

**Audit of Operational Planning  
and Forest Practices**

**Forest Licence A19202  
Cattermole Timber**



January 1998

FPB/ARC/05

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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* (the Act) requires the Board to undertake two types of audits<sup>1</sup>:

- forest practices audits - audits of compliance with the operational planning, forest practices and protection requirements of the Act and Regulations; and
- enforcement audits - audits of the appropriateness of government enforcement of the Act and Regulations.

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

The Forest Practices Board is currently undertaking forest practices audits which assess compliance with the Act and associated Regulations. These compliance audits do not provide comment on the effectiveness of the Code<sup>2</sup>. To address this topic, the Board will be developing effectiveness and comprehensive audits as part of the forest practices audit program.

The Board's 1997 compliance audit program includes six limited scope audits and three full scope audits. A limited scope audit involves the examination of selected operational planning activities and forest practices. A full scope audit entails the examination of all operational planning activities and forest practices to determine compliance with the requirements of the Act and Regulations.

This report presents the findings of one of the full scope compliance audits - an audit of Forest Licence A19202 held by Cattermole Timber in the Chilliwack Forest District. It is the first of the Board's 1997 audits to be reported on and released.

The report is in three parts:

- Part A - Report from the Board;
- Part B - description of the process used by the Board auditors to assess compliance with the Code; and
- Part C - Report from the Auditor which provides additional details about the scope of the audit activities and the audit findings.

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<sup>1</sup> A complete description of the Board's audit program is provided in the 1996 Annual Report for the Forest Practices Board.

<sup>2</sup> The Code includes the Act and associated Regulations and guidebooks.

## **Background**

Forest Licence A19202 was selected randomly from a list of major licences in the Vancouver Forest Region, and not on the basis of location within the region or level of past performance of Cattermole Timber, the licence holder. The operating areas of the licence are located in the Chilliwack Forest District, within the Fraser Timber Supply Area, as shown on the attached map. Cattermole Timber's operations under the licence are carried out in two distinct operating areas:

- Anderson River/Siwash Creek, located on the eastern side of the Fraser Canyon, east of Spuzzum and north of Hope; and
- Upper Nahatlatch River, located on the western side of the Fraser Canyon, west of Nahatlatch Lake and northwest of Boston Bar.

Forest Licence A19202 has an allowable annual cut of 155,534 cubic metres. As the licence holder was in the last year of a five-year cut control cycle, the actual cut subject to audit was approximately 80,000 cubic metres.

The objectives of this full scope audit were to determine compliance with the requirements of the Act and Regulations, including the transitional provisions, for:

- operational plans approved between May 1, 1996, and June 15, 1997 (audit period);
- forest practices conducted between May 1, 1996, and June 15, 1997; and
- operational plans approved between June 15, 1995 and June 15, 1997 related to the forest practices selected for the audit.

The Board's audit reference manual, "Reference Manual - Compliance Audits, Version 2, May, 1997," sets out the standards and procedures that were used to select and audit the operational planning, timber harvesting, silviculture, fire protection and road construction, maintenance and deactivation activities.

The onsite portion of the audit was conducted in June 1997 and included assessment of the following samples of activities:

Activities	Audit Sample
Operational plans	<ul style="list-style-type: none"> <li>• 1996-2000 forest development plan</li> <li>• 1996-2000 five-year silviculture plan</li> <li>• 1996 and 1997 fire preparedness plans</li> <li>• operational plans related to sampled field activities</li> </ul>
Operational plans approved during audit period: 11 silviculture prescriptions 12 logging plans	<ul style="list-style-type: none"> <li>• 3 silviculture prescriptions and 4 logging plans assessed in conjunction with examination of forest practices and noted below</li> </ul>
Timber harvesting of 14 cutblocks	<ul style="list-style-type: none"> <li>• 3 silviculture prescriptions and 4 logging plans from plans approved during audit period</li> <li>• 5 cutblocks using ground procedures</li> <li>• 8 cutblocks using helicopters</li> </ul>
Roads: • construction of approximately 27 kilometres involving 10 different sites	<ul style="list-style-type: none"> <li>• 7 kilometres at 5 different sites using ground procedures</li> <li>• portions of 6 kilometres at 2 additional sites using helicopters</li> </ul>
• maintenance of 215 kilometres of roads	<ul style="list-style-type: none"> <li>• approximately 62 kilometres using ground procedures</li> <li>• a portion using helicopters</li> </ul>
• deactivation of 20.2 kilometres	<ul style="list-style-type: none"> <li>• approximately 4.5 kilometres using ground procedures</li> </ul>
Silviculture: • planting of 145,000 seedlings on 14 cutblocks	<ul style="list-style-type: none"> <li>• 4 cutblocks using ground procedures</li> </ul>
• regeneration surveys on 20 blocks	<ul style="list-style-type: none"> <li>• 3 cutblocks using ground procedures</li> </ul>
• brushing and weeding planned for 1996 and 1997, but not complete by the auditee	<ul style="list-style-type: none"> <li>• 10 cutblocks using helicopters to determine the appropriateness of auditee activities</li> </ul>

