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RESOURCE PLANNING &
ENGINEERING
FOREST ENTERPRISES BRANCH

May 30, 2000

Ross Tozer, Regional Manager
Ministry of Forests
518 Lake Street
Nelson, B.C. V1L 4C6

Dear Sir:

As per the licence requirements enclosed for your review and comment is draft
Management Plan #8 for TFL 14.

Yours truly,

D. E. Rounsville,
Chief Forester

Pc: S. Pereverzoff, District Manager, MoF, Invermere
P. Holmes, MoE, Invermere
G. Richardson, CFI, Parson Area



**Crestbrook Forest
Industries Ltd.**

MANAGEMENT PLAN NO. 8

SPILLIMACHEEN FOREST

TREE FARM LICENCE 14

December 1, 2000 - November 30, 2005





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#

RECEIVED

30 AUG 2000

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**EXECUTIVE
MINISTRY OF FORESTS**

**RESPONSE TO COMMENTS
ENCL. 1-4
FOREST ENTERPRISES DIVISION**

August 28, 2000

Ministry of Forests
4th Floor 595 Pandora Ave.
VICTORIA, B.C. V8W 3E7

Attention: L. Pedersen, Chief Forester

Dear Sir:

Reference: Management Plan Number - 8, Tree Farm Licence - 14, Crestbrook Forest
Industries Ltd.

In accordance with paragraph 2.26 of the Tree Farm Licence document, enclosed for your approval are the remaining components of the proposed Management Plan 8, for TFL 14.

minutes meeting with L. Pedersen, August 28, 2000
Please replace the original text and insert the new documents for Appendix 6 in the section of your original copy of the Draft Management Plan Number 8. We have also a new cover page for your binder. Appendix 6 summarizes the inputs, changes and responses that formed part of the Public and Agency review of the Draft Plan.

Per ongoing dialogue with Tim Boyle and Ken Baker the Timber Supply Analysis is being fine-tuned. Any changes to the document will be summarized and forwarded for inclusion with the Management Plan.

Yours Truly

David PC Brown,
Administrative Forester

R Tozer, Regional Manager, Nelson
Serg Pereverzoff, District Manager, Invermere
P Holmes, MoE Invermere
George Ruchardson, CFI Parson

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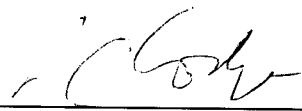
MANAGEMENT PLAN NO. 8

SPILLIMACHEEN FOREST

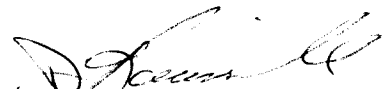
TREE FARM LICENCE 14

December 1, 2000 - November 30, 2005

Signed:



L.C. Lodge, RPF
General Manager,
Resource Operations



D.E. Rounsville, RPF
Chief Forester

Aug 28/00
Date:

Aug 29/2000
Date:

PREAMBLE

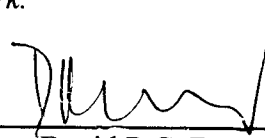
This is the eighth management plan completed for Tree Farm Licence 14. The plan has been prepared by Crestbrook Forest Industries Ltd. in compliance with section 2.0 of the Tree Farm Licence document (March 1, 1995) and subsequent replacement Tree Farm Licence document (March 1, 2000), and according to the conditions required by the provincial Chief Forester. It is subject to all provisions and conditions included in the current licence document, the Forest Act, the Forest Practices Code of BC Act, associated regulations, and the *Ministry of Forests Tree Farm Licence Management Plan Guidelines - August 1998*.

The management plan was prepared by Crestbrook Forest Industries Ltd. Woodlands Staff in Parson and Cranbrook, BC. Timberline Forest Inventory Consultants Ltd. undertook the Timber Supply Analysis.

Personnel who made significant contributions in completing the plan were G. Richardson, D. Brown, RPF, D.E. Rounsville, RPF, B. Pope, RPF, Paul Frasca, RPF and D.M. Carson, RPF.

Professional Forester Certification

*I certify that this work fulfils
accepted standards and that I
did personally supervise the
work.*



David P.C. Brown, RPF

August 25, 2000

Date:

DISTRIBUTION LIST

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	2.	Cranbrook, Chief Forester
	3.	Cranbrook, G.M., Resource Operations
Ministry of Forests	4.	Chief Forester, Victoria
	5.	Regional Manager, Nelson
	6.	District Manager, Invermere
Ministry of Environment, Parks and Lands	7.	Forest Ecosystem Specialist, Invermere

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1.0 Introduction

This is the eighth management plan prepared for Tree Farm Licence 14. Continuous forest management programs have guided the Spillamacheen Forest since the licence was first awarded in 1953. The term of Management Plan 8 is five years commencing on December 1, 2000 to November 30, 2005.

This is the first Management plan to be prepared in accordance with the *Ministry of Forests Tree Farm Licence Management Plan Guidelines - August 1998*. The plan has followed requirements suggested in that document as well as those required by the current Tree Farm Licence 14 dated March 1, 2000.

1.1 Description of the TFL

TFL 14 is situated in the Purcell Range, approximately 32 kilometres south west of Golden, British Columbia. It encompasses the watersheds of the Spillimacheen River, Bobbie Burns Creek and Vowell Creek as well as the benches directly west of the Columbia River near Parson. The key map shows the licence in relation to its regional location in the East Kootenay (see key map).

The total area of the licence is 150,431 hectares, of which 74,388 hectares (49%) is considered to make up the productive forest. The productive forest contributes only 53,304 hectares (35%) to the net long-term operable forest area. See section 7.3 and Appendix III, Table 6.1–Timber Harvesting Land Base Determination.

