

Appendix IV

20-Year Plan

1993 to 2012

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Management Plan No. 7 TFL No. 39

Report on 20-Year Harvest Plan 1993 to 2012

1.0 Purpose of 20-Year Plan

The 20-Year Plan (Plan) has two purposes:

- to identify, on a conceptual yet site-specific basis, a harvest plan and schedule which validates the feasibility of a 20-Year harvest level within the context of specified forest management and harvesting constraints or guidelines
- to enable the public and agencies to identify concerns they may have regarding the manner and extent to which an area is proposed for development well before options have been foreclosed.

2.0 Procedures

The planning criteria and procedures used in preparing the Plan were as stated in the Terms of Reference approved by the Manager, Vancouver Region on 94.05.09. These are appended to this report.

The steps taken in preparing the report were as follows:

1. Approximate harvest levels for each planning unit (Division/Bk or Bk combination) were identified for each 5-year period of the Plan. These were based on the allocation of current AAC for TFL 39 with adjustments for the following considerations:
 - harvest reductions projected in MP 6
 - reallocations of cut in Bks 1, 3, 5 & 7 to reflect the need to disperse harvest areas and, as a consequence, to increase the emphasis on harvest of second growth.
 - a *de facto* cut reduction of 22 k m³/yr in Eve River Division, Bk 2 for Period No. 1 (1993–1997) due to the moratorium placed on harvest in the lower Tsitika watershed (Protected Area Strategy and Johnstone Strait Killer Whale Committee recommendation).

The 20-Year Plan was prepared in advance of the Timber Supply Analysis. Thus, it was not possible to assign harvest levels that were precisely reflected in the Timber Supply Analysis.

2. Each Division prepared a first draft of a 20-Year Plan on work maps and each plan was compiled for total volume using inventory volumes adjusted for equivalency to the Timber Supply Analysis.

3. The draft Plan was reviewed for errors and compliance to criteria. Reviews of each Plan were conducted with Forest Service District offices from the point of view of approach, procedure and preliminary results. Approval was neither sought nor given at this stage.
4. The draft plan was then corrected or amended and re-compiled to provide the basis for the final mapping and report.

It must be emphasized that this Plan represents the cut block locations and schedule required to meet the harvest allocation by period. The procedure is an iterative one. That is, a first attempt is made on work maps and then compiled to determine necessary modifications. Then changes are made and the whole plan is re-compiled. Since staff at Woodlands Divisions do not yet have a direct interaction with the GIS, it is very difficult to precisely meet the allocated levels. Variances due to the iterative process are unavoidable.

Also, this Plan does not represent the maximum attainable harvest level within the constraints of the applicable guidelines. Rather, it is a Plan which, using a two-step iterative process, attempted to meet but not exceed an allocated harvest level.

3.0 Maps

Three sets of maps at a scale of 1:20 000 were produced as follows:

- a) paper prints showing:
 - forest cover and planimetry
 - forest stand boundaries and stand formulae descriptions updated to end of 1991
 - existing roads
 - property boundaries
 - water and watercourses
 - non-productive forest and non-forest
 - operability classification of mature productive timber areas
 - economic by conventional logging methods
 - economic by non-conventional logging methods
 - marginally economic areas
 - uneconomic areas
 - physically inoperable areas
 - 1992 harvested areas
 - cut blocks and connecting roads to be harvested, 1993–2012, colour-coded by five-year periods.
- b) paper prints showing polygons and/or buffer zones of environmentally-sensitive areas (ESAs) and polygons with designated visual quality objectives (VQOs).
- c) clear acetate overlays showing only the cut blocks, cut block numbers, and road colour-coded by five-year period.

This latter map may be useful as an overlay to determine the relationship of the harvest plan with the locations of ESA and/or VQO polygons.

Production of all of the ESA/VQO data on a map with the cut blocks would have resulted in an illegible map.

In addition, a map at a scale of 1:125 000 was produced to show the 20-Year Plan Cut blocks, colour-coded by five-year period against a background of broad forest cover classes:

- non-productive and non-forest
- deciduous
- conifer, immature
 - 0–20 (inclusive of lands in process of reforestation)
 - 21–40 years
 - 41+ years
- conifer, mature

This small-scale map permits a general overview of harvest development in relation to forest cover.

4.0 Results

4.1 Introduction

4.11 Alder Logging

Harvest of alder stands is included in the Plan, particularly in Blocks 1 & 2. Production from alder stands is compiled separately from the balance of the Plan and volume from alder stands is not included in overall plan totals. Spatial considerations of the alder logging are included in the report compilation results.

An alder stand conversion programme will be included in Management Plan No. 7 with the objective of establishing a deciduous AAC component for the TFL. The programme will be based on the premise that about 50% of the current alder stand inventory may be managed for conifer. The balance is either not suited to conifer production or is constrained by environmental considerations.

4.12 Thinning

In Bk 1, the proportion of immature conifer stands is higher than in other Bks and forms a greater proportion of the planned harvest. A thinning programme has been incorporated into the Plan. Thinning areas are shown on the maps but the programme is still considered conceptual in terms of methods and thinning strategies. For report compilation purposes, it is assumed that 20% of merchantable stand volume will be thinned and the balance will remain until final clear out. The actual proportion thinned will be determined on a stand-by-stand basis subject to:

- stand management and treatment objectives, including maintenance of visual quality, mortality salvage, yield and/or value enhancement, etc.
- stand species, age, height, diameter and crown characteristics
- stand health management considerations

In Bk 4, where, like Bk 1, the proportion of immature timber is higher than in other Bks, a thinning programme is projected for the second period. For compilation purposes, thinning yields are arbitrarily assumed to be 100 m³/ha.

Volumes derived from thinnings are included in the report compilation. Thinning areas are excluded from the visual landscape assessment constraints on the basis that thinning does not alter the visual landscape.

Thinning areas are identified on the maps by the letter symbol 'T'.

4.13 Shelterwood

Also, in Bk 1, a small area of higher-elevation montane timber is scheduled for a shelterwood form of harvesting. For report compilation purposes, it is assumed that 50% of merchantable stand volume will be harvested and the balance will remain for later harvest and/or for maintenance of other values.

Volumes derived from the shelterwood blocks are included in the report compilation. Shelterwood areas are excluded from the visual landscape assessment constraints on the basis that shelterwood harvesting does not alter the visual landscape.

Shelterwood areas are identified on the maps by the letter symbol 'M'.

4.14 Harvest of Non-productive Timber

The TFL Forest Inventory includes a category of forested lands termed non-productive forest (scrub). Harvest blocks shown in the Plan include a total of two hundred ninety-nine hectares of such scrub. By far the great majority of such inclusions are deliberate. Where, on the basis of local knowledge, planning personnel are aware that scrub stands are, in fact, productive and merchantable, these areas have been included in the Plan. It is logical to assume that a similar area of land classed as productive forestland in the forest inventory will, in fact, prove to be non-productive scrub. That is, at the total inventory level, the distinction between non-productive and productive forestland will be quite accurate. But, at the individual stand level, misclassifications will have occurred and are accounted for in the Plan by inclusion in cut blocks.