## Conclusions

In reaching these conclusions, the Board completed the following steps:

- considered the Report from the Auditor (Part C);
- reviewed the audit findings in detail with the auditor;
- prepared a draft report;
- provided a copy of the draft report to the party potentially adversely affected by the report, and invited representations, as required by Section 182 of the Act; and
- considered oral and written submissions and documentation provided by the potentially adversely affected party and the auditors during the representation process.

The Board accepts the auditor's opinion that, except for two situations of significant non-compliance<sup>3</sup>, Cattermole Timber was in compliance, in all significant respects, with the requirements of the Code. This is a 'qualified' audit opinion, indicating that the significant non-compliance situations identified were neither widespread nor of sufficient magnitude to warrant an overall negative conclusion. The auditor identified a number of non-compliance situations that were determined not to be significant.

The Board's conclusion on the results of the audit are:

### Operational planning

The following operational planning activities of Cattermole Timber are in compliance, in all significant respects, with the requirements of the Code:

- the 1996-2000 forest development plan,
- the 1996-2000 five year silviculture plan,
- 1996 and 1997 fire preparedness plans,
- silviculture prescriptions, and
- logging plans.

### Timber harvesting

The timber harvesting activities on 14 cutblocks are in compliance, in all significant respects, with the requirements of the Code.

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<sup>3</sup> 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 2, May, 1997."

## **Silviculture**

The following silviculture activities are in compliance, in all significant respects, with the requirements of the Code:

- planting of 14 cutblocks;
- regeneration surveys of 20 cutblocks; and
- Cattermole Timber's decisions not to brush and weed cutblocks.

## **Fire protection**

Cattermole Timber is in compliance, in all significant respects, with the fire protection requirements of the Code.

## **Road construction, maintenance and deactivation**

Except for the two situations of non-compliance described below, the following road construction, maintenance and deactivation activities are in compliance, in all significant respects with the requirements of the Code:

- construction of 27 kilometres of road;
- maintenance of 215 kilometres of roads; and
- deactivation of 20.2 kilometres of roads.

The two situations of significant non-compliance are:

### **a) Drainage structures**

Drainage structures include the ditches, ditchblocks, and culverts that maintain surface drainage patterns and direct water away from roads to prevent erosion and to protect the roads. Installation and maintenance of drainage structures is required by sections 12 (1) and 17 (1) of the *Forest Road Regulation*.

In the audit sample of 69 kilometres of road, the auditors found 34 instances of non-compliance with the Code requirements for drainage structures. These occurred on new roads, old roads being reconstructed, and old roads for which Cattermole Timber had maintenance obligations.

At seven of the eleven sites examined, the audit found that Cattermole Timber's construction and maintenance practices did not minimize erosion and sediment transport. One of these instances creates a moderate safety hazard to vehicles and persons should they drive near the outer edge of the road.

The other instances of non-compliance identified in the audit included insufficient numbers of culverts, poor culvert maintenance and inadequate ditch construction and maintenance.

While each of these individual instances was determined to be not significant non-compliance, the Board is of the opinion that the frequency of the instances represents significant non-compliance. Because of the steep terrain and wet conditions within the two operating areas of this forest licence, it is important that Cattermole Timber comply with Code requirements to ensure drainage structures are placed where needed and are kept fully functional.

