



**Forest
Practices
Board**

Audit of Timber Harvesting, Road Construction, Deactivation and Maintenance, and Wildfire Protection Activities

*606546 B.C. Ltd.
Forest Licence A19202*

FPB/ARC/150
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Board Commentary

This audit examined the activities of 606546 B.C. Ltd. on forest licence A19202 in the Chilliwack Forest District. 606546 B.C. Ltd. purchased this forest licence in 2008, and it also holds other forest licences in the district. Dorman Timber Ltd. owns 606546 B.C. Ltd.

The audit results show that harvesting and wildfire protection activities were satisfactory, but the overall performance of 606546 B.C. Ltd. was not up to the standard required by legislation and expected by the public. The Board found three cases of significant non-compliance:

1. Two bridges were installed without the required plans or drawings.
2. Road construction equipment was moved across a bridge requiring repairs, despite the district manager's direction not to use the bridge.
3. Three sections of new road were not structurally sound or safe for use and were failing at the time of the audit.

All three of these issues have potentially significant implications for worker safety and the protection of forest resources.

In exchange for the right to harvest timber from Crown land, licensees must follow rules designed to protect the environment and public safety. Under the *Forest and Range Practices Act*, government sets broad objectives but does not specify exactly how and what must be done. Licensees are accountable for planning and carrying out sound forest practices and, in doing so, are expected to obtain and follow the advice of qualified professionals. This “professional reliance” approach should warrant public confidence in the results, the licensee, forest professionals, and the forest industry. Unfortunately, the Board does not believe that was achieved in this case.

The results of this audit are not typical of what the Board finds with forest licensees. It signals a breakdown in the quality assurance process that should be addressed.

The licensee has since informed the Board that it has implemented specific changes in response to the audit:

"All bridges, portable or otherwise, will have bridge plans and as-built drawings completed upon installation. All road construction maps...will [highlight] areas of concern and sections that have site-specific construction techniques. There will be continued monitoring of road construction to ensure construction techniques are consistent with the plan which will address the quality assurance issues."

Audit Results

Background

As part of its 2012 compliance audit program, the Forest Practices Board randomly selected the Chilliwack district as the location of an audit. The Board then selected forest licence (FL) A19202 from within the district for audit. This licence was purchased in 2008 and is held by 606546 B.C. Ltd, which is owned by Dorman Timber Ltd.

FL A19202 has an allowable annual cut of approximately 130 000 cubic metres within the rugged coastal mountains of the Chilliwack district.

Two professional foresters, one professional engineer, one professional forester/engineer, and a chartered accountant made up the audit team. The Board's audit fieldwork took place from July 16 to 20, 2012. Activities were examined near Chehalis Lake, Harrison Lake, Deroche Creek, Dewdney Creek, Sumallo River and the Nahatlatch River. A map of the audit area appears on page 3.

Additional information about the Board's compliance audit process is provided in Appendix 1.