For the purpose of compilation of the Plan report, scrub stands are assumed to have a volume of 450 m³/ha.

4.2 Harvest volumes by Period

20-Year Plan Harvest Levels are shown by period for the TFL as a whole and by Block in the following table.

**TFL 39–20-Year Plan
Block Summaries**

	1993–1997	1998–2002	2003–2007	2008–2012	20 Years
	(000 m ³ /ha)				
TFL 39	3 668	3 648	3 400	3 589	3 576
Bk 1	471	491	542	540	511
Bk 2	1 271	1 361	1 301	1 270	1 301
Bks 3 and 4	425	417	394	388	405
Bk 5	112	96	78	84	93
Bk 6	1 198	1 110	910	1 147	1 091
Bk 7	191	173	175	160	175

A major concept in preparing the Plan was for harvest levels to gradually decline from Period 1 through to Period 4. This was achieved, in general, with the initial level of 3 668 k m³ in Period 1 declining to 3589 k m³ in Period 4. However, the reversal of this trend from Period 3 to Period 4 is considered to be an artifact of the iteration system of preparation. Divisional staff are confident that, given sufficient time to carry out a third iteration (i.e., to carry out further adjustments to cut block locations and harvest schedules and to do a consequent re-compilation), the Plan results could be brought even closer to a uniformly gradual decline from Period 1 through to Period 4 without any reduction in total harvestable volume. The harvest levels for Bk 6, in particular, show an aberration in a uniform trend line in harvest schedules. Here there is potential to add additional harvest blocks in Periods 2 and 3 and to re-assign harvest blocks from Period 4 to Period 3 to even out the harvest level trend.

The harvest levels in Bk 1 increase from Period 1 through to Period 4. This was deliberate in view of the high proportion of second growth in this Bk and the need to reallocate harvest levels from Bks 5 and 7 to the maturing second growth in Bk 1.

Included in the above harvest volumes are:

Bk 1	Thinnings	109.2 k m ³
	Montane Shelterwood	48.3 k m ³
Bk 4	Thinnings	13.8 k m ³
TOTAL		171.3 k m³

In addition, harvesting in deciduous stands (excluded from Plan totals but included in harvest blocks shown on the Plan maps) is summarized as follows:

Bk 1	497 k m ³
Bk 2	16 k m ³
Bk 3, 4	16 k m ³
Bk 6	2 k m ³
	531 k m³

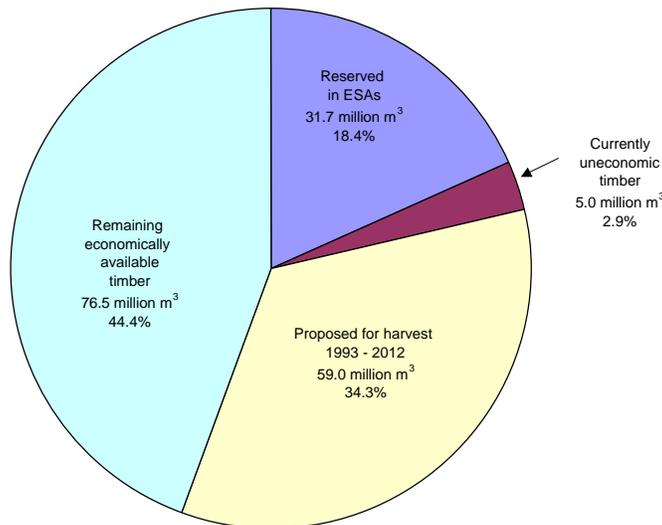
Prior to commencement of the Plan (end of 1992) total volume of operable timber in the currently economic and marginally economic classes amounted to 135.5 million m³. During the Plan period, 59.0 million m³ of this is proposed for harvest.

At the end of the Plan (end of 2012) 76.5 million m³ will remain. At the average harvest rate of the Plan (3,576 k m³/yr) the remaining economically operable mature timber is equivalent to a further twenty-one years of harvesting.

In addition, mature timber included within ESAs that is not available for harvesting at any time amounts to about 31.7 million m³. As well, another 5.0 million m³ of currently uneconomic mature timber was not considered for harvest in the Plan. Both of these timber categories will remain on completion of the Plan.

Old growth timber status is illustrated in the following chart.

Old-Growth Timber Inventory - T.F.L. 39



4.3 Operability

The intention in preparing the Plan was to achieve a trend for balance in the volume derived from each mature timber profile category (conventional, non-conventional and marginally-economic) by the end of the 20-Year period. It was recognized that there was a need for a transition period to allow “gearing up” and that normal access development was a key factor in scheduling of non-conventional logging systems. That is, logical access development would often dictate when non-conventional harvesting could take place.

Table 2 in the appendices shows, for the “available” mature timber in each Bk, the proportion of each profile category at the beginning of the Plan, the proportion of each profile category in the harvest in each period and the proportion of each that remains in the available mature timber inventory at the end of the 20-year period. The harvest statistics in Table 2 are inclusive of cut

blocks only. They do not include volume from roads connecting cut blocks. A review of these statistics shows that the intention in regard to harvesting the profile has largely been achieved.

In all cases, by the fourth period, the proportion of harvesting in the non-conventional category has equaled or exceeded the proportion of the available inventory in this category at the beginning of the Plan period.

Marginally-economic timber represents only about 5.2% of the total available, harvestable inventory at the beginning of the Plan period, although this ranges from a low of 3.7% in Bk 2 to a high of 12.2% in Bk 3. In the Plan, marginally-economic stands constitute about 3.2% of the total planned harvest from the available, harvestable inventory. Since marginally-economic stands are well-scattered throughout the inventory and in view of all of the other applicable constraints, it is very difficult to prepare a plan that precisely incorporates the marginally-economic profile.

4.4 Environmentally-Sensitive Areas (ESAs)

In preparing the Plan, ESAs were harvested only in amounts within the net down percentage limits applied in the Timber Supply Analysis. Table 3 in the appendices shows, for each Bk, the total area of productive forest within the ESA, the applicable net down rate used in the Timber Supply Analysis (maximum harvestable), the area of ESA harvested in the Plan by period and the area harvested in the Plan as a percentage of the total ESA area.

A review of Table 3 for each Bk shows that harvesting within ESAs is well within the net down limits except for a few anomalies:

- Protected Trees, Bk 2

The location of a protected tree (old specimen at Menzies Bay) was incorrectly mapped. The actual site, plus surround, will not be harvested. The correct location is not within a proposed cut block.

- Deer Winter Ranges, Bk 2

Subsequent to finalization of ESA mapping for deer winter ranges for use in the Timber Supply Analysis, changes to deer winter range locations have been proposed to and approved by the Ministry of Environment. These changes were reflected in the harvest block locations, but have not yet been accounted for in ESA mapping. This results in an anomaly but not a reality in the apparent area of deer winter range to be logged.