Cattermole Timber has advised the Board that they have developed standard operating procedures for installing and maintaining drainage structures and they are developing a culvert inventory. Both of these measures are expected to improve the construction and maintenance of drainage structures on their roads.

b) Deactivation of a road system along the North Fork of Siwash Creek

The purpose of road deactivation is to stabilize unused roads and restore natural drainage patterns on roads that are currently not in use. Under section 64 of the Act, deactivation must comply with an approved deactivation prescription that includes measures detailed in Section 18 (1) of the *Forest Road Regulation*.

Cattermole Timber's deactivation prescription for the road system along the North Fork of Siwash Creek did not include adequate measures for deactivation on unstable terrain as required by the regulation. In addition, the deactivation that was carried out was not consistent with the prescription and was not sufficient to stabilize the road and restore natural drainage patterns.

An area affected by approximately one kilometre of road deactivation in block 16-2 is eroding significantly as a result of inadequate deactivation measures. Excessive lengths of the road bench were sloped inward, resulting in water flow along the inside edge of the road and erosion of the road and hillside. Without remedial action, erosion, sloughing and ravelling will continue, delivering sediment to the non fish-bearing streams in the area. Damage to slopes will result in a loss or reduction of forest productivity and wildlife habitat.

The Board is of the opinion that the situation on this road system represents significant non-compliance. The amount of erosion which has occurred since deactivation is extensive. Additional measures such as the placement of rock to prevent the erosion of cross ditches, greater pull-back of road fill material, and decreased in-sloping of the road bed should have been implemented.

Cattermole Timber has advised the Board that they undertook the deactivation program at their own expense without being required to by government.



## Recommendations

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

1. With regard to drainage structures, Cattermole Timber:
  - a) take appropriate action to correct the lack of adequate and functioning culverts, ditches and ditchblocks on its active roads; and
  - b) take remedial action when the Anderson mainline road reopens in the spring to eliminate the moderate safety hazard created by the inadequate drainage.
  
2. To stabilize the road, restore natural drainage patterns, and address existing and potential erosion of the road and hillside along the North Fork of Siwash Creek, Cattermole Timber:
  - a) engage a qualified person to prepare a revised road deactivation prescription that meets Code requirements;
  - b) secure approval for the prescription from the Ministry of Forests; and
  - c) complete adequate deactivation according to the approved prescription.
  
3. Cattermole Timber seek Ministry of Forests approval that work undertaken to address recommendations 1a) and 2 above meets Code requirements.

Cattermole Timber has advised the Board that they will implement the recommendations and complete the necessary activities during the 1998 operating season.

However, in accordance with section 186 of the Act, the Board requests that Cattermole Timber advise the Board by March 12, 1998, of the actions taken, or proposed to be taken, to address the Board's recommendations 1, 2, and 3 above.

We would like to thank the individual auditors for their work in the field and for providing the notes, photos and reports that assisted the Board in reaching its conclusions. We also appreciate the cooperation shown to the auditors by the staff of Cattermole Timber. The thorough representation made to the Board by Cattermole Timber is also very much appreciated.

### A Special Issue Arising From the Audit

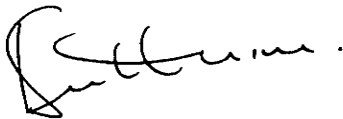
During the audit of Forest Licence A19202, the auditors identified 50 kilometres of an old road system that had been built and used before the introduction of the Code. Cattermole Timber has an active Road Permit (RO 1679) for this road. This road network, in the south portion of Cattermole Timber's Siwash operating area, exhibits ravelling, tension cracks, erosion and slope

failure. In addition, decaying woody debris buried in the fill is reducing the stability of the road. The Board concluded that significant harm to the environment is beginning to occur because of the deteriorating condition of this road system.

There is no agreement between the Ministry of Forests and Cattermole Timber as to responsibility for road repairs or deactivation on these roads. Both parties acknowledge that extensive remedial work is necessary.

The Board concludes that Sections 63 and 64 of the Act do not require road maintenance or road deactivation if roads are not "used" by the holder of the Road Permit. Although Cattermole Timber has an active Road Permit which includes this road system, the auditors determined that Cattermole Timber has not used the road system since the Code's introduction on June 15, 1995. Therefore, Cattermole Timber does not have maintenance or deactivation obligations under the Code for the roads in the south part of the Siwash operating area. As a result, there appears to be no party with legal responsibility under the Code to maintain or deactivate these roads, even if they are deteriorating to the point of beginning to cause significant harm to the environment.

