

**Audit of Road and Timber
Harvesting Practices**

**International Forest Products Ltd.
Tree Farm Licence 45**



March 1997

FPB/ARC/02

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A. Report from the Board

One of the principal roles of the Forest Practices Board is to conduct periodic, independent audits of forest practices in British Columbia and provide the findings of those audits to the public and three ministers. The *Forest Practices Code of British Columbia Act* requires the Board to undertake two types of audits:

- audits of compliance with the forest practices requirements of the Code - referred to as forest practices audits; and
- audits of the appropriateness of government enforcement of the Code - referred to as enforcement audits.

Independent auditing and reporting of forest practices is a relatively new undertaking and has attracted considerable attention from government, agreement holders, environmental groups, forest worker organizations, and the public. Few jurisdictions in the world provide for a similar independent authority to undertake audits of compliance with forest practices legislation.

The uniqueness of the responsibility and the requirement to report findings publicly has necessitated the development of a structured set of standards and procedures, as set out in the Board's audit reference manual. These were developed by the Board in 1995 and 1996 and field tested in the first half of 1996.

In the fall of 1996, the Board conducted four limited scope¹ compliance audits: two of roading and timber harvesting practices, one of silvicultural activities, and one of operational planning.

This report presents the findings of one of those - an audit of the timber harvesting and road construction, maintenance, and deactivation practices on Tree Farm Licence 45 held by International Forest Products Ltd. The document containing this report is in three parts:

- Part A - this report from the Board;
- Part B - a description of the process used by the Board to audit compliance with the Forest Practices Code; and
- Part C - a report from the auditor.

The licence is located in the Port McNeill and Campbell River Forest Districts. It was selected randomly, and not on the basis of location or level of performance. The total area of the licence is about 243,000 hectares, of which only 35,000 hectares are operable because of steep, mountainous, unstable terrain.

¹ The Board decided that by having each of these initial audits focus on certain areas of forestry practices only, it would allow easier implementation of its audit program.

The audit included operations in each of the two distinct operating areas of the tree farm licence - the major operating area in Knight Inlet, and the smaller southern operating area in Phillips Arm and Frederick Arm on the mainland coast and at Butterfly Bay on West Thurlow Island.

The audit was conducted between September 16, 1996, and October 4, 1996. The objective of the audit was to determine if timber harvesting and road construction, maintenance, and deactivation practices carried out in the licence area from January 1, 1996, to September 15, 1996, complied with the requirements of the Forest Practices Code, including the transitional provisions.

The Board recognizes that the practices were carried out during a period of transition to full Code compliance, during which there was uncertainty about interpretation of some Code requirements. This audit examined whether practices in the field complied with approved operational plans, and therefore complied with the requirements of the Code.

The audit work included both intensive ground-based examination and assessments from the air using helicopters, of selected roads and cutblocks in the licence area, as follows:

- timber harvesting practices on 14 cutblocks;
- construction of 16.7 kilometres of road;
- maintenance of 62 kilometres of road;
- the permanent deactivation of 0.4 kilometres of road; and
- recently deactivated roads and affected areas.

The Board's audit reference manual, "Reference Manual - Compliance Audits, Version 1, September, 1996," sets out the standards and procedures that were used to select and audit practices in the field. Part B of this document describes the direction provided to auditors about assessing compliance with the Code.

As required by Section 182 of the *Forest Practices Code of British Columbia Act*, the Board provided a draft copy of this report from the Board to International Forest Products Ltd. The company made representations to the Board about the draft report.

Conclusions

The Board has reviewed the report from the auditor and has thoroughly considered the representations made by International Forest Products Ltd. The Board's consideration included a detailed review of information, documents and photographs provided to the Board by International Forest Products Ltd. The Board also reviewed field notes, summary reports and photographs that it requested from the auditor and the audit team. The Board has concluded as follows:

- 1) The Board accepts the opinion of the auditor that, with the exception of three significant non-compliance² events detailed below, International Forest Products Ltd. was, in all other significant respects, in compliance with the Code's timber harvesting and road construction, maintenance, and deactivation requirements.
- 2) The opinion of the auditor is a "qualified" opinion, indicating that the significant non-compliance events identified were neither pervasive nor of sufficient magnitude to warrant an overall "negative" opinion.

The use of the words "in all significant respects," in the opinion of the auditor, recognizes that there may be instances of not significant non-compliance³ that either may not be detected by the audit, or that are detected by the audit but not worthy of inclusion in the report from the auditor.

