

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

Tree Farm Licence 41

held by
Skeena Sawmills Ltd.

Rationale for Allowable Annual Cut (AAC) Determination

Effective January 31, 2012

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Chief Forester**

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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 41 (TFL 41). This document also identifies where new or better information is needed for incorporation in future determinations.

Overview of the TFL

TFL 41 is held by Skeena Sawmills Ltd. (owned by Roc Holdings Ltd.) and is administered by the Ministry of Forests, Lands and Natural Resource Operations (FLNR) Kalum and North Coast District office located in Terrace, British Columbia. TFL 41 is situated in north-western British Columbia, approximately 40 kilometres south of Terrace, on the lee side of the Coast Mountains. The area encompasses a portion of the Kitimat Ranges including the upper headwaters and major tributaries of the Kitimat River, as well as drainages adjacent to the west boundary of the District of Kitimat and an area surrounding Clio Bay at the entrance to Kildala Arm. The total area of TFL 41 reported in the timber supply analysis is 201 939 hectares.

The traditional territories of five First Nations overlap TFL 41; they are the Gitga'at, Haisla, Metlakatla, Lax Kw'alaams and Kitselas First Nations.

History of the AAC

The most recent AAC for TFL 41 was determined on June 11, 1999 at 400 000 cubic metres under Section 8 of the *Forest Act*. Of this AAC, 180 000 cubic metres was attributed, under Section 8(5) of the *Forest Act*, to the “onshore” portion of the TFL and 220 000 cubic metres to the “offshore” portion of the TFL. In addition 34 000 cubic metres were attributed to areas accessible using non-conventional harvest methods. On November 20, 2003 the AAC determination was postponed under Section 8(3.1) of the *Forest Act*.

On September 14, 2011 an area totalling 478 016 hectares was deleted from TFL 41, precipitated by actions taken under the *Forestry Revitalization Act*. The area deleted covered the offshore portion of the TFL as well as area in Wahtl Creek and Hirsch Creek. As a result of the deletion, the AAC for TFL 41 was reduced by 277 074 cubic metres to 122 926 cubic metres under the *Allowable Annual Cut Administration Regulation*. This AAC was in effect until the effective date of this determination.

New AAC determination

Effective January 31, 2012, the new AAC for TFL 41 is 128 000 cubic metres.

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

- *Natural Stand Yields* – accepted by Forest Analysis and Inventory Branch, November 22, 2010;
- *Managed Stand Yields* – accepted by Forest Analysis and Inventory Branch (formerly Research Branch) November 17, 2010;
- *Tree Farm Licence 41, Timber Supply Review, Information Package (IP)*, Skeena Sawmills Ltd, August 12, 2011, Accepted by Forest Analysis and Inventory Branch, November 22, 2010;
- *TFL 41 Timber Supply Analysis Report, August 12, 2011, Skeena Sawmills Ltd.*, Accepted by Forest Analysis and Inventory Branch, August 10, 2011;