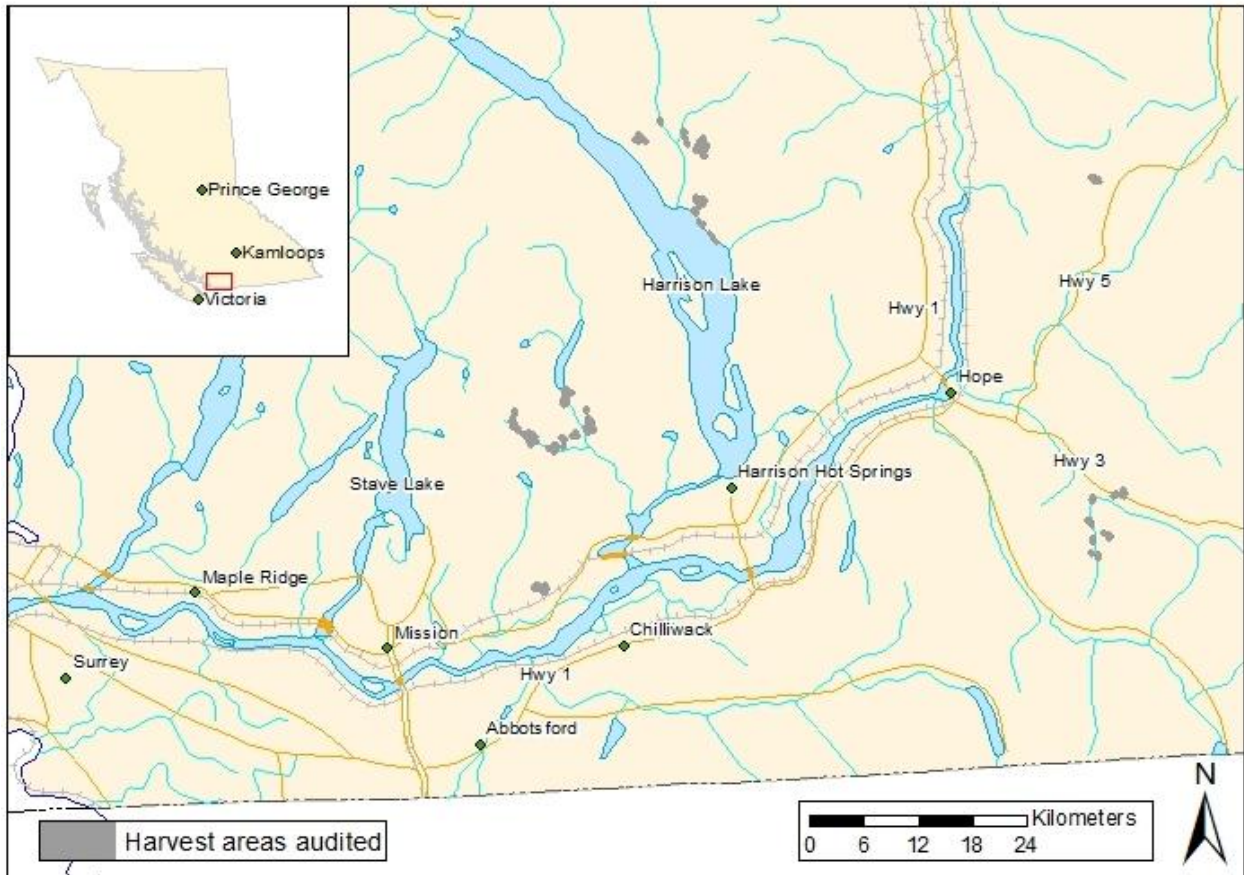
The Sumallo River valley with the Hope Slide in the background.

Audit Approach and Scope

The Board conducted a limited-scope compliance audit of harvesting; road construction, maintenance and deactivation; wildfire protection activities; and associated planning carried out between July 1, 2011, and July 20, 2012. These activities were assessed for compliance with the *Forest and Range Practices Act* (FRPA) and the *Wildfire Act* (WA), and related regulations.

The Board's Compliance Audit Reference Manual, Version 6.0, May 2003, and the addendum to the manual for the 2012 audit season set out the standards and procedures that were used to carry out this audit.

606546 B.C. Ltd. FLA19202 Harvest Areas



Planning and Practices Examined

Operational Planning

606546 B.C. Ltd. planned activities in its 2011-16 forest stewardship plan (FSP).¹ The FSP, five amendments and site plans were examined to ensure that they were consistent with legislated requirements. During field sampling, site plans were also evaluated to ensure that they accurately identified conditions on the ground.

Spotted owls are an endangered species of particular concern within the forest licence. In March 2011, government issued an order requiring licensees to comply with certain aspects of a spotted owl management plan. Auditors examined planning and activities to ensure they complied with those requirements.