4.5 Landscape management Guidelines

Compliance to landscape management guidelines was evaluated by compiling the aggregate area of each VQO category in each Bk that was not in a state of visually effective green up (VEG). This value was compiled for the beginning and end of each 5-year period. A measure of compliance to landscape management

guidelines is obtained by comparing the aggregate area in a non-VEG state to the maximum permissible area under the guidelines.

Criteria for VEG and maximum permissible non-VEG were as stated in the Terms of Reference.

Details of this comparison are shown in Table 3 of the appendices.

The only significant variance from the guidelines occurs in Bk 6 when the non-VEG area in partial retention polygons already exceeds maximum levels prior to commencement of the Plan by 37%. As the Plan progresses, non-VEG decreases to 8% of maximum by the third period and then rises well in excess of maximum by the end of the fourth period.

MB believes that this situation is more an indication of the need for improving the mapping and validity of VQO designations than it is of the need for amending the Plan because of concern for visual quality. A more detailed assessment and mapping of VQO polygons will be carried out over the next few years in preparation for MP No. 8.

5.0 Conclusion

While there are some variances from criteria by Block or by period, these are minor in nature and do not, in our opinion, detract from the validity of the Plan. We are confident that a third iteration, if necessary, could be carried out to correct variances from criteria without a major revision to the overall harvest levels included in the Plan. In Bk 6, in particular, there is potential to add additional harvest blocks to Periods 2 and 3 and to re-assign harvest blocks from Period 4 to Period 3 in order to even out the harvest level trend from beginning to end of the Plan.

The Plan presented herewith validates a 20-year harvest schedule that is close to the harvest schedule used in the analysis of the various options included in the Timber Supply Analysis.

The harvest level to be recommended in MP No. 7, exclusive of the harvest from deciduous stands, is 3,700 k m³. The proposed AAC is applicable to the available forest land in the current TFL boundaries. This Plan, in the first period, has a comparable harvest level of 3,668 k m³. Allowing for the *de facto* harvest reduction of 22 k m³ due to the lower Tsitika watershed, the variance between the harvest level for the first 5-year period of this Plan and the proposed 5-year TFL AAC is only 10 k m³/year, or 0.3%.

Appendix 1

Terms of Reference

Twenty-Year Plans

TFL 39 MP No. 7

1993 to 2012

Twenty-Year Plans
TFL No. 39, MP No. 7

Terms of Reference

I. Purpose of the Twenty-Year Plan

The 20-Year Plan for TFL No. 39 is intended to serve as a conceptual, yet site-specific, harvesting plan which validates the feasibility of the planned harvest levels within the context of specified forest management and harvesting constraints or guidelines. It also serves to enable the public and agencies to identify concerns they may have regarding the manner and extent to which an area is proposed for development well before options have been foreclosed.

II. Objectives of the 20-Year Plan

A. Maps

To produce a set of maps for each Bk of the TFL (Bk 3&4 combined) showing the location of projected harvest blocks by five-year periods for twenty years commencing with 1993. The maps will also show forest cover and planimetric detail, as well as other map detail (e.g. operability, ESAs, VQO) needed to evaluate compliance to applicable management and harvesting constraints or guidelines.

B. Report

To produce an analytical report showing harvest levels by five-year periods and which quantifies compliance to the specified management and harvesting constraints or guidelines.

III. Criteria

A. Period Covered by the Plan

The Plan will span the twenty-year period 1993 to 2012. Maps will show harvest by five-year periods; 1993-1997, 1998-2002, 2003-2007, 2007-2012. The report will quantify the plan results for each period.

B. Areas to be Covered by 20-Year Plans

Separate 20-Year Plans will be prepared for each of the following areas:

<u>Bk. No.</u>	<u>Bk Name</u>	<u>MB Division</u>
1	Powell River	Stillwater
2	Adam River	Menzies Bay
2	Adam River	Kelsey Bay
2	Adam River	Eve River
3,4	Coast Islands/Port Hardy	Port McNeill
5	Phillips River	Stillwater
6	Queen Charlotte Islands	Queen Charlotte
7	Namu	Port McNeill

The report for Bk 2/Eve River Division will quantify the 20-Year Plan separately for the area covered by the Tsitika Watershed Integrated Resources Plan (TWIRP) and in aggregate for Eve River Division as a whole. The separate report for the Tsitika watershed will enable evaluation of the 20-Year Plan with respect to the harvest levels stated in the TWIRP for the 20-Year Period.

The 20-Year Plan for TFL 39 will be deemed to be the aggregation of all the above plans.

C. Guidelines to be Accounted for in the 20-Year Plan

1. *Operability*

Three categories of operable timber are recognized in the forest inventory of TFL No. 39:

- conventionally loggable, economic
- non-conventionally loggable, economic
- marginally economic by conventional or non-conventional.

Two inoperable categories are also recognized in the forest inventory:

- uneconomic
- physically inoperable

The 20-Year Plan will be designed such that, over the 20-year period, the profile of the available operable old growth forest is harvested proportionately. That is, the volume harvested from conventional economic, non-conventional economic and marginally economic will be proportionate to their occurrence in the forest inventory at the beginning of the Plan period, subject to:

- need for a transition period to enable operational "gearing up", capital equipment purchase, etc.
- operational limitations which require deferral of some helicopter shows until the appropriate road access has been constructed for conventional harvest of nearby areas in the normal course of access development.

For these reasons, it is not intended that the harvest profile will be in balance for each period but a trend to achieving balance by at least the fourth period will be achieved.

Because the forest inventory is accurate at the forest level and not the stand level, it is expected that a small but insignificant portion of the harvest volume may be derived from uneconomic and/or physically inoperable stands.

The 20-Year Plan Report will quantify, by period, the volume derived from each operability class for comparison to the available profile of these classes in the forest inventory at the beginning of the period. This will apply to the mature timber only.

2. *Environmentally Sensitive Areas*

Environmentally sensitive areas (ESAs) have been mapped for all Blocks of the TFL. These, together with the net down rate to be accounted for in the Timber Supply Analysis, are:

- Forest Regeneration
 - Ep1; 90% net down

- Sensitive Soils
 - ES1 - terrain class 5; 90% net down
 - ES2 - terrain class 4;
 - Bks 2,3,4 and southern part of Bk 1; 13.5% net down
 - Bks 5,7 and northern part of Bk 1; 18.2% net down
 - Bk 6; 18.3% net down

- Snow Avalanche
 - Ea1; 20% net down with a rate of harvest constraint of 20% at 30-year intervals on the balance.

- Fisheries
 - Ef1; ; 20m streamside management zones on each side of class A and major class B and C streams
 - ; 30m zone adjacent to estuaries of class A streams
 - ; 30m zone adjacent to all lakes over five hectares in size
 - 90% net down applicable to above areas.
 - NB: Ef2 - fisheries sensitive zones. Ef2 mapping is only available on a limited area of the TFL. On the basis of a factor such areas are accounted for in the Timber Supply Analysis at a net down of 50%.