The three events of significant non-compliance were confined to road construction and maintenance practices in the Knight Inlet operating area of the tree farm licence. Each significant non-compliance event involved unstable terrain.

In the southern operating area, the company complied in all significant respects with the Code's requirements pertaining to roads and timber harvesting.

- 3) The three events of significant non-compliance involve situations where International Forest Products Ltd. did not meet the requirements of the Code on short sections of road. They are as follows:
 - a) During road construction at a quarry site⁴ along a road, felled right-of-way logs were partially supported by live trees growing on a very steep (greater than 120%) slope. Boulders and debris were placed on top of some of the right-of-way logs. This accumulation of boulders, debris and logs was at the edge of the very steep slope where the live trees were growing. Placement of this material created a high likelihood of a slide that could destroy about 1.5 hectares of productive forest land. See page C-3.

International Forest Products Ltd. disputes that a high likelihood of a slide existed at this site. They also advised the Board that the right-of-way logs and the boulders and debris on the steep slope were removed during seasonal road deactivation in October 1996.

² The concept of significant non-compliance is described in Part B of this document "Forest Practices Board compliance audit process" and set out in the Board's audit reference manual "Reference Manual - Compliance Audits, Version 1, September, 1996."

³ The concept of not significant non-compliance is described in Part B of this document.

⁴ This site is referred to as a landing on maps provided to the audit team. Hence, it is referred to as a landing in the report from the auditor. International Forest Products Ltd. advised the Board that it is a quarry, not a landing.

The Board concludes that a high likelihood of a landslide did exist at the time of the audit as a result of a construction practice that was not in compliance with the Code. Work undertaken by International Forest Products Ltd. subsequent to the audit has removed the risk.

- b) Prior to very difficult road construction through a rock pinnacle area, detailed survey and design work, including field geology, recommended in a report by a professional engineer was not undertaken. Failure to undertake the work endangered the safety of workers at the site. A rock fall occurred during road construction but work had already been stopped before the rock fell. See page C-3.

International Forest Products Ltd. advised the Board that they fully recognized the difficulty of the road construction through the pinnacle area. In their opinion, the additional work recommended in the report by the professional engineer would not have provided more information to reduce the risks. They advised the Board that, as an alternative to the additional survey and design work, they undertook a number of measures to minimize the risk to workers. They planned to shut down work immediately if any safety concerns were encountered. After the rock fall occurred International Forest Products Ltd. took prompt action to advise the government and seek further expert advice.

The Board concludes that, in addition to the other measures they implemented, International Forest Products Ltd. was required by the Code to undertake the design work recommended by the professional engineer they had retained.

- c) On a 700 metre section of road through a clay bank, maintenance of the road surface and ditch was inadequate. Sloughed material in the ditch and outcropping of the road resulted in water from the ditch running down and across the road surface onto the steep and unstable slope below the road. At the time of the audit, these conditions were causing surface erosion and created a likelihood of a slide. A slide could be up to 0.1 hectares in size and could enter Stanton Creek, a non-fish-bearing S-5 stream at that location. See page C-4.

International Forest Products Ltd. advised the Board that regular maintenance was undertaken on the road surface and ditch. They provided the Board with records indicating that road maintenance work had been undertaken on the road surface and ditches in March, April, and June 1996 prior to the audit in late September.

Despite this maintenance work, the Board concludes that at the time of the audit, the ditches were blocked and water was running across the road surface causing erosion and the likelihood of a slide.

International Forest Products Ltd. advised the Board that this road was seasonally deactivated in November 1996, when hauling on the road ceased. They advised the Board that a plan for regular road and ditch maintenance is in place.

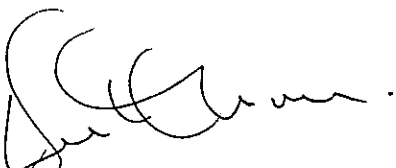
Recommendations

In accordance with Section 185 of the *Forest Practices Code of British Columbia Act*, the Board recommends that:

- International Forest Products Ltd. continue to take actions to address the significant non-compliance findings described in the Board's conclusions.
- the Ministry of Forests review the event of significant non-compliance described in the Board's conclusion under point 3 c) and decide if any further actions are necessary.