¹ A forest stewardship plan (FSP) is a key planning element in the FRPA framework and the only plan subject to public review and comment and government approval. In FSPs licensees are required to identify results and/or strategies consistent with government objectives for values such as water, wildlife and soils. These results and strategies must be measurable and once approved are subject to government enforcement. FSPs identify areas within which road construction and harvesting will occur but are not required to show the specific locations of future roads and cutblocks. FSPs can have a term of up to five years.

Timber Harvesting

The licensee harvested approximately 230 000 cubic metres of timber during the 13-month audit period. That volume came from 42 cutblocks covering 839 hectares of forest. Thirty-seven cutblocks totalling 766 hectares were sampled as part of the audit.

Roads and Bridges

Road Construction

606546 B.C. Ltd. built 57.5 kilometres of road during the audit period and auditors examined 54.8 kilometres, or 95 percent of the total.

Road Maintenance

606546 B.C. Ltd. is responsible for maintaining approximately 495 kilometres of road permit roads, and the Board examined 384 kilometres. It is also responsible for maintaining 116 kilometres of forest service roads under road use permits, of which auditors examined 87 kilometres.

Road Deactivation

The licensee deactivated 19.2 kilometres of road of which auditors examined 6.8 kilometres.

Bridge Construction

606546 B.C. Ltd. built one log stringer bridge and installed one portable bridge during the audit period and auditors examined both.

Bridge Maintenance

606546 B.C. Ltd. is responsible for maintaining 31 bridges on forest service roads and 21 bridges on its road permit roads. Auditors examined 21 bridges on forest service roads and 18 on road permit roads.

Fire Protection

Hazard assessment was examined for all 42 cutblocks harvested during the audit period, and hazard abatement activities were examined on 37 sites in conjunction with harvest auditing. Auditors encountered three active operations during fieldwork and assessed fire preparedness at those locations.

Findings

The audit of planning and forestry activities undertaken by 606546 B.C. Ltd. identified significant non-compliance with respect to road construction, as well as bridge construction and bridge maintenance. The road construction non-compliance involved three poorly constructed road sections. The bridge construction non-compliance involved building two structures without a design or an as-built drawing. The bridge maintenance non-compliance relates to the use of an unsafe bridge. These cases of non-compliance are discussed below.

The audit also found some road maintenance practices that require improvement. The other activities examined were found to be in compliance, in all significant respects, with the requirements of FRPA, WA and related regulations, as of July 2012.

Road Construction

There were no issues with road construction on flat or gentle terrain. However, on three new road sections in steeper terrain in the Dewdney Creek and Chilliwack River valley areas, overall construction practices were poor. Slopes in the Dewdney Creek area ranged from 50 to 80 percent. Tension cracks, which indicate instability, had formed across the steeper slopes and at one location the new road prism had failed, reducing the running surface by half. The tension cracks and the failed road prism were the result of improper construction techniques, not from the settling of fill material.

In the Chilliwack River valley area, auditors noted poor practices with over-steepened cut and fill slopes. The construction techniques used are better suited for lower risk terrain and, when used in steeper areas such as this, there is a potential for failures to occur.

Section 72ⁱ of the *Forest Planning and Practices Regulation* (FPPR) states that a person who constructs or maintains a road must ensure the road is structurally sound and safe for industrial users. Although these three road segments represent a small percentage of all new roads built, they were neither structurally sound nor safe and this represents a significant non-compliance with section 72 of the regulation, due to the risk to forest resources and worker safety.

Subsequent to the audit, the licensee has informed the Board that it repaired the road segments in the Dewdney Creek area.

Bridge Construction

The licensee installed an 18-metre portable bridge and a 7-metre log stringer bridge during the audit period.

In BC, professional engineers and foresters have guidelines in place for bridge construction. A coordinating professional signs a statement of assurance that the actual construction work conforms with the plan and supporting documents, and that significant revisions have been documented in an "as built" document. This assurance supports the duty of a professional to protect the safety, health and welfare of the public and the environment.