- Wildlife habitats
 - Ew1 - deer winter ranges over 300m and elk ranges, 100% net down.
 - Ew1 - certain mountain goat and grizzly bear habitats, 90% net down.
 - Ew2 - deer winter ranges under 300m
 - Ew2 - certain mountain goat and grizzly bear habitats, 50% net down.

- Recreation Areas
 - Er1; 90% net down
 - Er2; 50% net down

- Community watershed
 - Eh1; specified unloggable areas within community watersheds - 90% net down.
 - Eh2; balance of community watershed loggable only at a rate of 30% prior to hydrologic recovery (7m height of regeneration).

The 20-Year Plan will be designed such that harvesting within any ESA polygon will be constrained to be within the above net down limits. There will be certain cases where the above limits may be exceeded with the concurrence of regulatory agencies;

- e.g.1, deer winter ranges, some modification to boundaries and locations of deer winter ranges have been made and approved by the Ministry of Environment subsequent to the date of the ESA inventory for TFL 39. The changes will be reflected in the 20-Year Plan but are not reflected in the ESA inventory.
- e.g.2, certain terrain class 5 areas have been examined by a qualified terrain specialist with the result that terrain class 5 has either been down-graded to class 4 or certain areas have been approved for harvest under specified conditions. Such areas are already included in approved 5-Year Plans and will be reflected in the 20-Year Plan.

3. *Landscape Management Guidelines*

Areas of TFL 39 having visual sensitivity have been mapped to identify polygons having specified visual quality objectives; i.e. Retention (R), Partial Retention (PR), and Modification (M).

The 20-Year Plan preparations had to commence prior to compilation of data on green-to-operable ratios applicable to each 20-Year Plan unit and prior to decisions on rate of harvest constraints that would be applied in the Timber Supply Analysis.

The VQO polygons in TFL 39 are, on average, broadly drafted and include hidden areas that might otherwise be excluded under more detailed mapping procedures.

The 20-Year Plan Report will quantify, for each VQO class in aggregate for each Plan, the following:

- total green area
- total operable area
- cumulative area where re-stocking is under 5m height
 - : at beginning of Plan
 - : at end of each succeeding 5-year period
- permissible area under 5m height on the basis of the following criteria:
 - each VQO may be altered by $\frac{3}{4}$ of the permissible range; i.e.
 - 4% for retention polygons
 - 12.5% for partial retention polygons
 - 22.75% for modification polygons
- the permissible range is further adjusted by $(G/O + 1)/2$ where G/O denotes the green-to-operable ratio.

The above data in the 20-Year Plan report will enable assessment of the plan in terms of compliance to Landscape Management Guideline criteria applied on a planimetric land base.

NB: Rate of viewscape alteration restraint is significantly more restraining when applied on a planimetric basis due to the planimetric inclusion of land hidden by trees or topography.

4. *Biodiversity*

Biodiversity guidelines and standards applicable to coastal B.C. areas are being drafted but are currently still in draft form. By letter from the Chief Forester, J.R. Cuthbert, dated 93.06.25, it was acknowledged that the 20-Year Plan for TFL 39 did not have to account for the draft biodiversity guidelines. However, he requested that "...roads and cut blocks should be laid out in the 20-year plan in such a way as to minimize their location in logical Forest Ecosystem Network corridors". He further requested, "The 20-year plan should not reduce the options available for protection of biodiversity."

Thus, with respect to the issue of biodiversity, the 20-Year Plan will be prepared such that options for later formalization of Forest Ecosystem Networks (FENs) are preserved. Cut Block locations will be situated so as to ensure the connectivity and continuity of potential FEN locations is maintained.

5. *Coast Fish Forestry Guidelines*

The Coast Fish Forestry Guidelines will be followed in preparing the Plan.

In the absence of specific ground data, streamside management zones and areas adjacent to fish-bearing lakes and estuaries will be protected in accordance with the criteria used to define environmentally-sensitive areas for fisheries. Where specific field data is known, this will be used.

Because the inventory for TFL No. 39 is not geographically-segregated by watersheds or landscape units as referred to in the Fish Forestry Guidelines, the 20-year plan will not be compiled to show area by age classes of forest cover for watersheds or any landscape unit subdivisions of watersheds.

6. *Coast Harvest Planning Guidelines*

The provisions of the Coast Harvest Planning Guidelines will be applied in the preparation of the 20-Year Plan; in particular, the clearcut block size and adjacency rules will apply.

Block size:

- maximum opening size will be forty hectares, unless exceptions are supported by reasons adequate to be supported by all approving agencies.

Adjacency:

- areas adjacent to harvested blocks or blocks scheduled to be harvested in an early period of the 20-year plan and which are otherwise eligible for harvesting will not be scheduled for harvesting until the earlier harvested blocks have been reforested to trees which have reached free-to-grow heights.
- free-to-grow heights are deemed, for the purpose of 20-year planning, to be as follows:
 - up to 900m elevation - ten years
 - over 900m elevation - fifteen years.

On average, a one to two-year regeneration delay is assumed.

7. *Second Growth Harvesting*

a) Priority

To maximize overall forest growth rates, available old growth timber will be given priority for harvest but second growth will also be harvested for strategic purposes:

- where no available old growth is available during a plan period
- where necessary for wildlife habitat purposes (e.g. create deer forage in areas of extensive older second growth)
- where necessary to spread harvesting over a wider range of the merchantable timber forest (old growth and second growth) to facilitate compliance to rate of harvest constraints (e.g. landscape management constraints).

b) Thinning

A relatively small proportion of older second growth timber may be included in the plan for harvest by thinning. These will be compiled on the basis of a twenty percent harvest of the net merchantable volume.

However, it is intended that a variety of stand ages will be harvested to a variety of intensities to develop further experience on

- operational procedures
- silvicultural impacts
- growth and yield implications

Blocks proposed for thinning in the 20-Year Plan will be prefixed by the letter "T" in the block number designation.

c) Deciduous Harvest

In a few Bks, notably Bk 1, Powell River and Bk 4, Port Hardy, areas of deciduous timber planned for harvest and conversion to conifer will be shown on the 20-Year Plan maps. Since deciduous stands are not included in the forest land base contributing to the AAC for TFL 39, wood volume from deciduous stands will not be included in the harvest volumes compiled for the 20-Year Plan. However, the total volume of conifer stands with a deciduous component will be included in the 20-Year Plan volume compilation.

IV. Format of 20-Year Plan

The final draft of the 20-Year Plan will be presented in the following format.

1. Maps

- a) 1:20000 paper prints of TFL 39 forest inventory maps (planimetry, existing roads, forest cover) updated to 91.12.31.