The forest vegetation found within the licence area is shaped by the regional climate and soil types, and described by four biogeoclimatic zones; Interior Douglas-fir, Interior Cedar-Hemlock, Montane Spruce and Engelmann Spruce-Subalpine Fir. The predominant timber species are Lodgepole pine, Engelmann spruce, Subalpine fir and Interior Douglas-fir. There is a minor amount of aspen, paper birch and cottonwood.

Wildlife resources are abundant throughout the licence and adjacent area. The broad variety of habitat types support populations of elk, mule deer, white-tailed deer, moose, black and grizzly bear, mountain goat, as well as numerous small mammals. Approximately one hundred and fifty species of birds are known to use the tree farm licence area.

Main highway access is provided by provincial Highway 95 that serves the East Kootenay region in the Rocky Mountain trench between Golden and Cranbrook. There is also a connecting Canadian Pacific rail-line which is used for the transport of pulp and lumber. The small community of Parson, where Crestbrook maintains an Area Office, is the local base for TFL operations.. The nearest larger communities are Golden (30 kilometres north along Highway 95) and Invermere (about 80 kilometres south along Highway 95). South of Parson, before Invermere, are the communities of Harrogate,

Spillimacheen, Brisco, Edgewater and Radium. Forestry, mining, and ranching operations form the main basis for year-round employment and economic activity for these local communities.

Recreation and tourist-orientated business enterprises, which continue to grow, are also significant local employers. Commercial heli-skiing, heli-hiking, and ski touring operations as well as guiding and trapping activities are ongoing within the licence area. Considerable public use in the form of fishing, hunting, hiking, snow-mobiling, camping, and touring are also among the other activities that occur.

1.2 History

In the early 1950's, Cranbrook Sawmills Ltd. submitted a proposal to the BC government for the establishment of a Forest Management Licence (FML) over the Spillimacheen, Vowell and Bobbie Burns watersheds. This was in response to a new government policy aimed at developing a modern forest products industry, while placing crown forest lands under a sustainable forest management program. In 1953, the Minister of Forests issued a FML to Cranbrook Sawmills Ltd. This licence was originally called the Spillimacheen Forest Management Licence, and was the beginning of what today it is called Tree Farm Licence #14 (TFL 14).

The area encompassed by TFL 14 was first developed for its high grade spruce volumes, specifically those in Timber Berths 873 and 869 in the Spillimacheen valley. This wood was originally moved to Brisco for milling via the Spillimacheen and Bobbie Burns rivers. The original plans for the licence centered around river driving the logs to a railhead at Parson, however this turned out to be impractical due to severe losses of logs en route to Parson. As a result, construction of major haul roads in the Spillimacheen, Bobbie Burns and Vowell valleys was undertaken. Prior to 1956, roads in the area were designed to provide access for men, equipment and materials only, as logs were transported via waterways. After 1956, roads were upgraded and designed for use by off-highway logging trucks.

As stated above, the original TFL 14 holder was Cranbrook Sawmills Ltd. In 1956, this company was purchased by Crestbrook Timber Ltd. and the TFL 14 was transferred in name on May 18, 1961, thus merging it with other operations of the company. On May 1, 1967, Crestbrook Timber Ltd. became Crestbrook Forest Industries Ltd. (Crestbrook). On April 1, 1999 Crestbrook shares and assets were acquired by Tembec Inc.

1.3 Licence Holder and Administration

Crestbrook Forest Industries Ltd. is a division of Tembec Inc., a leading integrated Canadian forest products company, marketing its products in over 50 countries. Tembec Inc. is listed on the Toronto Stock Exchange.

The Crestbrook Division operates two modern sawmills located at Canal Flats and Elko and a bleached kraft pulp mill at Skookumchuck. A Value Added Plant opened in May, 2000 at the site of the old Cranbrook sawmill. These facilities, together with

woodlands operations, directly employ nearly 1,100 persons plus 550 independent logging and trucking contractor personnel. Indirect and direct employment from Crestbrook's operations are estimated to be 4,500 persons.

A \$30 million upgrade of the sawmills was completed in 1992. These sawmills are efficient high recovery producers of quality dimension lumber, machine-stress rated lumber, and laminated beam stock, primarily for the North American market. In addition, a \$300 million renewal of the Skookumchuck pulp mill was completed during the summer of 1994. Approximately 50 percent of the pulp produced by the mill is sold to the US market, 20 percent to Japan, with the remainder being sold on the global marketplace. Both these 'asset renewal' projects were designed to meet or exceed federal/provincial environmental regulations and to improve productivity and product quality.

2.0 Resource Inventories

Resource inventories for the Tree Farm Licence area are in a continual state of update in order to reflect recent activities. The current status of the inventories for the purpose of the Timber Supply Analysis can be found in the Timber Supply Analysis Information Package - Appendix III .

A brief description of those inventories, and a summary of current proposals for updating and addressing future opportunities are provided in this section.

2.1 Forest Inventory

A re-inventory of the original TFL area was undertaken in the period 1984 through 1986. It was completed to MOF standards of the day and compiled in digital format. Ministry of Forests inventory data for the TFL "extension area" was added to the database in 1990. All maps were subsequently converted to the TRIM map base (NAD 83). The inventory has been updated for depletion and reforestation to October 1998. Subsequent disturbance and stocking changes were referenced from CFI's silviculture record keeping system up to December 31, 1999.