Beyond these guidelines, section 77ⁱ of the FPPR sets out the information requirements related to bridge construction, including relevant field and construction data, and as-built drawings. Legislation also requires records to be retained until the bridge is removed or the person is no longer required to maintain the road.

The licensee did not provide any bridge plan, relevant field and construction data or an "as-built drawing" for either bridge. As a result, auditors could not determine whether construction of the two new bridges conformed with any plan. This uncertainty represents significant non-compliance with section 77 of FPPR, due to the potential risk to people, equipment and forest resources. In addition, the 7-metre log stringer bridge appeared to be 3 metres too short and the fill encroached on the stream.

Subsequent to the audit, the licensee has informed the Board that it removed the 18-metre portable bridge and plans to prepare “as-built drawings” for the log stringer bridge before it is used by industrial traffic.

Bridge Maintenance

Section 72 of the FPPR states that a person who maintains a road must ensure the road and associated bridges are structurally sound and safe for industrial users.

In September 2011, the licensee requested a road use permit from the district manager. The district manager issued the permit and ordered the licensee to carry out road maintenance. The district manager noted that there were no recent inspections for a bridge along that section of road and he instructed the licensee to avoid using the bridge until its load rating had been determined. An inspection was scheduled for later in the fall.

Section 112ⁱⁱⁱ of FRPA provided the district manager with the power to attach a condition to his order, and it also requires a person, in this case the licensee, to comply with that condition.

The licensee did not wait for the results of the inspection and instead moved heavy equipment across the bridge to upgrade and construct roads beyond. In November, a professional engineer's inspection found serious deficiencies with the bridge and the load rating was determined to be 0 tonnes. The professional engineer later told the licensee that he assigned a 0 tonne load rating due to safety concerns (holes in the deck) and the associated risk of using the bridge in its condition. Given the potential for harm to people and the environment, this is considered a significant non-compliance.

The licensee had closed the bridge to traffic before audit fieldwork began.

Road Maintenance

Auditors noted several sections of older wilderness roads where the drainage structures were ineffective due to damage and debris. This has put the structural integrity of these roads at risk. The licensee has since deactivated some of these roads, but there is more to do. This is considered an area requiring improvement.

Operational Planning

The FSP met regulatory requirements, including the government order that formalized key parts of the Spotted Owl Management Plan in March 2011. The plan sets aside key areas for spotted owl where harvesting is not permitted (long term owl habitat areas, or LTOH) and areas where harvesting is permitted under special criteria (managed future habitat areas, or MFHA).

Several blocks were harvested under the MFHA criteria. The criteria include a requirement to leave up to 40 trees per hectare to be distributed as single trees or groups and to space them such that no location in the block is further than 40 metres from other leave trees. Applicable site plans reflected these requirements.

Timber Harvesting

Harvesting practices were consistent with site level plans and regulatory requirements. Soil disturbance was within FRPA limits and natural drainage patterns were maintained. Wildlife tree patches were preserved as planned and were situated to protect resources such as streams and cultural heritage values.

There are two issues associated with meeting the spotted owl MFHA criteria: windthrow and safety. Auditors observed minor amounts of windthrow among dispersed, retained trees in the blocks reviewed, but it appeared to be at manageable levels.

The safety concern is that dispersed retained trees could interfere with safe cable yarding. Most of the blocks reviewed in MFHA areas were harvested using ground-based harvest systems so this was not an issue. However, on the few blocks where cable yarding was used, leave tree requirements were still met, although the trees were grouped rather than distributed evenly through the block. In summary, harvesting in spotted owl MFHAs was compliant with regulatory requirements.

Road Deactivation

No concerns were identified with respect to road deactivation.

Fire Protection Activities

No concerns were identified with respect to hazard assessment and abatement. Fire hazard was assessed at the completion of harvesting and slash was either piled or piled and burned on all blocks.