- *Skeena Sawmills Ltd., Management Plan #7*, Submitted May 11, 2011;
- *Tree Farm Licence #41 Rationale for Allowable Annual Cut (AAC) Determination*, B.C. Ministry of Forests. 1999. *Effective June 11, 1999*;
- *Chief Forester Order Respecting an AAC Determination for Tree Farm Licence No. 41*. B.C. Ministry of Forests. *Effective November 20, 2003*;
- *Letter from the Minister to the Chief Forester, Re: Economic and Social Objectives of the Crown*, July 4, 2006;
- *Forest and Range Practices Act*, consolidated to January 11, 2011;
- *Forest Planning and Practices Regulations*, as amended up to July 25, 2008;
- *Kalum Sustainable Land Resource Management Plan (SRMP)*, *Effective May 1, 2006*;
- *Reconnaissance (1:20 000) Fish and Fish Habitat Inventory of Jesse Creek Watershed*. Applied Ecosystem Management Ltd. 2002. Contract report for West Fraser Mills Ltd. March 2002;
- *Reconnaissance (1:20 000) Fish and Fish Habitat Inventory of Upper Kitimat Watershed*. Applied Ecosystem Management Ltd. 2002. Contract report for West Fraser Mills Ltd. March 2002;
- *Reconnaissance (1:20 000) Fish and Fish Habitat Inventory in the Davies Creek Watershed*. Triton Environmental Consultants Ltd. 1998. Contract report for West Fraser Mills Ltd. and the Ministry of Environment Lands and Parks. May 1998;
- *Kwetx Creek Fisheries Assessment* Triton Environmental Consultants Ltd. 1997. Contract report for West Fraser Mills Ltd. July 24, 1997. 7pp;
- *Site index adjustment for old-growth coastal western hemlock stands in the Kalum District* Nigh, Gordon D. and Love, Bobby A. 1997. Research Branch B.C. Ministry Forests. Victoria, B.C. Working Paper 27. 1997;
- *Summary of dead potential volume estimates for management units within the Northern and Southern Interior Forest Regions*. Ministry of Forests and Range. March 2006;
- *Report on the Re-inventory of Tree Farm Licence 41: 1996-1998*. Sterling Wood Group Inc. 1999. Contract report for West Fraser Mills Ltd. February 1999;
- *Kalum TSA PEM Accuracy Assessment Results*. Yole, David W. 2007. Contract report for West Fraser Mills Ltd. March 15, 2007;
- *Operability Report for Tree Farm Licence #41*. West Fraser Mills Ltd. Skeena Sawmills Division. 1998. Report submitted to the District Manager, Kalum Forest District, Ministry of Forests. December 18, 1998;
- *Letter to Ministry of Forests Deputy Chief Forester regarding net downs for potentially unstable terrain ESA versus terrain stability classes*. West Fraser Mills Ltd. Skeena Sawmills Division. 2003. Letter dated October 24, 2003;
- *Site Disturbance Survey Report*, R.J.A. Forestry Ltd. 1996. Contract report for BCFS. December 17, 1996;
- *TFL 41 Northern Portion Soil Sensitive Area Inventory*. Land Use Planning Advisory Team (MacMillan Bloedel Ltd.) 1985. Contract report for Eurocan Pulp and Paper Company. March 1985;
- *Procedures for factoring visual resources into timber supply analyses*. B.C. Ministry of Forests: Forest Practices Branch, 1998, Victoria, B.C. REC- 029;
- *Bulletin: Modelling visuals in TSR III*. B.C. Ministry of Forests: Forest Practices Branch. 2003;
- *Technical review and evaluation of current operating conditions on TFL 41* through comprehensive discussions with FLNR staff, notably at the AAC determination meeting held in Victoria on October 6, 2011;
- *TFL 41 First Nations Consultation Record Guide*, Consultation process led by Ministry of Forests, Lands and Natural Resource Operations, Kalum District, 2010.

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 41, I have considered known limitations of the technical information provided. I am satisfied that the information provides a suitable basis for my determination.

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.

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 41. 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 timber supply analysis for TFL 41 was prepared using the *Patchworks* spatial optimization modelling system by TECO Natural Resource Group Limited under the direction of licensee staff. 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.

As I mentioned above under 'AAC History', a large area was deleted from TFL 41 since the 1999 AAC determination as a result of actions taken under the *Forestry Revitalization Act*. A further 47 hectares were deleted in October 2004 for a hydro transmission corridor. The total area of the TFL in 1999 was 703 745 hectares. Following the deletions it is now 201 939 hectares, or 29 percent of the former area. These changes were accounted for in the timber supply analysis.

The timber supply analysis assumptions incorporated legally established objectives arising from the resource management recommendations of the 2002 Kalum Land and Resource Management Plan. These included the new protected areas that were legally established in May 2004 under the *Park Act*, mountain goat Ungulate Winter Ranges and objectives that were established through the *Government Actions Regulation* (GAR) under the *Forest and Range Practices Act* in December 2005. They further included the tailed frog Wildlife Habitat Areas and objectives that were established under the GAR in March 2006. Also included were the legally binding Land Use Objectives for special resource management zones, community watersheds and management direction for biodiversity and grizzly bear forage supply that were established through the Kalum Sustainable Resource Management Plan (SRMP) pursuant to Section 93.4 (1) of the *Land Act* and GAR in April 2006.