The Board has notified the District Manager of the Ministry of Forests and the Regional Fish and Wildlife Habitat Protection Manager of the Ministry of Environment, Lands and Parks with regard to this situation in the south part of the Siwash operating area. In the Board's view, this is a serious issue that requires attention.



Keith Moore  
Chair

January 5, 1998

# **Forest Practices Board Compliance Audit Process**

## **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 2, May, 1997", 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., 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 greater.

The audit work in the field includes assessments from helicopters and intensive ground procedures such as the measurement 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, analyze, interpret and document information to support the audit results. This requires the audit team, comprising 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 pervasiveness 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 a 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 subject to audit was not in compliance with Code requirements.

## **Representation process**

Following the audit, the Board reviews the Report from the Auditor and reaches preliminary conclusions and recommendations concerning the audit. These conclusions and recommendations form the basis for the Report from the Board.

Under section 182 of the *Forest Practices Code of B.C. Act*, if the Board makes a report or recommendation that may adversely affect a party or person, it must inform the party or the person of the grounds and give them an opportunity to make representations before the Board decides the matter and issues a final report to the public and the government. The representations allow the potentially adversely affected parties to present their case to the Board to ensure that the information on which the Board bases its decision is complete.

Representations may be written or oral at the discretion of the Board. Oral representations, which may also include supporting written representation, are generally provided for the potentially adversely affected party if there are significant non-compliance issues involved.

After fully considering the information provided in the representation, the Board will decide whether or not it needs to amend its report. If the Board amends the report, it must then consider if there are any newly adversely affected parties, in which case, additional representations will be required.

Once the representations have been completed, the report is finalized and released: first to the auditee and then to the public and government.

## **Report from the Auditor**



## **C. Report from the Auditor**

### **1. Introduction**

As part of the Forest Practices Board's 1997 compliance audit program, Forest Licence A19202 was selected for audit from the population of major forest licences within the Vancouver Forest Region. The licence, held by Cattermole Timber, was selected randomly and not on the basis of location or level of performance.

Forest Licence A19202 is within the Fraser Timber Supply Area. It comprises two distinct operating areas that are located within the Chilliwack Forest District, as shown on the attached map.

- Anderson River/Siwash Creek, located on the eastern side of the Fraser Canyon, east of Spuzzum and north of Hope; and
- Upper Nahatlatch River, located on the western side of the Fraser Canyon, west of Nahatlatch Lake and northwest of Boston Bar.

Forest Licence A19202 has an allowable annual cut of 155,534 cubic metres. As Cattermole Timber was in the last year of a five-year cycle, the actual cut subject to audit was approximately 80,000 cubic metres.

### **2. Audit Scope**

The audit examined Cattermole Timber's activities on Forest Licence A19202 in respect to operational planning, timber harvesting, silviculture, fire protection, and road construction, maintenance and deactivation. These activities were assessed for compliance with the *Forest Practices Code of British Columbia Act* and related regulations (the Code), including the transitional provisions of the Code. The period for which Cattermole Timber's activities were examined in the audit was from May 1, 1996, to June 15, 1997. Details of those activities are summarized below, along with those examined in the audit.

## Forest Practices

Activities of Cattermole Timber	Audit Sample
Timber harvesting of 14 cutblocks	Assessed 5 cutblocks using ground procedures and 8 cutblocks from the air using a helicopter.
Roads - construction of approximately 27 kilometres involving 10 different	Assessed 7 kilometres at 5 different sites using ground procedures and portions of 6 kilometres of sites roads at 2 additional sites from the air using a helicopter.
Roads - maintenance of 215 kilometres of roads	Assessed approximately 62 kilometres of roads using ground procedures and an undetermined portion of roads from the air using a helicopter.
Roads - deactivation of 20.2 kilometres	Assessed approximately 4.5 kilometres of roads using ground procedures.
Silviculture - planting of 14 cutblocks with 145,000 seedlings	Assessed 4 cutblocks using ground procedures.
Silviculture - regeneration surveys of 20 cutblocks	Assessed 3 cutblocks using ground procedures.
Silviculture - no brushing and weeding by Cattermole Timber	Assessed 10 cutblocks from the air using a done helicopter to determine the appropriateness of Cattermole Timber's decision not to brush or weed.