In accordance with Section 186 of the *Forest Practices Code of British Columbia Act*, the Board requests that International Forest Products Ltd. and the Ministry of Forests advise the Board by April 30, 1997, of the actions taken, or proposed, to address its recommendations above.

We would like to thank the individual auditors for their work in the field and in preparing the report from the auditor. We also appreciate the cooperation shown to the auditors by the staff of International Forest Products Ltd.



Keith Moore
Chair

March 13, 1997

B. Forest Practices Board compliance audit process

Audit standards and criteria

Audits by the Forest Practices Board are conducted in accordance with the auditing standards developed by the Board. These standards are consistent with generally accepted auditing standards.

The audits determine compliance with the Code based on audit criteria derived from the *Forest Practices Code of British Columbia Act* and the related regulations. The audit criteria were established for the evaluation or measurement of each practice required by the Code. These reflect judgments about the level of performance that constitutes compliance with each requirement.

The Board's audit reference manual, "Reference Manual - Compliance Audits, Version 1, September, 1996," sets out the standards and procedures for its compliance audits.

Audit methodology

At the outset of an audit, an analysis of each forestry activity, such as the cutting and removal of trees from a specified forested area (harvesting of a cutblock), is used to identify the items (e.g., those cutblocks harvested or roads constructed) that comprise the activity during the period subject to audit. The items comprising each forest activity are referred to as a "population."

The most efficient means of obtaining information, to conclude whether there is compliance with the Code, are chosen for each population. Because of limited resources, sampling is usually relied upon to obtain audit evidence, rather than inspecting all activities.

As individual sites and forest practices within each population have different characteristics, such as the type of terrain or the type of yarding, each population is divided into distinct sub-populations ("strata") on the basis of common characteristics (e.g., steep terrain versus flat ground). A separate sample is selected for each population, such as the cutblocks selected for auditing timber harvesting. Within each population, more audit effort (i.e., higher sampling) is allocated to the strata where the risk of non-compliance is higher.

The audit work in the field includes assessments from helicopters and intensive ground procedures such as the measurements of specific features, e.g., road width.

Audit conclusions

The Board recognizes that compliance with many Code requirements is a function of degree, rather than of absolute compliance, and requires the exercise of professional judgment within the direction provided by the Board.

In performing the audit, auditors collect, analyse, interpret and document information to support the results. This requires the audit team, comprised of professionals and technical experts, to first determine whether forest practices are in compliance with Code requirements, and then to evaluate those practices judged not to be in compliance to assess the degree of severity of non-compliance - that is, its significance. Significance is assessed relative to the actual or potential harm to persons or the environment.

As part of the assessment process, auditors categorize their audit findings into the following levels of compliance:

Compliance - where the auditor assesses that practices meet Code requirements.

Not significant non-compliance - where the auditor, upon reaching a non-compliance conclusion, assesses that the non-compliance event or condition, or the accumulation of a number of non-compliance events or conditions and the consequences of the non-compliance, are not significant.

Significant non-compliance - where the auditor, upon reaching a non-compliance conclusion, assesses that the event or condition, or the accumulation of a number of non-compliance events or conditions, is significant.

Included in this category are situations where non-compliance has resulted in harm to persons or the environment, even if remedial action has already mitigated the consequences of the non-compliance to a minor level.

Significant non-compliance also includes situations where potential for harm is probable, that is, harm has not yet occurred as a result of non-compliance, but there is a strong likelihood that it will. "Harm," in Board audits, is defined as an adverse change from existing conditions that affects person(s) or the environment, and is brought about as a result of non-compliance.

Significant breach - where the auditor, upon reaching a non-compliance conclusion, assesses that significant harm has occurred or is beginning to occur to persons or the environment as a result of the non-compliance event or condition. A significant breach can also result from the cumulative effect of a number of non-compliance events or conditions.

Identification of a possible significant breach requires the auditor to conduct tests to determine the extent of the breach. If it is determined, after conducting tests, that a significant breach has occurred, the auditor is required by the Forest Practices Board Regulation to immediately advise the Board, the person being audited, and the three ministers.

Audit opinion

To reach an overall opinion, assessments are made at various levels. In all cases, an assessment is made of a forest practice or group of forest practices, followed by assessments at each forestry activity level (e.g., roads constructed).