In the base case the initial harvest level was set at 123 000 cubic metres per year, which is approximately the AAC that was in effect immediately prior to this determination. This harvest level was maintained for 45 years before increasing by about 10 percent per decade until the long-term harvest level of 222 000 cubic metres per year was reached.

In the timber supply analysis, various sensitivity analyses were conducted to assess the potential implications for timber supply arising from uncertainty in data assumptions and estimates. These analyses have also assisted me in considering the factors leading to my determination. As discussed and quantified throughout this rationale, and in consideration of the items described above, I am satisfied that the information presented to me provides an adequate basis from which I can assess the timber supply for TFL 41 for 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 for consideration 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 uncertainties about the factor have little influence on the timber supply projected in the base case, no discussion is included in this rationale. These factors are listed in Table 1.

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

Table 1. List of factors for which modelling assumptions in the base case have been accepted

Forest Act section and description	Factors accepted as modelled
8(8)(a)(i) Composition of the forest and its expected rate of growth	Forest inventory Land base contributing to timber harvesting <ul style="list-style-type: none"> • Non-forest and non-productive forest • Old-growth management areas • Environmentally sensitive areas and terrain stability • Areas with high recreation value • Inoperable areas • Non-merchantable stands • Problem forest types • Archaeological sites • Wildlife habitat • Riparian management areas • Wildlife tree patches Aggregation procedures Natural stand yields Managed stand yields Minimum harvest ages
8(8)(a)(ii) Expected time for the forest to be re-established following denudation	Regeneration delay Not-satisfactorily-restocked areas (NSR)
8(8)(a)(iii) Silviculture treatments to be applied	Silvicultural systems Regeneration Incremental silviculture
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 purposes other than timber production	Seral stage targets Adjacency (patch size distribution) Visual quality management Wildlife (Grizzly bear habitat)
8(8)(a)(vi) Any other information that relates to the capability of the area to produce timber	Harvest performance
8(8)(e) Abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area	Unsalvaged losses

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,

Land base contributing to timber harvesting

- general comments

The total area of TFL 41, as estimated from the licensee's inventory file, is 201 939 hectares. For this analysis, 108 789 hectares or 54 percent of this area is considered to be productive forest land.

As part of the process used to define the timber harvesting land base (i.e., the land base estimated to be biologically and economically available for harvesting), a series of deductions were 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 because of ecological or economic reasons. For TFL 41, the deductions result in a long-term timber harvesting land base (THLB) of 31 558 hectares, or 29 percent of the productive forest land.

Other than the accounting used in the base case for future roads trails and landings described below, I accept the information used to account for the deductions in deriving the timber harvesting land base as being the best available information.

- future roads, trails and landings (RTL)

The loss of productive forest land due to existing and future roads, trails and landings are estimated separately. In the 1999 timber supply analysis a six percent deduction was applied for existing RTL, and 7.8 percent for future roads, trails and landings. The future RTL deductions were based primarily on conditions in the offshore areas where a greater proportion of area was occupied by RTL, as compared to onshore areas. Although the offshore area was deleted from the TFL in 2011, the 7.8 percent deduction for future RTL was applied in this analysis. Given the deletion, the actual percent of land occupied with future RTL will likely be between six and eight percent and thus deductions in this analysis may be overestimated by the difference of one to two percent in the long term and I will discuss this further in 'Reasons for Decision'.

I encourage the licensee to work to refine the long term deductions for future roads, trails and landings on TFL 41 as it will benefit their forest management planning.

-site productivity assignments

A Predictive Ecosystem Mapping (PEM) project was completed for TFL 41 in 2004. PEM mapping is intended to be used with the provincial Site Index Biogeoclimatic Ecosystem Classification (SIBEC) model to provide site productivity estimates for regenerating stands on a management unit. However, because the PEM for TFL 41 did not meet provincial accuracy standards, this approach could not be used for the base case. Instead, the licensee used a previously completed local old-growth site index (OGSI) study (G.D. Nigh and B. Love, 1997). It showed that when hemlock-leading stands older than 140 years of age in the CWH biogeoclimatic zone with an inventory site index of between eight and 18 metres were harvested and regenerated with managed stands, the site index of the regenerating stands is 10 metres higher than the inventory site index.