Further, an earlier Ministry of Forests inventory audit indicated Tree Farm Licence forest cover volumes to be underestimated. As directed by the Chief Forester, CFI through Timberline undertook an Inventory Audit and Adjustment program to rectify the problem. Accordingly, the volume estimates were adjusted upward on an average of 21%. For additional detail please refer to "TFL 14, MP No. 8, Inventory Audit and Adjustment Strategy" – April 1999. (see also Appendix III, Section 8.8.1).

2.2 Ecosystems Inventory

The timber supply analysis completed for TFL 14 Management Plan No. 7 identified information gaps that contributed to uncertainty in the planning and management process. One concern identified was the estimation of productivity (site index). Crestbrook undertook the determination of local, ecologically based average productivity estimates for correlation with the biogeoclimatic ecosystem classification (BEC) system. This correlation is referred to as SIBEC.

The implementation of SIBEC methodology involved a completed terrestrial ecosystem mapping (TEM) project that utilized ecosystems as an inventory base. The TEM was completed in March of 1999 and approved by MoF and MoELP staff. Field work included the establishment of local SIBEC data plots upon which, local values of average site index by site series and leading species are based. Inventory site classes were updated through the “TFL 14 MP No.8 Ecologically Based Productivity Estimates” study completed in April 1999.

In addition to the productivity estimates, ecosystem mapping is seen as an inventory base upon which other management and planning activities may take place. These activities include, silviculture, management for biodiversity, wildlife habitat interpretation, and a basis for analyzing sustainability and probable forest health concerns.

2.3 Other Resource Inventories

This section documents the status of all non-timber resource inventories. A list of resource inventories and approximate dates of completion and approvals are presented in Table 2.1. The digital spatial data for several resource inventories have been provided to the Invermere Forest District.

Table 2.1 Resource Inventories

Resource Inventory	Source/Standard	Date of Completion	Source/Approval
Ownership	TFL, Amendments	Compiled April 1999	n/a
Landscape Units	Draft Regional Strategy	1999	n/a
Range Administration	Invermere District	Dates from 1970's	MoF source, 1995
Digital terrain model	Trim base mapping		n/a
Level D terrain stability	Various surveys, using MoF standards	1999	MoF
Environmentally Sensitive Areas (ESA's)	MoF inventory standards	1984	Inventory source, modified and accepted with MP7
Recreation	Upgraded by MoF to new standards	1998	Original -1994
Landscape (Viewscape)	Renegotiated VQOs with District	1999	Original – 1991, Amended 1999
Ungulate winter range	Interpreted from biogeoclimatic ecosystem classification	May 1999	Approval 1999
Roads inventory	TFL operational planning	Updated to May 1999	Accepted 1998 Forest Development Plan
Stream Inventory	Pre RIC and subsequently updated,	1995	Mirkwood/MOE
Operability	Crestbrook	1999	MOF
Archaeological Overview	Ministry Culture Tourism , Archaeological Branch	1999 and 2000	MoF

2.3.1 Ownership

The TFL 14 ownership layer reflects Schedules A and B of the Tree Farm Licence and subsequent instruments, which materially affect the land base contributing to the timber supply analysis. Updates include removal of the area withdrawn from the TFL for inclusion in Bugaboo Provincial Park.

Currently, BC Hydro has a *Notation of Interest* filed with BC Lands for the future possibility of a transmission line from the Mica Dam to Cranbrook. While there are no indications from BC Hydro to use the Right of Way (logged portion or unlogged), they have indicated that they wish to keep the *Notation of Interest*. Portions of this right-of-way were removed from the TFL land base in 1982 (Instrument 11) and logged. Removal of the land base was somewhat premature and while the *Notation of Interest* can still be respected, the lands should contribute to the

operable land base in the same manner as within the Invermere TSA and the remainder of the TFL.

2.3.2 Landscape Units

The Management Plan utilized draft Landscape Units as derived from the Kootenay Land Use Planning (KLUP) program. The four Landscape units are aggregations of twenty three planning cells within the Tree Farm area. Please refer to the overview map shown in Appendix VIII.

2.3.3 Range Administration

A Range Inventory and Range Plan was provided by the Invermere Forest District. The extent of range licenses have no material effect on timber supply.

2.3.4 Digital Terrain Model

Slope, elevation and aspect data is available based on standard TRIM I digital terrain models.

2.3.5 Level D Terrain Stability

Level D terrain classification for the Operable and portions of Inoperable areas within the TFL is complete. It is based on the amalgamation of many projects, using RIC standard methodology, and completed over several years.

2.3.6 Environmentally Sensitive Areas

ESA's exist as polygon attributes in the forest cover inventory using two classification systems. For the original TFL area, the work was done using the EPA (Environmental Protection Area) standards of 1976 as these standards were still in effect at the time of inventory. These are polygon specific EPA attributes. An area of land that was later added to the TFL (the extension) has ESA designations defined by the Environmental Protection Forest (EPF) methodology of 1973-75. In 1993 soils ESA's were updated based on hazard assessments. ESA designations exist in the inventory to assist in addressing the following management concerns:

- Actual or potentially sensitive or unstable soils;
- Questionable forest regeneration success;
- Recreation values;
- Wildlife values.

2.3.7 Recreation

The recreation resources inventory for the entire TFL was completed in 1994 in conjunction with the Management Plan #7. The inventory was subsequently updated to the recently revised format by the MoF. For the purposes of analysis, recreation reserves were based on management class "0" features.

2.3.8 Landscape

The landscape (viewscape) inventory for the scenic area as made known by the District Manager is complete to the standards in place for Management Plan #7.