If all of the forestry activities subject to audit are in compliance with the Code, in all significant respects, the overall opinion reflects this conclusion - and is referred to as a “**clean opinion.**” The use of the words “in all significant respects” recognizes that there may be minor instances of non-compliance that either may not be detected by the audit, or that are detected by the audit but not worthy of inclusion in the report from the auditor.

In situations where significant non-compliance is identified, the type of overall opinion is dependent upon the magnitude and frequency of the non-compliance.

A “**qualified opinion**” is appropriate when the significant non-compliance is neither pervasive nor of a sufficient magnitude to warrant an overall negative conclusion. The words “except for” are used to draw attention to the details of the significant non-compliance to “qualify” an overall opinion of compliance, in all significant respects, with Code requirements. The words “in all significant respects” recognizes that there may be instances of not significant non-compliance that either may not be detected by the audit, or that are detected by the audit but not worthy of inclusion in the report from the auditor.

An “**adverse opinion**” is an overall negative conclusion and appropriate when significant non-compliance is sufficiently pervasive or of sufficient magnitude to warrant an overall negative conclusion. An adverse opinion would either indicate that, overall, the forest activities subject to audit were not in compliance with Code requirements or a particular forest activity was not in compliance with Code requirements.

C. Report from the Auditor

1. Introduction

The Forest Practices Board selected Tree Farm Licence 45 held by International Forest Products Ltd. for an audit of road and timber harvesting practices. The licence was selected randomly from the population of major forest licences in the Vancouver Forest Region, and not on the basis of location or level of performance.

Tree Farm Licence 45, managed by the company's Campbell River Operation, is located in the coastal mainland area north of Campbell River, as shown on the attached map. It includes:

- a major operating area at Knight Inlet, in the Port McNeill Forest District; and
- the smaller southern operating area: Phillips Arm and Frederick Arm on the mainland coast and Butterfly Bay on West Thurlow Island, in the Campbell River Forest District.

The operating areas are remote and accessible only by air or water. In three areas of Knight Inlet (Glacier Bay, Millerd Creek, and Kwalate Creek), the company did not have any operations under way during the period covered by the audit.

Tree Farm Licence 45 covers an area of 243,000 hectares, of which only 35,000 hectares are operable because of steep mountainous terrain. The allowable annual cut allocated for Tree Farm Licence 45 is 220,000 cubic metres, of which 10,080 is given to the Ministry of Forests Small Business Forest Enterprise Program (SBFEP). This audit did not assess any practices undertaken by the SBFEP.

2. Audit scope

We assessed the timber harvesting and road construction, maintenance, and deactivation practices of International Forest Products Ltd. on Tree Farm Licence 45 for their compliance with Code requirements (including transitional provisions) and the requirements set out in operational plans such as silviculture prescriptions, logging plans, and road permits. In addition, we examined operational planning documents to verify that:

- approved operational plans (e.g., silviculture prescriptions and logging plans) were in place for timber harvesting and road construction, maintenance, and deactivation operations;
- approved operational plans were consistent with the approved forest development plan; and
- the operational plans were appropriate for the sites examined.

All timber harvesting and road construction, maintenance, and deactivation activities for the period January 1, 1996, to September 15, 1996, were included in the scope of the audit.

In Knight Inlet this covered the harvesting of 7 cutblocks, the construction of 14.4 kilometres of main haul and in-block roads, the permanent deactivation of 0.4 kilometres of road, and the maintenance of approximately 75 kilometres of road.

In the southern operating area, this covered the harvesting of 7 cutblocks, the construction of 2.3 kilometres of road, and the maintenance of approximately 31 kilometres of road.

Section 3 describes our audit work of these activities, and the results. The Board's audit reference manual, "Reference Manual - Compliance Audits, Version 1, September, 1996," sets out the standards and procedures that were used for the audit.

3. Audit findings

Given the small number of harvested cutblocks and roads constructed or deactivated in the tree farm licence, we audited all of them. This included assessments from the air using helicopters and ground-based procedures of timber harvesting practices on 14 cutblocks, the construction of 16.7 kilometres of road, and the permanent deactivation of 0.4 kilometres of road.

We also audited 62 kilometres of road maintenance and assessed the stability of recently deactivated areas, using a combination of assessments from the air by helicopter and ground-based procedures.

We did not find any significant non-compliance with harvesting requirements in either operating area, nor with road requirements in the southern operating area.

On separate roads in the Knight Inlet operating area, we identified three instances of significant non-compliance. In all three instances, International Forest Products Ltd. did not take adequate measures regarding the stability of unstable terrain.