For the base case, after the stands specified in the OGSI study were harvested in the model, the site index of stands regenerating on these areas was increased by 10 metres compared to the inventory site index.

This adjustment was only applied to stands older than 153 years because the OGSi study only applied to stands that were older than 140 years in 1997 and these stands are 13 years older (140 years + 13 years = 153 years) in the 2010 Vegetation Resources Inventory (VRI) used in this analysis. Stands of all other leading species, including mountain hemlock, were left unadjusted and the inventory site index was used to generate yield curves.

Although a sensitivity analysis was proposed to examine the impact of basing the managed stand yield tables on SIBEC site index estimates and PEM mapping (*versus* the OGSi study results actually applied) information derived from such an analysis to enhance the AAC determination process would be limited because the PEM had not met minimum accuracy standards, only long-term harvest levels would be impacted and timing of the step up in base case harvest forecast would only change slightly if at all.

The uncertainty around actual realization of increased productivity as applied through the site index adjustment for hemlock-leading stands in the base case demonstrates the importance of monitoring site productivity of second-growth stands. I encourage efforts to monitor stand growth as a measurement of the performance of our forests over time. For this determination I acknowledge some unquantified uncertainty regarding productivity estimates for regenerating stands and I will discuss this further in '**Reasons for Decision**'.

- log grades

New log grades were implemented for British Columbia's Interior on April 1, 2006. Under the previous log grade system, a log was assessed according to whether the tree it came from was alive or dead at the time of harvest. Grade three (endemic) and grade five logs were from trees that were dead prior to harvest and these were not accounted for in the inventory or charged to the AAC.

Under the new system, log grades are based on the log's size and quality at the time it was scaled regardless of whether the tree it came from was alive or dead at harvest. Logs of all grades are now charged to the AAC. Therefore, the volume from the dead component of stands (dead potential) must be accounted for in my AAC determinations. The forest inventory used in this analysis only accounted for volume estimates of the live components of stands; therefore other sources of information are needed to estimate the dead potential volume.

A possible source of information for TFL 41 is the inventory audit plots. These plots indicate that dead potential volume in TFL 41 is approximately 5.5 percent of the green volume of trees over 60 years of age on the forested land base. This represents the maximum amount of dead timber that could be harvested. Data from another source, the harvest billing system, showed that between 1995 and 2004, the grade three and five volumes were 4.1 percent of the harvested volume.

Forest analysis staff note that they expect higher sampling error around dead potential volume data. Additionally, little harvesting activity in the onshore area has occurred since 2004. The base case does not take into account the harvest of any dead potential volume so I will account for a potential underestimation of about four percent in the short-term timber supply projected in the base case. 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:**

As noted in Table 1, I accept these factors as modelled in the base case with no further comment required.

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

As noted in Table 1, I accept these factors as modelled in the base case with no further comment required.

- (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:**

As noted in Table 1, I accept these factors as modelled in the base case with no further comment required.

- (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,**

-integrated resource management objectives

The Ministry of Forests, Lands and Natural Resource Operations is required under the *Ministry of Forests and Range 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. Accordingly, the extent to which integrated resource management objectives for various forest resources and values affect timber supply must be considered in AAC determinations.

In TFL 41, the designation of ungulate winter range for moose and wildlife habitat areas for grizzly bear are in process through consultation and analysis by ministry staff. It is expected that they will be legally established in 2012. Once they are established, the requirements for ungulate winter range for moose and wildlife habitat areas for grizzly bear will be incorporated into the next timber supply review.

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

-First Nations considerations

The Crown has a duty to consult with, and accommodate if necessary, those First Nations for whom it has knowledge of the potential existence of aboriginal interests that may be impacted by a decision, including strategic-level decisions such as AAC determinations. I must therefore consider information arising from the consultation 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 ministry regarding aboriginal interests, including information gathered during other consultation processes.

Five First Nations have traditional territory overlapping TFL 41: Gitga'at, Haisla, Kitselas, Lax Kw'alaams and Metlakatla. Each of the five First Nations has a Forest Consultation and Revenue Sharing Agreement with the province; all of these agreements expire in 2014.