Additional detail to be shown:

- 1992 harvested areas
 - 20-year plan cut blocks, cut block numbers, and roads colour-coded by 5-year periods. Where adjacent openings are logged in successive periods, the actual year that logging is planned for each Bk will be noted on the maps.
 - operability classes
 - economic, conventional
 - economic, non-conventional
 - marginally economic
 - uneconomic
 - physically inoperable
 - non-productive and non-forest will be shown by grey stipple
- b) 1:20000 clear acetate overlays showing 20-year plan cut blocks, numbers and roads colour-coded by 5-year period.
- c) 1:20000 paper prints of TFL 39 forest inventory showing locations of environmentally sensitive areas (ESAs) and polygons of designated visual quality objectives (VQOs).
- d) 1:125000 map of each Bk showing 20-year Plan cut blocks and roads, colour-coded by 5-year period, on a background of broad forest cover classes:
- non-productive and non-forest
 - deciduous
 - conifer - immature
 - 0 - 20 years
 - 21 - 40 years
 - 41+ years
 - conifer - mature

2. Report

A statistical summary of each Plan will show:

- total volume harvested by 5-year period and total
- volume of mature conifer harvested by operability class:
 - economic, conventional
 - economic, non-conventional
 - marginally economic
 - uneconomic
 - physically inoperable
- profile of forest as of 91.12.31 in terms of percent of total available mature timber in conventional, non-conventional and marginally-uneconomic classes.
- area of productive forest harvested in the various ESA classes compared with total area of productive forest in each ESA class
- aggregate VQO analysis of area not visually re-vegetated (see Section III, 3).

V. Preliminary Review with MoF

Prior to final completion of the 20-year Plans for each Block, a preliminary review/presentation will be made to staff at each appropriate District Office of the Ministry of Forests.

The purpose of the review will be to identify the approach being taken, the rationale for the approach, and to present preliminary results; maps and statistical data on harvest levels, operability, ESAs, landscape management, etc.

The purpose of the review is not to obtain District approval at this time. Ministry of Forests staff will not have opportunity for detailed examination of cut block layout, etc. However, any suggestions by District staff will be considered for incorporation in the final draft Plan.

VI. Schedule

- | | |
|--|----------|
| 1. Complete preliminary review with Ministry of Forests
District staff by | April 15 |
| 2. Submit final draft plan to Ministry of Forests | |
| - maps to District office | May 31 |
| - report to Region office | May 31 |

Appendix 2

Twenty-Year Plan Results

Block 1

Table 1 Harvest Levels

Table 2 Operability

Table 3 ESA Hectares

Table 4 Visual Landscape

Table 5 Partial Harvest

**TABLE 1. 20-Year Plan, Harvest Levels
TFL 39, Block 1
(m³ 000)**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	20 Years
Openings	2268.76	2230.04	2650.01	2504.57	9653.38
Ha.	3412	3539	3835	3729	14515
Roads	2.41	4.84	4.43	4.55	18.23
Ha.	17	34	37	17	105
Total	2271.17	2234.88	2654.44	2509.12	9669.61
Ha.	3429	3573	3872	3746	14620
Volume/Year	454.23	446.98	530.89	501.82	483.48
Ha./Year	685.80	714.60	774.40	749.20	731.00

Deciduous					
Total	179.01	114.16	99.81	103.62	496.60
Ha.	491.00	321.00	282.00	302.00	1396.00
Volume/Year	35.80	22.83	19.96	20.72	24.83
Ha./Year	98.20	64.20	56.40	60.40	69.80

**TABLE 2. 20-Year Plan, Operability
TFL 39, Block 1**

OLD GROWTH		Inven. Profile End of 1992	Harvest Volumes					Inven. Profile End of 2012
			Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total	
Conventional Economic	m ³	5278888	792093	636201	493071	497542	2418907	2859981
	%	60.86	67.29	65.14	48.97	58.57	60.32	59.67
Non-Conventional	m ³	2805294	293856	260730	412124	303451	1270181	1535133
	%	32.34	24.96	26.69	40.93	35.72	31.67	32.03
Marginal	m ³	590060	42485	54561	69139	26296	192481	397579
	%	6.80	3.61	5.59	6.87	3.10	4.79	8.30
Uneconomic	m ³		1870	5893	10643	4122	22528	
	%		.16	.60	1.06	.49	.56	
Physically Inoperable	m ³		27016	0	1631	0	28647	
	%		2.30	0.00	.16	0.00	.71	
Scrub	m ³		19800	19350	20250	18000	77400	
	%		1.68	1.98	2.01	2.12	1.93	
TOTAL VOLUME	m ³	8674242	1177120	976735	1006858	849411	4019124	4792693
TOTAL	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
AVERAGE VOLUME/YEAR	m ³		235424	195347	201372	169882	200606	

SECOND GROWTH	
Conventional	m ³
Non-Conventional	m ³
Inoperable	m ³
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
1079395	1196951	1536720	1581539	5394605
11099	56011	105261	73624	245995
1143	348	1168	0	2659
1091637	1253310	1643149	1655163	5643259
218327	250662	328630	331033	282163

TOTAL	
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
2266757	2230045	2650997	2604574	9652373
463761	446095	530991	500916	482665

**TABLE 3. 20-Year Plan, ESA Hectares
TFL 39, Block 1**

ESA DESCRIPTION		ESA Area Included in 20 Year Plan (Ha)					Total Harvest Area	Harvest % of Productive Area	Maximum Harvestable %
		Productive Forest Area in ESA (Ha)	Period 1 Area 1993-1997	Period 2 Area 1998-2002	Period 3 Area 2003-2007	Period 4 Area 2008-2012			
Recreation	Er1	156	0	0	0	0	0	0.00	10
Recreation	Er2	2826	37	49	178	110	374	13.23	50
Regeneration	Ep	4	0	0	0	0	0	0.00	10
Snow Avalanche	Ea	829	14	0	2	7	23	2.77	80
Soils	Es1	3419	38	18	29	29	114	3.33	10
Soils	Es2	9837	384	257	348	392	1381	14.04	85
Stream Mgmt Zone	Ef1	1725	17	23	14	25	79	4.58	10
Water Areas	Eh1	25	0	0	0	0	0	0.00	10

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 1**

Modification

	Green Area	Avail Area	Green/Avail Ratio	Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
				End of 1992	End of 1997	End of 2002	End of 2007	End of 2012	
Ha	37388	16351	2.29	4644	4031	3931	3733	2547	6113

Partial Retention

	Green Area	Avail Area	Green/Avail Ratio	Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
				End of 1992	End of 1997	End of 2002	End of 2007	End of 2012	
Ha	48103	27920	1.72	1078	1926	2993	4016	4569	4751

Retention

	Green Area	Avail Area	Green/Avail Ratio	Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
				End of 1992	End of 1997	End of 2002	End of 2007	End of 2012	
Ha	4134	1532	2.70	111	95	121	133	118	113

**TABLE 5. 20-Year, Partial Harvest
TFL 39, Block 1**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2007-2012	Total
Thinnings (m³)	11182	53804	23169	45094	133249
Ha.	78	334	160	328	900
Shelterwood (m³)	42603	5751	0	0	48354
Ha.	156	18	0	0	174
Total (Partial Harvest) (m³)	53785	59555	23169	45094	181603
Ha.	234	352	160	328	1074
m³/Year	10757	11911	4634	9019	9080
Ha./Year	47	70	32	66	54

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Appendix 3

Twenty-Year Plan Results

Block 2

Table 1	Harvest Levels
Table 2	Operability
Table 3	ESA Hectares
Table 4	Visual Landscape