Visual quality classes representing visual quality objectives (VQO) for the Columbia Bench areas were defined in co-operation with the Regional Planning Officer in 1993/1994. A partial retention objective was set for visible areas along the highway 95 scenic corridor.

Given the Mountain Pine Beetle epidemic currently being experienced in this vicinity, a VQO of “modification” for areas occupied by mature pine leading stands was thought to be more realistic in the short-term. Accordingly after consultation with Invermere Forest District staff, the “partial retention” objectives have been changed to “modification” for these areas.

The raster based VQO data layer originally submitted has been smoothed to a vector format for the Timber Supply Analysis .

2.3.9 Ungulate Winter Range

Interpretations of wildlife habitat capability are based on terrestrial ecosystem mapping, habitat use studies and local experience.

2.3.10 Roads Inventory

All current, main and secondary roads, as well as the majority of trails, are classified based on MoF standard categories of main road, secondary road, and trail. Field sampling was done to determine the average widths of road site occupation respective to each category. Employing the GIS, this information was utilized to make appropriate land base reductions reflecting the area lost to long-term production of trees due to roads.

2.3.11 Stream Inventory

The 1995 TFL 14 Stream Inventory including the presence/absence of fish completed by Mirkwood Ecological Consultants has been updated. The update incorporated information from a stream crossing and ford assessments project, as well as Mirkwood’s 1998 review utilizing air photos, current field information and TRIM slope themes. The information has been incorporated into current stream mapping.

Additional inventory information regarding streams, wetlands, lakes and their associated ecosystems was gathered as part of the TFL Terrestrial Ecosystem Mapping project.

2.3.12 Operability

The “operability” and “economic operability” lines utilized for MP #7 have been replaced with a single “operability” line. The revised line is a reflection of ground reconnaissance, site classification, problem forest types, terrain hazard analysis and reconciliation between the two original lines.

2.3.13 Archeological Overview Assessments

Archeological Overview Assessments (AOA) for the entire TFL area have now been conducted. Although the final product and digital mapping component of the assessments for Landscape Units I34 and I37 are not completed, they are scheduled to be available during the second quarter of 2000. The completed product will show areas with high and moderate potential of archeological sites. Use of Preliminary Field Reconnaissance and Archeological Impact Assessments where appropriate, will validate the AOA polygons over time.

3.0 Management Objectives

The primary goal of Crestbrook is to maintain a long-term, economically viable forest products operation while practicing sound integrated resource management. In setting this goal Crestbrook recognizes its commitments to forest stewardship, the environment, social values and to meeting various government policies and objectives. To assist in facilitating this objective, Crestbrook is committed to operating its facilities in a cost effective and profitable manner. This will also allow the company to provide stable employment for our employees and contractors, as well as the resultant socio-economic benefits to the local communities and the Province of British Columbia. Where possible, Crestbrook will pursue a course of continued growth within the industry.

The following section describes specific management objectives proposed for TFL 14 and provides a vision of the planning and management requirements during the term of Management Plan 8. These objectives are a continuation and refinement of those adopted in previous management plans, and considers consultations had with various public(s) and resource agencies.

3.1 Management and Utilization of the Timber Resource

In the management and utilization of the timber resource, Crestbrook's objective is one of Forest Land Stewardship. As indicated in the "Statement of Management Objectives, Options, and Procedures", this refers to the promotion of balanced resource management which ensures that there is sufficient area of productive forest land available to provide a sustainable timber supply, while incorporating the requirements of wildlife, fisheries, water production, grazing, viewsapes, cultural, recreational and unique ecological values. Other key objectives are as follows.

3.1.1 Harvesting Methods

To adhere to the Forest Practices Code for all activities conducted on TFL 14 and to harvest the annual allowable cut (AAC) according to the conditions of the management plan, approved cutting permits and government regulations.

This will be achieved through the use of appropriate harvesting systems

including helicopter, cable and ground skidding; and use appropriate silviculture systems including seed trees, shelterwood cuts, selection harvests, clear cuts, and patch clear cuts.

3.1.2 Felling, bucking and utilization specifications

To harvest to utilization levels required by the licence document. During the term of Management Plan 8 Crestbrook will test and potentially implement a program to significantly increase utilization of decadent and undersized trees.

3.1.3 Forest health

While recognising that some damaged timber may not be salvageable, Crestbrook is committed to the reduction of non-recoverable losses, and will assess for harvest, any significant insect and disease attacked and wind or snow thrown timber that is identified.

3.1.4 Proposed AAC

To harvest the allowable annual cut (AAC) as set by Chief Forester. The AAC is currently 164,000 cubic meters per year. Through the term of Management Plan #8 an AAC of 155,000 cubic meters per year is recommended. Please refer to the Timber Supply Analysis in Appendix IV, page 42.

3.1.5 Integration with SBFEP

There is no Ministry of Forests Small Business Forest Enterprise Program operations within TFL 14. In 1990, Crestbrook chose to have a portion of the proposed TFL extension area deleted to support the five percent AAC requirement for the Small Business Forest Enterprise Program.

3.2 Protection and conservation of non-timber values

3.2.1 Visual quality

To achieve 'partial retention' to 'modification' visual quality objectives on the Columbia Bench west of the Columbia River. In the modification zones, visual impacts will be mitigated through visual landscape design of the cut block size, configuration, and on block reserves.