## Planning

All aspects of operational planning that supported Cattermole Timber's activities during the audit period were examined. This involved examining operational plans that were developed or approved before the audit period, as well as operational plans that were either approved, or developed and approved, during the audit period.

Planning activities that occurred during the audit period and were examined in this audit include the 1996 forest development plan, the 5 year silviculture plan for 1996, and the 1996 and 1997 fire preparedness plans. In addition, the audit examined 3 of 11 silviculture prescriptions and 4 of 12 logging plans approved during the audit period and which had not yet been implemented.

The 1996 forest development plan was assessed against the substantial compliance requirements of the Code, under which it was approved. Under these requirements a forest development plan approved before June 15, 1997, must meet the review and comments requirement of the Code and substantially meet all other requirements.

Section 3 describes the results of the audit. The Board's audit reference manual, "Reference Manual - Compliance Audits, Version 2, May 1997" sets out the standards and procedures that were used for the audit.

### **3. Audit findings**

The audit did not find any activities of Cattermole Timber on Forest Licence A19202 to be in significant non-compliance with the Code's requirements in respect to operational planning, timber harvesting, silviculture or fire-protection.

The audit identified two situations of significant non-compliance related to road practices. The first situation was inadequate culverting and drainage in both operating areas of the licence, as described in section 3.1. The second situation involved the inadequate deactivation of a road section, as described in section 3.2. It was determined that neither of these situations represents a significant breach because significant harm to persons or the environment had not occurred nor was beginning to occur.

The audit also identified certain roads in the Siwash operating area that have deteriorated, as described in section 3.3. In one road section significant harm to the environment is beginning to occur. As Cattermole Timber has not used these roads since the Code came into effect on June 15, 1995, it does not have responsibility under the Code for the maintenance and deactivation of these roads. Should such a responsibility have existed and the roads were in a similar condition, the audit would have assessed the situation as a significant breach. The Ministry of Forests and Cattermole do not agree on who has responsibility for the maintenance, repair, or permanent deactivation of these roads.

#### **3.1 Drainage structures**

The drainage structures along approximately 69 kilometres of roads were assessed during the audit for compliance with the construction and maintenance requirements of the Code. Drainage structures, composed of ditches and culverts, are designed to move water across roads with minimal disturbance to the environment and the roads.

At seven of the eleven sites examined, the audit found one or more instances of non-compliance with sections 12(1) and 17(1) of the Forest Road Regulation. These sections detail the Code's construction and maintenance requirements for ditches and culverts.

In one steep road section, the eight-mile switchback on the Anderson mainline, a portion of the outer bank had slid because of inadequate drainage. The surface and drainage water that caused the slide resulted in a debris torrent that reached an S6 stream (a non-fish-bearing stream of 3

metres or less in width) that was about 200 metres away. The narrow channel formed by the torrent was up to 0.5 metre in depth.

The failure of the outer bank of the switchback has created a moderate safety risk to any vehicles that are driven near that portion of the switchback. Additionally, the poor alignment of a culvert recently placed to redirect water from the outer portion of the switchback has caused some slumping further downslope.

Examples of other types of non-compliance noted include:

- lack of culverts at water courses;
- lack of a sufficient number of culverts per road section;
- plugged culverts and ditches;
- shallow ditches; and
- lack of ditchblocks to help redirect ditch water to culverts.

The impacts that could be assessed from each of these non-compliance events were not considered of sufficient magnitude to constitute harm. However, the nature and frequency of the non-compliance was determined to be significant because of the potential for harm should the practices continue.

### **3.2 Deactivation: North Fork Siwash Mainline**

In the fall of 1996, Cattermole Timber carried out temporary and semi-permanent deactivation work on the North Fork Siwash Mainline and roads on cutblocks 16-1 and 16-2.

The audit found that the area affected by the deactivated road was eroding as a result of inadequate deactivation measures. Excessive lengths of the road bench have been sloped inward, resulting in water flows along the inside of the road bench which have further increased the erosion of the road and hillside. Water from two S6 streams (the Twin Creeks) has eroded the road at two locations that have not been reinforced with rock. A large volume of road material has been removed by the water flows and has washed into a third S6 stream.