**TABLE 1. 20-Year Plan, Harvest Levels
TFL 39, Block 2
(m³ 000)**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	20 Years
Openings	6327.41	6762.34	6464.79	6339.23	25893.76
Ha.	8645	9802	9117	8740	36104
Roads	24.96	39.35	36.25	10.45	111.00
Ha.	42	63	60	19	184
Total	6352.36	6801.69	6511.39	6350.57	26004.76
Ha.	8687	9665	9177	8759	36288
Volume/Year	1270.47	1360.34	1300.21	1269.93	1300.24
Ha./Year	1737.40	1933.00	1835.40	1751.80	1814.40

Deciduous					
Total	14.93	.16	.35	.59	16.03
Ha.	42.00	1.00	1.00	2.00	46.00
Volume/Year	2.99	.03	.07	.12	.80
Ha./Year	8.40	0.20	0.20	.40	2.3

**TABLE 2. 20-Year Plan, Operability
TFL 39, Block 2**

OLD GROWTH		Inven. Profile End of 1992	Harvest Volumes				Total	Inven. Profile End of 2012
			Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012		
Conventional Economic	m ³	40832814	5564340	5262335	5090797	4788505	20705977	20126837
	%	82.52	89.34	82.07	82.86	80.83	83.80	80.48
Non-Conventional	m ³	6826379	519104	832352	829401	878336	3058193	3767186
	%	13.79	8.34	12.98	13.50	14.83	12.38	15.06
Marginal	m ³	1825880	92836	235402	180989	202434	711661	1114219
	%	3.69	1.49	3.67	2.95	3.42	2.88	4.46
Uneconomic	m ³		15894	35653	21316	20822	93685	
	%		0.26	0.56	0.35	0.35	0.38	
Physically Inoperable	m ³		14632	16366	11669	13162	55829	
	%		0.23	0.25	0.19	0.22	0.23	
Scrub	m ³		21150	30150	9450	20700	81450	
	%		0.34	0.47	0.15	0.35	0.33	
TOTAL VOLUME	m ³	49485073	6227956	6412258	6143622	6923969	24707796	25008242
TOTAL	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
AVERAGE VOLUME/YEAR	m ³		1245591	1282451	1228724	1184791	1235368	

SECOND GROWTH	
Conventional	m ³
Non-Conventional	m ³
Inoperable	m ³
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
99449	350084	319166	414811	1183510
0	0	1998	457	2455
0	0	0	0	0
99449	350084	321164	415268	1186965
19889	70016	64232	83663	59298

TOTAL	
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
6327405	6782342	6464786	6339227	25893760
1265481	1352468	1292957	1267846	1294688

**TABLE 3. 20-Year Plan, ESA Hectares
TFL 39, Block 2**

ESA DESCRIPTION		ESA Area Included in 20 Year Plan (Ha)					Total Harvest Area	Harvest % of Productive Area	Maximum Harvestable %
		Productive Forest Area in ESA (Ha)	Period 1 Area 1993-1997	Period 2 Area 1998-2002	Period 3 Area 2003-2007	Period 4 Area 2008-2012			
Deer Winter Range	Ew1	6216	48	23	12	28	111	1.79	0
Deer Winter Range	Ew2	645	0	6	0	11	17	2.64	50
Elk Range	Ew1	337	5	0	0	1	6	1.78	0
Protected Trees		14	3	0	2	3	8	57.14	10
Recreation	Er1	880	0	0	32	0	32	3.72	10
Recreation	Er2	2120	60	22	33	16	131	6.18	50
Regeneration	Ep	2468	16	27	13	17	73	2.96	10
Snow Avalanche	Ea	582	22	8	8	10	48	8.25	80
Soils	Ee1	9385	185	111	93	138	527	5.62	10
Soils	Ee2	15536	549	869	698	817	2933	18.88	86
Stream Mgmt Zones	Ef1	2440	11	27	19	7	64	2.62	10
Water Areas	Eh1	187	5	0	0	0	5	2.67	10

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 2**

Modification				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	34648	26498	1.31	4894	4383	3965	4366	4053	6955

Partial Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	17584	11078	1.59	1699	1563	1584	1665	1659	1791

Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	1855	289	6.42	3	24	33	43	35	43

Appendix 4

Twenty-Year Plan Results

Block 3, 4

Table 1	Harvest Levels
Table 2	Operability
Table 3	ESA Hectares
Table 4	Visual Landscape
Table 5	Partial Harvest

**TABLE 1. 20-Year Plan, Harvest Levels
TFL 39, Blocks 3/4
(m³ 000)**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	20 Years
Openings	2116.00	2018.46	1963.16	1941.38	8039.00
Ha.	2857	2877	2608	2648	10990
Roads	4.29	7.48	6.93	0.61	19.31
Ha.	10	25	12	3	50
Total	2120.29	2025.94	1947.59	1928.94	8058.31
Ha.	2867	2902	2620	2651	11040
Volume/Year	424.06	405.19	394.02	388.40	402.92
Ha./Year	573.40	580.40	524.00	530.20	552.00

Deciduous					
Total	1.44	10.81	2.27	1.75	16.27
Ha.	4.00	31.00	6.00	5.00	46.00
Volume/Year	.29	2.16	.45	.35	.82
Ha./Year	.8	6.2	1.2	1.0	2.3

**TABLE 2. 20-Year Plan, Operability
TFL 39, Blocks 3/4**

OLD GROWTH		Inven. Profile End of 1992	Harvest Volumes					Inven. Profile End of 2012
			Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total	
Conventional Economic	m ³	6705503	1350242	885082	602832	488825	3326981	3378522
	%	66.18	82.69	62.69	52.59	54.32	65.36	64.80
Non-Conventional	m ³	2814925	227183	413053	440947	325494	1406677	1408248
	%	27.78	13.91	29.26	38.47	36.17	27.63	27.01
Marginal	m ³	611818	37081	53749	42663	51437	184930	426888
	%	6.04	2.27	3.81	3.72	5.72	3.63	8.19
Uneconomic	m ³		0	6313	16321	1323	23957	
	%		0.00	0.45	1.42	0.15	0.47	
Physically Inoperable	m ³		787	3541	3090	1236	8654	
	%		0.05	0.25	0.27	0.14	0.17	
Scrub	m ³		17550	49950	40500	31500	139500	
	%		1.08	3.54	3.53	3.50	2.74	
TOTAL VOLUME	m ³	10132246	1632843	1411688	1146353	899815	5098899	5213658
TOTAL	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
AVERAGE VOLUME/YEAR	m ³		325566	282337	229270	179963	254534	

SECOND GROWTH	
Conventional	m ³
Non-Conventional	m ³
Inoperable	m ³
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
483161	606778	816239	1041562	2947740
0	0	569	0	569
0	0	0	0	0
483161	606778	816808	1041562	2948309
96632	121356	163361	208312	487661

TOTAL	
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
2116084	2018466	1963161	1941377	8039088
423200	403693	392632	385275	401960