3.2.2 Biological diversity

To maintain opportunities for acceptable macro and micro levels of biological diversity. Considered are the concepts included in the Biodiversity Guidebook and the "Biodiversity Analysis and Old Growth and Recruitment Strategy for TFL #14". Strategies to facilitate Biological Diversity are outlined in Section 5.4. Landscape level biological diversity will be planned and implemented within the Chief Forester of the province's direction of a 2.3% AAC impact. Stand Level biodiversity is described under Section 7.2.5, Wildlife Tree Patch.

3.2.3 Soils

To minimise the forest land base occupied by permanent access structures required to provide access to operating areas.

To carry out terrain hazard assessments to determine risks related to road construction and harvesting; and to minimise temporary access structures using economically viable harvesting systems.

3.2.4 Water

To plan harvest operations to maintain water quality.

3.2.5 Recreation resources

To continue the integration of public and commercial use of the licence area for a wide spectrum of recreational activities by:

- use of the recreational inventory completed in 1995 for consideration, and
- incorporation of recreation values into forest management activities.

To allow public use of the TFL for a variety of backcountry and wilderness recreational experiences, and participating in the planning processes affecting recreation.

3.2.6 Cultural Heritage Resources

To work with local aboriginal groups to identify sites with potential archaeological values. In concert with this information, archaeological overview assessments will be utilized to determine requirements for additional detailed assessments on specific sites. Appropriate action will be taken dependant upon assessment results.

3.2.7 Range Land

To work with the Ministry of Forests in maintaining a Range Program capable of sustaining the present carrying capacity of animal-unit months (595 AUMs).

3.2.8 Fish and Wildlife Habitat

To use harvesting and silviculture practices that maintain the integrity of ecosystems associated with riparian areas.

To maintain a variety of wildlife habitats in a state suitable to support existing wildlife species.

To manage forest ecosystems in a fashion that provides for wildlife habitat requirements along with the production of timber.

To incorporate natural entities such as disturbance patterns into planning and implementation activities.

To encourage and utilize non-timber forest resource inventories.

3.3 Integration of Harvesting Activities with Non-timber Uses

To provide the public and other tenure holders with an opportunity to review management and development plans and to participate in the general planning process.

This will be achieved through the inclusion of other resource users such as ranchers, trappers, guide outfitters, aboriginal peoples, tourist facilitators as well as various public(s) in the consultation process in order to consider their needs. A continuation of notification and meetings with effected parties through the management and development planning processes will support this objective. In addition, the promotion of increased public awareness and knowledge of forest management activities will be supported by field trips, school tours and discussions.

3.3.1 Non Timber Resources

To explore managing of non-timber resources with the objective of focusing a greater emphasis on ecological principles underlying biological diversity and ecosystems. This would encourage management activities based upon landscape and ecosystem carrying capacities rather than other predetermined targets. Employment of ecosystem based management could afford a sound basis for Landscape Unit planning. This could also provide a platform for dealing with issues such as timber supply, biodiversity, rare and endangered ecosystems, and survival needs of various birds and mammals.

It is envisioned that a variety of expertise and funding sources will be required in this pursuit.

3.4 Forest fire

3.4.1 Prevention and suppression

To protect the forest resources from damage and losses caused by wildfires by maintaining an effective, efficient fire prevention and control organization. This will be accomplished using a Fire Preparedness Plan prepared annually. Crestbrook will implement programs with the MoF to ensure prompt wildfire control action.

3.4.2 Prescribed fire

To use prescribed fire as a tool for fuel management, fire hazard abatement, and retention of site quality for regeneration purposes.

3.4.3 Fuel management

Where feasible and appropriate, prescribed burning, and mechanical site preparation are fuel management activities used by CFI to minimize the risk from wildfires. Activities that may be used to facilitate the use of prescribed fire include:

- slashing of residual stems and brush in order to provide sufficient fuel for burning and improve burning efficacy,

- construct fireguards (machine or hand) to minimize risk to adjacent values, and
- design cutblocks to minimize the potential for escapes.

CFI is committed to prompt hazard abatement of on-site and landing debris. Markets permitting, utilization of non-sawlog material for pulp and other minor products will further reduce fuel loading.

The method of fuel abatement and the level of reduction must consider “coarse woody debris” objectives. In certain instances, natural fuels may be left on site. Further, in order to reduce the hazard risk rating, access may be curtailed for an appropriate period of time. Curtailment of access would require the support of, and enforcement by the Ministry of Forests.

3.5 Forest Health

To manage forest health concerns by the identification and timely harvesting or appropriate treatment of threatened or damaged stands. Based on MoF information, employ integrated management strategies to reduce insect, disease and animal damage.

These objectives will be supported through co-ordination of efforts with the MoF to ensure efficient delivery of harvesting or treatment programs.

3.6 Silviculture

To use appropriate silviculture systems including seed trees, shelterwood cuts, selection harvests, clear cuts, and patch clearcuts after giving consideration to harvesting and non-timber resource objectives.

To regenerate all harvested or denuded operable forest lands promptly, in accordance with the legislated provincial standards, in order to maintain the productive fibre growing capacity of the land base.

To reduce the opportunity of compromising free growing objectives due to insects and diseases, in future plantations and juvenile stands, the following steps will be taken:

- Greater species diversity will be promoted during the regeneration phase,
- multi-species plantations will be established where silviculturally feasible and reliable,
- a regime of natural regeneration in conjunction with planted alternate species may be prescribed in openings where appropriate,
- plantation densities will be managed to target stocking levels as a minimum,
- juvenile stands will be managed to promote conifer species diversity and ensure a well-stocked healthy stand is present at rotation, post-spacing densities will be higher than past treatments to mitigate potential *mortality*.