The Gitga'at and Metlakatla First Nations are signatories to the Coastal First Nations Reconciliation Agreement. This TSR was initiated prior to the effective date of this Agreement, so the consultation procedures required by the Agreement were not used. The Haisla First Nation has commenced treaty negotiations but the timeline for implementation is unknown. This First Nation is negotiating a Timber Opportunity Agreement in an area deleted from the TFL in 2011 under the *Forestry Revitalization Act*. This does not affect the TFL land base for the current AAC determination. The Kitselas First Nation is in Stage 4 of treaty negotiations leading to an Agreement-in-Principle. To date, only one area covering 40 hectares has been identified within TFL 41 as a potential treaty settlement area for this First Nation. About 30 hectares are in the THLB.

Based on the initial review conducted by FLNR staff, the suggested level of consultation for the Gitga'at First Nation was between notification and normal and for the other four First Nations the suggested level was normal. The area of overlap of the Gitga'at traditional territory and TFL 41 is relatively small and on the fringes of the Gitga'at traditional territory. The TFL overlaps much of the

Haisla territory, including areas adjacent to core areas of occupation by this First Nation. Some portions of the traditional territories that overlap TFL 41 of the other three First Nations also overlap other First Nations' territories.

In previous consultations, the Haisla First Nation requested consideration for ungulate winter range (UWR) for moose through the application of best management practices. Work is ongoing to establish UWR for moose, and once they are established, they will be considered in the next AAC determination.

Other possible aboriginal interests that were identified by the Haisla First Nation in the 2010 TSR for the Kalum TSA that may link to TFL 41 include access to conifer oil, culturally modified trees (CMT), spatial location of timber supply and a test of hydrological green-up for the Kitimat River watershed. The latter issue was not explicitly linked to aboriginal rights, and the other requirements for conifer oil, CMTs and spatial location can be managed at the operational level without affecting timber supply. The Haisla First Nation was a signatory to the Kalum LRMP and SRMP which address land use objectives such as ungulate winter range.

Cedar has also been identified as an important value by First Nations. District staff indicate there is enough flexibility through forest management operations to provide for aboriginal interests such as those for cedar, by efforts to plant this species, by providing access to cedar in second-growth stands for bark stripping, and through access to old-growth stands for monumental cedar, both within and outside the THLB. The THLB represents only about a third of the productive forest land base on TFL 41 so district staff believe that many opportunities to meet First Nations requirements for cedar will be available.

Kalum District staff commenced consultation with all five First Nations on June 21, 2010 by sending a letter to each summarizing relevant concerns that had been brought forward in previous consultation. On July 5, 2010 the draft TFL 41 Information Package was sent out with an invitation to meet with the district and licensee to discuss any possible concerns or aboriginal interests that may be impacted. On May 12, 2011 letters were sent to each First Nation with the draft Management Plan No. 7 for TFL 41, including the timber supply analysis. The letters included an invitation to meet to discuss any concerns. On August 16, 2011, letters were sent to indicate that the chief forester was intending to proceed with the AAC determination for TFL 41.

No response specific to this AAC determination and the effects it may have on aboriginal interests was received from the First Nations during the consultation process.

Based on my review of the consultation process followed, the aboriginal interest information available to Kalum and North Coast District staff, and the potential impact my decision may have on these interests, I believe that the district has engaged in consultation at an appropriate level on the consultation spectrum as outlined in the *Haida* decision. Furthermore, I note that district staff will continue to be available to meet and consult with First Nations on issues at the operational planning level.

If new information regarding First Nations' aboriginal interests becomes available that significantly varies from the information that was available for this determination, I am prepared to revisit this determination sooner than the 10 years required by legislation.

(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 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, timber supply should remain sufficiently stable so 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 the analysis the licensee considered alternative harvest flows. The licensee indicated that, given the results of the base case, any increase in initial harvest level would result in a decrease in the mid term. The short-term harvest level in the base case results from the amount of remaining old-growth volume that must be maintained in sufficient supply to support the initial harvest level over time until the volume of merchantable second growth is sufficient to maintain or increase harvest levels.

I have considered the potential for alternative harvest flows in my determination. I concur with the licensee that the initial harvest level of 123 000 cubic metres per year used in the base case cannot be increased in the short term without causing a shortfall in the mid term. I have been mindful of this in my determination for TFL 41.