**TABLE 3. 20-Year Plan, ESA Hectares
TFL 39, Blocks 3/4**

ESA DESCRIPTION		ESA Area Included in 20 Year Plan (Ha)						Harvest % of Productive Area	Maximum Harvestable %
		Productive Forest Area in ESA (Ha)	Period 1 Area 1993-1997	Period 2 Area 1998-2002	Period 3 Area 2003-2007	Period 4 Area 2008-2012	Total Harvest Area		
Deer Winter Range	Ew1	270	0	0	0	0	0	0.00	0
Deer Winter Range	Ew2	38	0	0	0	0	0	0.00	50
Elk Range	Ew1	122	0	0	0	0	0	0.00	0
Recreation	Er1	26	0	0	0	0	0	0.00	10
Recreation	Er2	316	4	4	12	0	20	6.33	50
Regeneration	Ep	0	0	0	0	0	0	0	10
Snow Avalanche	Ea	216	14	8	40	10	72	33.33	80
Soils	Es1	1566	48	40	59	22	169	10.79	10
Soils	Es2	4497	239	376	332	288	1235	27.46	86
Stream Mgmt Zone	Ef1	913	15	6	7	10	38	4.16	10
Water Areas	Eh1	14	0	0	0	0	0	0	10

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 3**

Modification				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	3213	3018	1.06	711	648	640	415	430	709

Partial Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	4908	4305	1.14	238	300	642	723	859	576

Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	381	338	1.13	0	0	0	82	82	14

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 4**

Modification				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	6293	5484	1.15	1073	767	716	1053	1134	1340

Partial Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	1310	1154	1.14	116	180	287	279	395	154

Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	90	76	1.18	28	12	9	9	13	3

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**TABLE 5. 20-Year, Partial Harvest
TFL 39, Blocks 3/4**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2007-2012	Total
Thinnings (m ³)	0	13800	0	0	13800
Ha.	0	138	0	0	138
Shelterwood (m ³)	0	0	0	0	0
Ha.	0	0	0	0	0
Total (Partial Harvest) (m ³)	0	13800	0	0	13800
Ha.	0	138	0	0	138
m ³ /Year	0	2760	0	0	690
Ha./Year	0	28	0	0	7

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Appendix 5

Twenty-Year Plan Results

Block 5

Table 1	Harvest Levels
Table 2	Operability
Table 3	ESA Hectares
Table 4	Visual Landscape

**TABLE 1. 20-Year Plan, Harvest Levels
TFL 39, Block 5
(m³ 000)**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	20 Years
Openings	557.42	478.06	379.74	419.15	1834.37
Ha.	832	694	620	655	2801
Roads	1.84	1.51	7.51	0.50	11.36
Ha.	3	5	13	1	22
Total	559.27	479.56	394.90	428.20	1845.74
Ha.	835	699	633	656	2823
Volume/Year	111.85	95.91	77.45	83.93	92.29
Ha./Year	167.00	139.80	126.60	131.20	141.15

Deciduous					
Total	0.0	0.0	0.0	0.0	0.0
Ha.	0.0	0.0	0.0	0.0	0.0

TABLE 2. 20-Year Plan, Operability
TFL 39, Block 5

OLD GROWTH		Inven. Profile End of 1992	Harvest Volumes					Inven. Profile End of 2012
			Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total	
Conventional Economic	m ³	2100218	335685	273785	199692	200021	1009183	1091035
	%	50.80	61.04	57.27	58.60	47.72	56.45	44.57
Non-Conventional	m ³	1678348	165869	156697	104042	176698	603306	1075042
	%	40.60	30.16	32.78	30.53	42.16	33.74	43.92
Marginal	m ³	355656	16770	16786	14378	25834	73768	281888
	%	8.60	3.05	3.51	4.22	6.16	4.13	11.51
Uneconomic	m ³		0	9298	16101	583	25982	
	%		0.00	1.94	4.73	0.14	1.45	
Physically Inoperable	m ³		17199	8441	2041	9264	36945	
	%		3.13	1.77	0.60	2.21	2.07	
Scrub	m ³		14400	13050	4500	6750	38700	
	%		2.62	2.73	1.32	1.61	2.16	
TOTAL VOLUME	m ³	4134222	549923	478867	340754	419160	1787884	2447965
TOTAL	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
AVERAGE VOLUME/YEAR	m ³		109984	95611	68150	53830	39354	

SECOND GROWTH	
Conventional	m ³
Non-Conventional	m ³
Inoperable	m ³
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
7501	0	30474	0	37975
0	0	8514	0	8514
0	0	0	0	0
7501	0	38988	0	46489
1500	0	7797	0	2324

TOTAL	
TOTAL VOLUME (m³)	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
557424	478867	379742	419150	1834373
111484	95611	75948	83830	31718

**TABLE 3. 20-Year Plan, ESA Hectares
TFL 39, Block 5**

ESA DESCRIPTION		ESA Area Included in 20 Year Plan					Total Harvest Area	Harvest % of Productive Area	Maximum Harvestable %
		Productive Forest Area in ESA (Ha)	Period 1 Area 1993-1997	Period 2 Area 1998-2002	Period 3 Area 2003-2007	Period 4 Area 2008-2012			
Goat Range	Ew1	538	0	2	1	0	3	0.56	10
Grizzly	Ew1	734	13	2	4	6	25	3.41	10
Recreation	Er1	54	0	0	2	0	2	3.70	10
Recreation	Er2	356	4	1	16	6	27	7.58	50
Regeneration	Ep	3	0	0	0	0	0	0.00	10
Snow Avalanche	Ea	198	0	11	2	2	15	7.58	80
Soils	Es1	970	4	3	0	7	14	1.44	10
Soils	Es2	2059	92	67	61	87	307	14.91	82
Stream Mgmt Zone	Ef1	179	0	2	4	0	6	3.35	10

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 5**

Modification				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	5884	2992	1.97	1107	917	818	676	439	1010

Partial Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	3011	1352	2.23	120	103	70	193	169	273

Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	853	0	0	0	0	0	2	2	17

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Appendix 6

Twenty-Year Plan Results

Block 6

Table 1	Harvest Levels
Table 2	Operability
Table 3	ESA Hectares
Table 4	Visual Landscape

**TABLE 1. 20-Year Plan, Harvest Levels
TFL 39, Block 6
(m³ 000)**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	20 Years
Openings	5956.31	5507.72	4499.35	5718.26	21681.65
Ha.	9964	9673	7840	9902	37379
Roads	32.44	39.83	52.81	17.97	143.05
Ha.	65	80	103	31	279
Total	5988.75	5547.55	4583.21	5753.34	21824.70
Ha.	10029	9753	7943	9933	37658
Volume/Year	1197.75	1109.51	910.43	1147.25	1091.24
Ha./Year	2005.80	1950.60	1588.60	1986.60	1882.90

Deciduous					
Total	.38	1.75	.35	0.0	2.48
Ha.	1.00	5.00	1.00	0.0	7.00
Volume/Year	.08	.35	.07	0.0	.12
Ha./Year	.20	1.00	.20	0.0	.35