To capitalize on intensive silvicultural activities for the purposes of managing stand structure, and to take advantage of fibre supply opportunities such as pulplogs.

To complete and where possible implement the current Silviculture Type II Analysis for the TFL that is intended to guide available incremental and basic silvicultural expenditures to the most efficient and effective use possible. The Type II analysis uses a computer model to simulate and quantify the various outcomes of different silvicultural scenarios for the TFL. The standards for this analysis are specified by the Ministry of Forests.

3.7 Roads

To construct, maintain, and deactivate roads following applicable guidelines and standards as required to facilitate economic timber extraction and environmental considerations while minimizing withdrawals from the timber harvesting land base.

Deactivation planning will consider other resources and user requirements, silviculture obligations, fire protection and forest health needs.

3.8 Other

3.8.1 Access Management

To pursue implementation of proactive access management by the Ministries of Forests and Environment Lands and Parks in a manner consistent with provincial legislation and agency policy.

4.0 Consultation with Other Resource Users

Other resource users and stakeholders who may be affected by the forest planning and operations of the company are contacted and informed in many ways and on a regular basis. Where possible, mutually acceptable plans are developed. These other resource users include the following:

- Commercial back-country recreation lodge operators
- Government agencies
- Heli-skiing operators
- K'tunaxa/Kinbasket Tribal Council
- Mining and other licensed resource users
- Range permit holders
- Registered trapline holders and guide outfitters
- Resource interest groups
- Shuswap Indian Band, Invermere, and Columbia Lake Band, Windermere

Various Crestbrook contractors
Various publics
Water Licence Holders

4.1 Public Consultation/Review Strategy

The Review Strategy for the 30 month management plan process was prepared and approved in June of 1998. During this planning period there has been and are multiple opportunities for the public to comment on the operation of the TFL. Public involvement can be continuous across all levels of the TFL planning hierarchy, from initial planning to monitoring. In summary, consultation presently includes a review of the following:

- Statement of Management objectives, Options and Procedures (SMOOP). This was completed the later part of 1999 as part of the Management Plan 8 preparation.
- The Draft Management Plan 8, as outlined in Section 8.0
- Annual Reviews of the Forest Development Plan. This includes a session with the Columbia Lake and Shuswap Bands.
- A general open-door policy.

The company will also be proactive in increasing public awareness of forestry activities. This is done by providing news releases and information articles to local newspapers, providing field tours for the schools and by participating in community events.

In addition company personnel will participate in the Landscape Unit Planning processes as they pertain to the TFL area.

5.0 Impact Summary of MP #8 Implementation and Similarities and Differences Between MP #7 and the Proposed MP #8

5.1 Harvest Levels

The current AAC for TFL 14 is set at 164,000 m³/ year. Crestbrook Forest Industries is recommending an AAC of 155,000 m³/year for the term of Management Plan 8 (2000-2005).

Through MP 8 and the ongoing Silviculture Type II Analysis, it has been identified that “thinning” of age class 2 – 4 stands will enhance timber supply and product opportunities as well as provide pulp fibre. It is our intent to pursue FRBC or similar types of funding to complement harvesting investments and make this type of program economically viable.

Additional opportunities to enhance timber supply are available through activities such as fertilization and stand density manipulation, again, intensive silviculture funding sources will be sought.

CFI's ability to continue to run its sawmills and pulpmill at present levels will be challenged as harvest levels fall. Crestbrook realizes that a constant, if not increasing, supply of chips will be required to keep the Skookumchuck pulpmill operating at a 760 tonnes/day level. If sawlog AAC continues to fall, Crestbrook will likely initiate programs to utilize non-sawlog grades 4, 5, 6, and Z Crestbrook will also investigate the potential for harvesting of "problem forest types" to further augment its fibre supply. Where economically possible this "non-sawlog" material will be processed through one of Crestbrook's sawmills to recover some value from lumber. This will assist in making the by-product chips affordable.

5.2 Economics and Employment

The Parson log yard and rail transport operations will be closed on July 1, 2000. There is no downfall in the number of personnel anticipated. We believe that there are means to increase employment, and will endeavor to work in concert with the government to act on enterprising pulp fiber opportunities.

We have not tracked the record of specific employment numbers attributable to the Tree Farm Licence throughout the term of Management Plan #7, however we did prepare estimates of employment at the time of preparing the Strategies for Employment and Economic Opportunity (March 1998). The figures from that document are found in Appendix 2. The table below shows the current employment levels attributable to volume from TFL #14.

Employment by Job Category attributed to TFL 14 volume (in person years)

	Hourly	Casual	Salaried	Contractual	Total
Inventory and Planning	1	1	3	10	15.5
Development and Road Construction				8	8
Timber Harvesting	7		3	60	70
Log Transportation	3			5	8
Timber Processing	Sawmill 63.5	3.2	5		71.7
Sawmills and Pulpmill	Pulpmill 12.1	1.3	4.2		17.1
Silviculture			1	6.5	7.5
Woodlands Administration			2.5		2.5
Head Office Administration			8.4		8.4
Total	86.6	5.5	27.1	89.5	208.7

5.3 Harvesting Profile

Based on the results of our 20 year planning exercise, there is a slight shift in TFL harvesting profile between MP #7 and MP #8. Conventional requirements drop 4% from 74% to 70%. Cable harvesting is anticipated to experience a 6% increase, going from 15% to 21%. Helicopter and long-line volume in aggregate are anticipated to drop from 11% to 8%.

The change in the harvesting profile can be attributed to revisions in the rule sets that govern the planning process which therefore affect fibre availability, and the introduction of long-line harvesting systems.