Two road segments involve non-compliance with road construction requirements while the third involves road maintenance. We determined that the non-compliance events did not represent significant breaches because significant harm had neither occurred nor was beginning to occur. These non-compliance events are described below.

3.1 Branch W600

During the construction of Branch W600, at the site of a landing near station 6+700, the company placed boulders and debris on top of right-of-way timber piled against live trees on a very steep sideslope (up to 120%). The edge of the landing surface extends over some of the logs and debris.

These actions, in our opinion, have created a high likelihood of a failure initiating from the outside edge of the landing and causing a slide. Were this to happen, the slide would probably extend downslope approximately 600 metres to Icy Creek, a non-fish-bearing stream greater than 3 metres in width (S-5). Such a slide has the potential to destroy productive forest site of about 1.5 hectares, with slide material likely to be transported by Icy Creek into the Klinaklini River (approximately 1.5 kilometres downstream). We did not determine the potential damage to the streams resulting from such a slide.

The main areas of the Code to which the non-compliance relates are Section 45(3) of the *Forest Practices Code of British Columbia Act* and Sections 10(2) and 10(3) of the *Forest Road Regulation*.

3.2 West Mainline

The day after blasting started on the West Mainline near station 9+000 (pinnacle area), a large rock fall occurred from above the road. The rock fall occurred just after an equipment operator was ordered out of the pinnacle area by a road supervisor who identified the hazard. In our opinion, this was a case in which worker safety was jeopardized because measures to maintain slope stability were not specified.

After the rock fall occurred, the company immediately stopped all further construction while it carried out the necessary assessment and design work before commencing road construction at the pinnacle area.

A professional engineer assessed the pinnacle area of the road prior to construction. The engineer's January 23, 1996, report stated that the building of the route would "present higher than normal hazards to the workforce and equipment, and potentially to the environment." The report also recommended that a more detailed level of engineering assessment for the proposed location be undertaken, along with further assessments of stability, constructability, and costs. This indicates to us that this section of road had a moderate or high likelihood of landslides, and therefore additional design work was required under the Code.

The blasting also resulted in a large portion of rock entering the Klinaklini River, a fish-bearing stream greater than 20 metres in width (S-1), which is immediately below the road. The impact on the river is minor.

The main areas of the Code to which the non-compliance relates are Section 45(3)(a) of the *Forest Practices Code of British Columbia Act* and Sections 7(1)(e) and (g) of the *Forest Road Regulation*.

3.3 Branch F3000

On a steep section of the downslope side of this active road, in the vicinity of station 1+800, erosion is beginning to occur as a result of surface water runoff. Further erosion could initiate a slide.

Along portions of the road section from stations 1+700 to 2+400, the ditches are filled in with sloughed cutbank material and the road is slightly outslopped. Consequently, surface water is washing down the road surface and over the steep section. Natural slides are evident in the area.

Were a slide to occur, it could cover an area of approximately 0.1 hectares and reach Stanton Creek, about 100 metres downslope. We did not assess what the impact of such a slide might be on Stanton Creek, which is non-fish-bearing and greater than 3 metres in width (S-5) at that location.

The main area of the Code to which the non-compliance relates are Section 45(3)(a) of the *Forest Practices Code of British Columbia Act* and Section 17(1) of the *Forest Road Regulation*.

4. Audit opinion

In my opinion, except for the significant non-compliance events described below, the timber harvesting and road construction, maintenance, and deactivation activities carried out by International Forest Products Ltd. on Tree Farm Licence 45 from January 1, 1996, to September 15, 1996, were in compliance, in all significant respects, with the road and harvesting requirements of the Code as of September 1996.

The audit identified three instances of significant non-compliance. As described in section 3, International Forest Products did not take adequate measures regarding the stability of unstable terrain on three road sections.

1. At a landing site, boulders and debris were placed on right-of-way timber piled against live trees on a very steep sideslope, creating a high risk of a slide that could destroy about 1.5 hectares of productive forest land.
2. Inadequate measures to maintain stability of a rock bluff endangered worker safety and resulted in a large amount of rock entering a river.
3. Surface erosion and plugged ditches on a section of road have created a high risk of a slide which could enter a non-fish-bearing stream.

The significant non-compliance described in this opinion was neither sufficiently pervasive nor of a sufficient magnitude to warrant an overall negative opinion.