**TABLE 2. 20-Year Plan, Operability
TFL 39, Block 6**

OLD GROWTH		Inven. Profile End of 1992	Harvest Volumes					Inven. Profile End of 2012
			Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total	
Conventional Economic	m ³	47132681	5503276	4847280	4007896	4948477	19306929	27825752
	%	89.39	93.72	91.72	90.57	90.11	91.62	86.71
Non-Conventional	m ³	3019980	100745	151202	224667	281531	758145	2261835
	%	5.73	1.72	2.86	5.08	5.13	3.60	7.05
Marginal	m ³	2572685	173151	154076	85100	156196	568523	2004162
	%	4.88	2.95	2.91	1.92	2.84	2.70	6.24
Uneconomic	m ³		47009	23244	62328	47038	179619	
	%		0.80	0.44	1.41	0.86	0.85	
Physically Inoperable	m ³		1603	85449	33982	30307	151341	
	%		0.03	1.62	0.77	0.55	0.72	
Scrub	m ³		45900	23850	11250	27900	108900	
	%		0.78	0.45	0.25	0.51	0.51	
TOTAL VOLUME	m ³	52725346	5871684	5286101	4425223	5491449	21073457	32091749
TOTAL	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
AVERAGE VOLUME/YEAR	m ³		1174336	1057020	885044	1098289	1053672	

SECOND GROWTH	
Conventional	m ³
Non-Conventional	m ³
Inoperable	m ³
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
84626	222618	74130	226815	608189
0	0	0	0	0
0	0	0	0	0
84626	222618	74130	226815	608189
16925	44523	14826	45363	30409

TOTAL	
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
5966310	5507719	4499363	5718264	21681646
1191262	1101543	899870	1143662	1084082

**TABLE 3. 20-Year Plan, ESA Hectares
TFL 39, Block 6**

ESA DESCRIPTION		ESA Area Included in 20 Year Plan (Ha)						Harvest % of Productive Area	Maximum Harvestable %
		Productive Forest Area in ESA (Ha)	Period 1 Area 1993-1997	Period 2 Area 1998-2002	Period 3 Area 2003-2007	Period 4 Area 2008-2012	Total Harvest Area		
Falcon Nesting QCI	Ew1	19	0	0	0	0	0	0.00	10
Heritage Site		174	6	0	0	1	7	4.02	10
Recreation	Er1	849	22	4	0	1	27	3.18	10
Recreation	Er2	2551	4	68	43	55	170	6.66	50
Soils	Es1	21463	254	61	62	74	451	2.10	10
Soils	Es2	12909	458	564	675	591	2288	17.72	82
Stream Mgmt Zone	Ef1	3394	46	33	10	11	100	2.95	10

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 6**

Partial Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	69575	46015	1.51	9908	9923	8580	7799	7694	7224

Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	1244	964	1.29	1	3	9	25	24	44

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Appendix 7

Twenty-Year Plan Results

Block 7

Table 1	Harvest Levels
Table 2	Operability
Table 3	ESA Hectares
Table 4	Visual Landscape

**TABLE 1. 20-Year Plan, Harvest Levels
TFL 39, Block 7
(m³ 000)**

	Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	20 Years
Openings	936.22	854.81	855.95	796.79	3443.77
Ha.	1502	1130	1292	1155	5079
Roads	19.41	11.70	17.34	3.12	51.57
Ha.	33	19	20	4	84
Total	955.63	866.51	880.04	803.50	3495.33
Ha.	1535	1149	1320	1159	5163
Volume/Year	191.13	173.30	174.66	159.98	174.77
Ha./Year	307.00	229.80	264.00	231.80	258.15

Deciduous					
Total	0.0	0.0	0.0	0.0	0.0
Ha.	0.0	0.0	0.0	0.0	0.0

**TABLE 2. 20-Year Plan, Operability
TFL 39, Block 7**

OLD GROWTH		Inven. Profile End of 1992	Harvest Volumes					Inven. Profile End of 2012
			Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total	
Conventional Economic	m ³	7737392	820549	619944	655448	566171	2662112	5075280
	%	74.81	87.64	72.53	76.58	71.06	77.30	72.24
Non-Conventional	m ³	1536439	26742	194322	119487	181600	522151	1014288
	%	14.82	2.86	22.73	13.96	22.79	15.16	14.44
Marginal	m ³	1096129	39557	25303	59101	36064	160025	936104
	%	10.57	4.23	2.96	6.90	4.52	4.65	13.32
Uneconomic	m ³		36532	2826	17412	4285	61055	
	%		3.90	0.33	2.03	0.54	1.77	
Physically Inoperable	m ³		2940	1616	0	567	5123	
	%		0.31	0.19	0.00	0.07	0.15	
Scrub	m ³		9900	10800	4500	8100	33300	
	%		1.06	1.26	0.53	1.02	0.97	
TOTAL VOLUME	m ³	10369960	936220	854811	855948	796787	3443766	7025672
TOTAL	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
AVERAGE VOLUME/YEAR	m ³		187244	170962	171189	159357	172188	

SECOND GROWTH	
Conventional	m ³
Non-Conventional	m ³
Inoperable	m ³
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.00	0.00	0.00	0.00	0.00

TOTAL	
TOTAL VOLUME	m ³
AVERAGE VOLUME/YEAR	m ³

Period 1 1993-1997	Period 2 1998-2002	Period 3 2003-2007	Period 4 2008-2012	Total
936220	854811	855948	796787	3443766
187244	170962	171189	159357	172188

**TABLE 3. 20-Year Plan, ESA Hectares
TFL 39, Block 7**

ESA DESCRIPTION		ESA Area included in 20 Year Plan					Total Harvest Area	Harvest % of Productive Area	Maximum Harvestable %
		Productive Forest Area in ESA	Period 1 Area 1993-1997	Period 2 Area 1998-2002	Period 3 Area 2003-2007	Period 4 Area 2008-2012			
Grizzly	Ew1	177	0	1	0	0	1	0.56	10
Grizzly	Ew2	825	16	8	59	33	116	14.06	50
Recreation	Er1	602	0	1	1	0	2	0.33	10
Recreation	Er2	261	3	0	0	5	8	3.07	50
Snow Avalanche	Ea	455	8	7	2	1	18	3.96	80
Soils	Es1	3059	29	8	7	6	50	1.63	10
Soils	Es2	3669	230	82	247	135	694	18.92	82
Stream Mgmt Zone	Ef1	578	3	1	4	5	13	2.25	10

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**TABLE 4. 20-Year Plan, Visual Landscape
TFL 39, Block 7**

Modification				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	4412	1676	2.63	132	231	360	477	459	693

Partial Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	7031	2777	2.53	33	84	229	336	507	613

Retention				Areas less than Visually Effective Greenup (VEG)					Maximum Area less than VEG
Green Area	Avail Area	Green/Avail Ratio	End of 1992	End of 1997	End of 2002	End of 2007	End of 2012		
Ha	625	205	3.05	0	0	0	0	0	17

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