5.4 Protection and conservation of non timber values;

The company is taking an adaptive management approach through ecosystem based management on the TFL. The objective being to protect and conserve biological diversity at both the landscape and stand level while maintaining a sustainable timber extraction program. A big step towards achieving this goal was taken in 1999, with the completion of Terrestrial Ecosystem Mapping (TEM) for the licence area.

This approach has focused a greater emphasis on the ecological principles underlying biological diversity and ecosystems. This has improved our ability to evaluate

and implement landscape management and biodiversity conservation strategies while demonstrating that we are adequately managing and conserving the forest resources.

Company staff are in the emerging stages of quantifying goals and directing activities based on detailed ecosystem mapping in concert with forest cover information. Priorities have been established using available information on a variety of forest resource issues such as rare and endangered species, riparian ecosystems, and the survival needs of various birds and mammals.

Utilizing recent TEM mapping and forest cover data, a biodiversity analysis was carried out based on the Kootenay Boundary Land Use Implementation Strategy. The analysis depicts the current TEM structural stage distribution measured against the goals defined in the September 1995 FPC Biodiversity Guidebook and subsequently updated through the FPC Landscape Unit Planning Guide, March 1999.

An “old growth recruitment strategy” was prepared for TFL 14. Consideration was given to TFL goals, ecosystem management objectives, landscape connectivity, stand composition and structure, red and blue listed species, interior habitat conditions and old growth management. The strategy emphasizes ecosystems and natural disturbance patterns rather than stand age. The strategy also provides direction on how to facilitate goals at strategic and operational levels.

The “Biodiversity Analysis and Old Growth Recruitment Strategy” provided for information purposes with the 20 Year Plan, gives insight into this opportunity. Summaries, based on Terrestrial Ecosystem Mapping data, are presented for both old and mature structural stages and related to biodiversity targets by BEC zone. Of note, “reserve and recruitment” candidate areas have been identified in excess of current biodiversity targets. The next step will be to refine these areas and objectives through additional field reconnaissance and analysis. *Note timber harvesting and silviculture activities are not precluded from the candidate areas. The objectives underlying their designation will influence what practices are undertaken.*

Where appropriate, to complement a particular landscape feature or facilitate a management objective such as provision for wildlife trees, harvesting activities will be prescribed to maintain “old growth attributes” or promote varied species composition and structural diversification.

The biodiversity analysis and “reserve and recruitment” strategy has been presented to provide the Statuary Decision-Maker a sound basis for justifying the activities outlined in the Twenty Year and Forest Development Plans.

It is our intent to better quantify biodiversity goals on an ecosystem basis over time through inventories, studies, research and everyday field activities. The current broad scale goals, although worthy, in some cases do not reflect the natural history of local ecosystems.

Crestbrook intends to proceed with the Old Growth Management Area (OGMA) reserve and recruitment strategy through landscape level planning. Crestbrook recognizes that parts of the Kootenay Boundary Land Use Plan Implementation Strategy may be declared a Higher Level Plan and where legally possible, will incorporate its strategy into those defined by the Higher Level Plan.

5.5 Key Differences:

Management Plan #7 Timber Supply Review did not recognize the impacts of biodiversity emphasis options, old and mature constraints or patch size configurations.

The result of the mature volume audit was utilized in the base case and 20 year plan of Management Plan #8. Management Plan #7 did not use the adjusted volumes in the base case. The Analysis for Management Plan #8 also utilized updated site classifications.

Management Plan #8 also includes a new operability line and no longer uses an economic line.

Management Plan #8 recognized that partial retention may not be achievable on the Columbia Bench where lodgepole pine is the leading species.

The approved AAC for Management Plan #7 is 164,000 m³. An AAC of 155,000 m³ is being proposed for the term of Management Plan #8.

6.0 Public Review Strategy for next Management Plan

Under Section 36 of the Forest Act, Crestbrook received a replacement Tree Farm Licence No 14 document effective March 1, 2000. The new licence describes terms, procedures and requirements for future Management Plans as well as the transition period from Management Plan 7 through to Management Plan 9.

The review strategy proposed below is a summary of the licence document and is intended to describe the roles of all agencies (including the public) in the preparation of the next Management Plan (No. 9). This may change according to new directives from the Ministry of Forests. *A change in these requirements or schedules will not necessitate an amendment to this Management Plan.*

6.1 Management Plan Number 9 Proposed Review Strategy

A proposed review strategy for the next management plan has been guided by Section 2.00 of the current licence document. The process is described as follows *and my be varied by direction from the Ministry of Forests.*

TFL Document Section	Description	Months Prior to expiration	Calendar Date
2.03	RM provide CFI with a review of performance and Guidelines. RM may specify the location and time for the draft management plan public review.	-20	March 30, 2004
2.04	CFI submit a TSA Info Package to the Timber Supply Forester	-16	July 30, 2004
2.05	TSA Info Pack to include information as per applicable manual in effect at six months prior to July 30, 2004 (16 months)	-22	January 30, 2004
2.06	Acceptance of TSA Information Package (or specify revisions)	-13	October 30, 2004
2.08	Submit draft management plan to RM for comment	-16	July 30, 2004
2.09	Management Plan is to be in accordance with manual in effect four months prior to 16 months and inventories as per six months (see 2.05)	-20	March 30, 2004
2.10	CFI after publishing of a notice for <u>two weeks advertising</u> that DMP is available for review (or as provided for in the discussions with RM outlined in 2.03)	-16	July 30, 2004
2.12	<u>Sixty</u> day review (or as per discussions outlined in 2.03)		August, September, October 30, 2004
2.16	RM respond to Draft Management Plan	-13	October 30, 2004
2.17	CFI submits copy of notice, copies of any comments, and proposals if any regarding DMP, TSA, or 20year plan arising from comments (no actual plan at this time)	-12	November 30, 2004
2.18	Submit 20year plan to DM	-10	January 30, 2005

