Forest Act*. This letter replaces the July 28, 1994 letter expressing the economic and social objectives of the Crown, and the February 26, 1996 letter expressing the Crown's economic and social objectives for visual resources. The government's objective for visual quality is now stated in the Forest Practices and Planning Regulation of the *Forest and Range Practices Act*.

Two of this government's goals are to create more jobs per capita than anywhere in Canada and to lead the world in sustainable environmental management. The Ministry of Forests and Range supports these objectives through its own goals of sustainable forest and range resources and benefits. In making Allowable Annual Cut determinations, I ask that you consider the importance of a stable timber supply in maintaining a competitive and sustainable forest industry, while being mindful of other forest values.

The interior of British Columbia is in the midst of an unprecedented mountain pine beetle outbreak. Government's objectives for management of the infestation are contained in British Columbia's Mountain Pine Beetle Action Plan. Of particular relevance to Allowable Annual Cut determinations are the objectives of encouraging long-term economic sustainability for communities affected by the epidemic; recovering the greatest value from dead timber before it burns or decays, while respecting other forest values; and conserving the long-term forest values identified in land use plans.

Page 1 of 2

Minister of
Forests and Range
and Minister Responsible
for Housing

Office of the
Minister

Mailing Address:
PO Box 9049 Stn Prov Govt
Victoria BC V8W 9E2
Telephone: 250 387-6240
Facsimile: 250 387-1040

Location:
Parliament Buildings
Victoria BC V8V 1X4
e-mail: FOR.Minister@gov.bc.ca

Jim Snetsinger

To assist the province and affected communities in planning their responses to the beetle infestation, it would be best to have realistic assessments of timber volumes that can be utilized economically. Therefore, in determining the best rate of harvest to capture the economic value from beetle-killed timber, I ask that you examine factors that affect the demand for such timber and products manufactured from it, the time period over which it can be utilized, and consider ways to maintain or enhance the mid-term timber supply.

The coast of British Columbia is experiencing a period of significant change and transition. In making Allowable Annual Cut determinations I urge you to consider the nature of timber supply that can contribute to a sustainable coast forest industry, while reflecting decisions made in land and resource management plans.

You should also consider important local social and economic objectives expressed by the public during the Timber Supply Review process, where these are consistent with the government's broader objectives as well as any relevant information received from First Nations.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'Rich Coleman', with a long horizontal stroke extending to the right.

Rich Coleman
Minister