(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;

Economic and Social Objectives

- 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, in the base case projection and in all of the alternative harvest flow projections with which I have been provided for reference in this determination, a primary objective in the harvest flow has been 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 in the short term to remain consistent with maintaining the integrity of the timber supply projection throughout the forecast period. I have also considered with care the adequacy of the provisions made both in current practice, and assumed in the analyses, for maintaining a range of forest values.

- 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 41 are captured in the Kalum Sustainable Resource Management Plan (SRMP) and in orders under the *Government Actions Regulation of the Forest and Range Practices Act*. The base case assumptions reflected the directions provided by these orders.

The licensee provided the public with the opportunity to comment on the timber supply review as part of the management planning process. No comments were received.

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.**

As noted in Table 1, I accept as modelled the factors considered under this section.

Reasons for Decision

In reaching my AAC determination for TFL 41, I have considered all of the factors required under Section 8 of the *Forest Act* and I have reasoned as follows.

In the timber supply analysis, the base case projected that the current harvest level of 123 000 cubic metres per year could be maintained for 45 years. After this the harvest is projected to increase in 10 percent increments per decade to the long-term harvest level of 222 000 cubic metres per year. I am satisfied that the assumptions applied in the base case forecast for the majority of the factors applicable to TFL 41 were appropriate. Following is my consideration of those factors for which I consider it necessary to further take into account their implications to timber supply as projected in the base case forecast.

In determining AACs for TFLs and TSAs, I generally identify a number of factors which, considered separately, indicate that the 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. Others may influence timber supply by adding an element of risk or uncertainty to the decision, but cannot be reliably quantified at this time.

For this determination for TFL 41 I have identified no factors in my considerations that indicate that the timber supply projected in the base case may have been overestimated:

I have identified two factors in my considerations that indicate that the timber supply projected in the base case may have been underestimated:

- *Roads, trails and landings* – Due to the inclusion in the estimate for this factor of offshore areas which have higher than average deductions for roads, trails and landings but are no longer part of the TFL, I conclude that the long-term harvest level of the base case is likely underestimated by about one to two percent.
- *Log grades* – The base case did not account for volume from dead potential trees (formerly grade three and grade five logs). I have therefore concluded that this resulted in about a four percent underestimation of the short- term and mid-term timber supply.

I am also mindful of one factor that introduces further uncertainty to the decision:

- *Site productivity* – The modelling assumptions employed in the base case for regenerating stands were based on local Old Growth Site Index (OGSI) studies. While this data did demonstrate improved site productivity for regenerating stands compared to inventory estimates, it is important to note that on TFL 41 second-growth stands do not become available for 45 years because of the current age class distribution. There is also uncertainty as to how these stands will

perform over time. I conclude this factor introduces an unquantified uncertainty to the base case in the long term and I encourage the licensee to work with government to monitor second-growth performance.

In consideration of the above mentioned influences, I observe there are some quantified and unquantified uncertainties affecting timber supply on TFL 41. The quantified factors include roads, trails and landings and log grades, and have a total impact of increasing the short- and mid-term harvest level by approximately four percent. One unquantified factor, site productivity for second-growth stands may affect timber supply in the long term but further monitoring is required to confirm this. The net result of my considerations suggests that the AAC should increase in TFL 41 by about four percent.

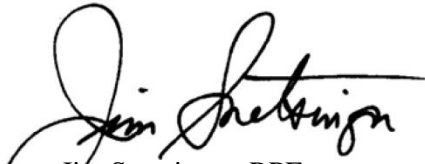
When I take into account the upward and downward pressures and uncertainties and risks, I conclude that it is appropriate to determine an AAC for TFL 41 of 128 000 cubic metres.

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 the TFL by establishing an AAC of 128 000 cubic metres.

This determination is effective on January 31, 2012 and will remain in effect until a new AAC is determined, which must take place within 10 years after 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.


Jim Snetsinger, RPF
Chief Forester

January 31, 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 11, 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 11, 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.

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Minister of
Forests and Range
and Minister Responsible
for Housing

Office of the
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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 'RC', with a long horizontal stroke extending to the right.

Rich Coleman
Minister