The deactivation was carried out in accordance with a company-prepared deactivation plan, which was not prepared or reviewed by a professional engineer or geoscientist. At the time, section 18 (2) of the Forest Road Regulation required that a professional engineer or geoscientist prepare the deactivation prescription for areas such as this where the terrain is prone to mass wasting.

Contrary to section 18 (1) of the Forest Road Regulation, Cattermole's deactivation prescription did not stabilize the road and restore natural drainage patterns. Without remedial action, erosion, sloughing and ravelling will continue, delivering sediment to the non-fish-bearing streams in the

area. The damage to the slopes in the area will result in a loss or reduction of forest regeneration potential and wildlife habitat. Therefore, this non-compliance was considered to be significant.

### **3.3 Old road system in the Siwash Operating Area**

The deteriorating condition of many of the older roads in the Siwash operating area were identified as a problem. The roads were built and used before the introduction of the Forest Practices Code and remain on active road permit R01679 issued to Cattermole Timber by the Ministry of Forests.

An obligation to maintain or deactivate the roads under sections 63 and 64 of the Act is not addressed by the Code because Cattermole Timber has not used these roads since the Code's introduction. If such an obligation existed, the audit would have assessed the situation as a significant breach because significant harm to the environment is beginning to occur.

This network of approximately 50 kilometres of roads has received little or no deactivation treatment. The audit found evidence of tension cracks, ravelling, deep erosion scars, and, at one site, a failure of approximately 1.8 hectares of the road and hillside.

The instability of the area will result in sections of this road network continuing to deteriorate. Furthermore, because these roads have decaying wood debris buried in the fill slopes, there is an increased likelihood that road sections of up to 100 to 200 metres will slide, resulting in a loss or reduction of forest regeneration potential and wildlife habitat.

Meanwhile, the Ministry of Forests and Cattermole Timber remain divided on who is responsible for the maintenance and deactivation of these older roads. Ministry inspection reports and correspondence indicate that Cattermole Timber did not meet Ministry requirements after harvesting was completed in the late 1980s. Cattermole states that these roads were "deactivated to annual standards" and that the Ministry accepted partial responsibility to repair or deactivate the roads. According to the company, the Ministry proposed cost sharing remedial works in the area several years ago, and has also supported the company's application of January 1996 to Forest Renewal BC for funding to repair and deactivate the roads to current standards.

Given the significant extent of harm beginning to occur to the environment, it is clear that immediate remedial action is necessary, irrespective of which party - Cattermole Timber or the Ministry of Forests - is responsible for these roads.

## **4. Audit Opinion**

In my opinion, except for the significant non-compliance described below, the operational planning, timber harvesting, silviculture, and fire protection activities of Cattermole Timber on

Forest Licence A19202 were in compliance, in all significant respects, with the related Code requirements as of June 1997.

In the area of road building, maintenance and deactivation, however, our audit identified two situations of significant non-compliance:

- Inadequate installation and maintenance of drainage structures - A significant number of roads require some remedial work to culverts and ditches to ensure erosion and sediment transportation is minimized. The condition of one of the sites inspected during the audit has deteriorated so much that vehicles traveling downhill should avoid the road edge where the outer bank has failed.
- Inadequate deactivation measures - The deactivation measures undertaken did not stabilize the deactivated road and restore natural drainage patterns. Additionally, a professional engineer or geoscientist did not prepare the Siwash North Fork deactivation prescription, resulting in road deactivation measures which were inappropriate and inadequate for the site. The area and the road fill are erodable and subject to slides. There is a high likelihood that, if not corrected, some of the existing insloped drainage systems will fail, causing water to flow over the road at unplanned sites and erode the natural slopes below.

In reference to compliance, the term "in all significant respects" recognizes that there may be minor instances of non-compliance that either may not have been detected by the audit, or that were detected but not considered worthy of inclusion in the audit report.

Without qualifying my opinion, I also draw attention to the deteriorating condition of the old road system that remains on Cattermole's road permit (described in section 3.3 of this report). As these roads were constructed and used before the introduction of the Code and not used since, Cattermole Timber does not have a legal obligation under the Code to maintain or deactivate these roads. However, significant harm to the environment is beginning to occur.

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



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October 28, 1997









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