2.20	DM to respond to 20 year plan	-7	April 30, 2005
2.22	CFI to submit a TSA	-10	January 30, 2005
2.24	Acceptance by timber supply forester of the TSA	-7	April 30, 2005
2.26	CFI Submit to CF and RM proposed management plan	-4	July 30, 2005
	Expiration of Management Plan 8	0	Nov 30, 2005

7.0 Other Information

7.1 Public and Agency Involvement

The Draft Management Plan No 8 was submitted to the Regional Manager, Nelson Forest Region on May 31st, 2000. As outlined in the final approval of the review Strategy in October of 1998, the final plan has been modified based upon input from the regional manager, resource agencies and public(s). The details of the comments, and responses are included in Appendix 6.

The draft management plan No. 8 followed the schedule outlined below.

May 31, 2000	Draft plan submitted (as per Tozer letter June 3, 1998)
June 12, 2000	Public Review Notice in local newspapers for two consecutive weeks
June 12th, 2000	Referral letters mailed
June 19 to July 19th	Draft Plan available for review for thirty days in Parson during office business hours and the public library in Golden BC
July 21, 2000	Deadline for submissions
August 15th	Public Comments summarized and submitted to RM
August 31st	Final Proposed Plan Submitted (as per Tozer June 3, 1998)

7.2 Planning

7.2.1 Kootenay Boundary Land Use Plan

Portions of the Kootenay Boundary Land Use Plan Implementation Strategy are currently in the final stages of preparation and are being considered for implementation as a higher level plan in the near future. If a higher level plan is declared, Crestbrook will submit a forest development plan in accordance with its legal requirement.

7.2.2 Landscape Unit Planning

Pending the resolve of the Kootenay Boundary Land Use Plan Implementation Strategy and Nelson Regional Landscape Unit Planning process, Crestbrook will work with the District MOF staff to implement OGMA and the wildlife tree requirements.

7.2.3 Old Growth Recruitment

Crestbrook is currently in the process of implementing an Old Growth Reserve and Recruitment strategy based on ecosystems.

The strategy identifies opportunities for old growth management areas. The location, design and management strategies for potential OGMA's will be refined through additional field reconnaissance and analysis.

7.2.4 Connectivity and Interior Forest Habitat

Regional and landscape level connectivity and provisions for interior forest habitat were considered when developing the "Biodiversity and Old Growth and Recruitment Strategy". Given the glacial history of the TFL, many valuable ecosystems are linear in nature. Opportunities for connectivity were determined utilizing these linear ecosystems, major waterways such as the Spillimacheen River, and the considerable amount of inoperable or constrained productive forest.

Interior forest habitat conditions are found in inoperable and constrained areas within the timber harvesting landbase. Opportunities for connectivity between these habitat conditions have been identified.

7.2.5 Wildlife Tree Patch

Existing and proposed wildlife tree patches (WTP) identified through field activities to date are shown on the accompanying maps. Additional WTP candidate areas, identified utilizing TEM and forest cover information, have also been indicated. Their focus is centered on existing old growth, specific ecosystems, red and blue listed species habitats, ecosystems where establishment of a climax forest is more likely, and inoperable areas within the timber harvesting land base. Further, to enhance long-term structural diversity, single tree and group wildlife trees patches will be accommodated through a variety of silviculture systems employed during harvesting activities.

7.3 Schedule B Prorate

Table 6.1 of Appendix III, *TFL 14 Timber Supply Analysis, Information Package*, shows the timber harvesting landbase determination for both Schedule A and Schedule B

lands. This table is also provided below. The schedule B lands (52, 589ha) account for 99.871% of the total timber harvesting landbase (52,657ha).

The schedule A and B lands are also shown on the key map in Appendix VIII.

Timber Harvesting Land Base Determination for Management Plan #8

	MP No. 7 Area (ha)	Area (ha)			Net Merchantable Volume (000 m ³)		
		Schedule A	Schedule B	Total	Schedule A	Schedule B	Total
Total land base	161,109	142	150,289	150,431			
Water		0	1,411	1,411			
Non-forest, non-productive forest	75088	24	74,607	74,631			
Total productive land base	86,021	118	74,271	74,388			
Reductions							
Non-commercial	233	0	168	168	0	0	0
Inoperable	20,271	0	13,571	13,571	0	2,531	2,531
NSR (MP 7 only)	2,426	-	-	-	-	-	-
Recreation reserve	0	0	14	14	0	3	3
Unstable terrain	0	0	1,087	1,087	0	279	279
Environmentally sensitive	3,806	0	511	511	0	67	67
Riparian Reserve	799	0	1,482	1,482	0	367	367
Unmerchantable	2,458	49	3,707	3,756	11	455	5
Wildlife tree patches	0	0	496	496	0	146	146
Roads (MP 7 only)	2192	-	-	-	-	-	-
Total Reductions	32,185	49	21,035	21,084	11	3,848	3,859
Reduced land base	53,836	68	53,236	53,304	15	10,494	10,509
Future roads and trails	2,615	0	647	647	0	146	146
NSR add back (MP No. 7 only)	2,128	-	-	-	-	-	-
Net long-term land base	53,350	68	52,589	52,657		10,348	10,363