Sections 2 and 3 of this report from the auditor describe the basis of the audit work performed in reaching the above qualified opinion. The audit was conducted in accordance with the auditing standards of the Forest Practices Board. Such an audit includes examining sufficient road and timber harvesting practices to support an overall evaluation of compliance with the Code.



Sucha More, CA
Auditor
Forest Practices Board


Victoria, British Columbia
January 22, 1997

KEY MAP:

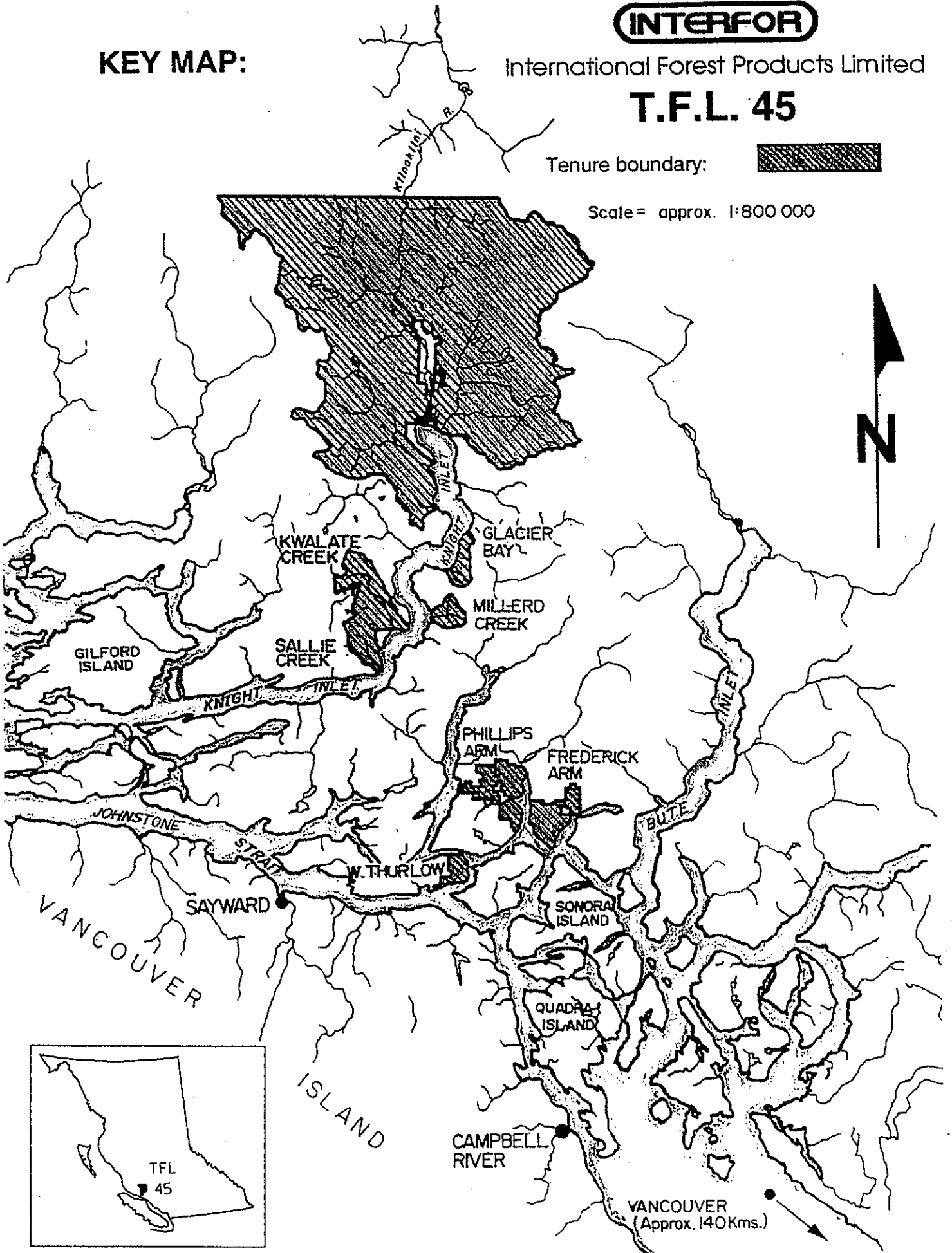


International Forest Products Limited

T.F.L. 45

Tenure boundary: 

Scale = approx. 1:800 000





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