Audit Opinion

In my opinion, except for the road and bridge construction and bridge maintenance issues described below, the operational planning; timber harvesting; road construction, maintenance and deactivation; and wildfire protection activities carried out by 606546 B.C. Ltd. on Forest Licence A19202 between July 1, 2011, and July 20, 2012, complied in all significant respects with the requirements of the *Forest and Range Practices Act*, the *Wildfire Act* and related regulations as of July 2012.

In reference to compliance, the term “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 but not considered worthy of inclusion in the audit report.

As described in the *Road Construction* section of this report, the audit identified situations of significant non-compliance related to the construction of roads in the Dewdney Creek and Chilliwack River valley areas.

As described in the *Bridge Construction* section of this report, the audit identified a significant non-compliance related to the construction of two bridges.

As described in the *Bridge Maintenance* section of this report, the audit identified a significant non-compliance related to the use of an unsafe bridge.

Without further qualifying my opinion, I draw attention to the *Road Maintenance* section of the report, which describes an area requiring improvement.

The *Audit Approach and Scope* and the *Planning and Practices Examined* sections of this report describe the basis of the audit work performed in reaching the above conclusion. 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 evaluation of compliance with FRPA and WA.



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Victoria, British Columbia
November 19, 2012

Appendix 1: Forest Practices Board Compliance Audit Process

Background

The Forest Practices Board conducts audits of government and agreement-holders under the *Forest and Range Practices Act* (FRPA), section 122, and the *Wildfire Act* (WA). Compliance audits examine forest or range planning and practices to determine whether or not they meet FRPA and / or WA requirements.

Selection of Auditees

The Board conducts about 8 or 9 compliance audits annually. Most of these are audits of agreement holders. The Board also audits the government's BC Timber Sales Program (BCTS). This section describes the process for selecting agreement holders to audit.

To begin with, auditors randomly select an area of the Province, such as a district. Then the auditors review the forest resources, geographic features, operating conditions and other factors in the area selected. These are considered in conjunction with Board strategic priorities (updated annually), and the type of audit is determined. At this stage, we choose the auditee(s) that best suits the selected risk and priorities. The audit selections are not based on past performance.

For example, in 2010, the Board randomly selected the Mackenzie district as a location for an audit. After assessing the activities within that area, we discovered that a large licensee had recently closed operations due to financial problems. As the Board has expressed concern in the past about financially strapped companies failing to meet outstanding obligations, such as reforestation and road maintenance, and we knew that some of the licence area is very remote, the new licence holder was selected for audit.

For BCTS audits, a district within one of the 12 business areas within the province is selected randomly for audit.

Audit Standards

Audits by the Board are conducted in accordance with the auditing standards developed by the Board. These standards are consistent with Canadian generally accepted auditing standards. The standards for compliance audits are described in the Board's *Compliance Audit Reference Manual*.

Audit Process

Conducting the Audit

Once the Board randomly selects an area or district and determines the scope of audit to be conducted and the licensee(s) to be audited, all activities carried out during the period subject to audit are identified (such as harvesting or replanting, and road construction or deactivation activities). Items that make up each forest activity are referred to as a population. For example, all sites harvested form the timber harvesting population and all road sections constructed form the road construction population.

A separate sample is then selected for each population (e.g., the cutblocks selected for auditing timber harvesting). Within each population, more audit effort (i.e., more audit sampling) is allocated to areas where the risk of non-compliance is greater.

Audit fieldwork includes assessments of features using helicopters and ground procedures, such as measuring specific features like riparian reserve zone width. The audit teams generally spend one week in the field.

Evaluating the Results

The Board recognizes that compliance with the many requirements of FRPA and WA, is more a matter of degree than absolute adherence. Determining compliance, and assessing the significance of non-compliance, requires the exercise of professional judgment within the direction provided by the Board.

The audit team, composed of professionals and technical experts, first determines whether forest practices comply with legislated requirements. For those practices considered to not be in compliance, the audit team then evaluates the significance of the non-compliance, based on a number of criteria, including the magnitude of the event, the frequency of its occurrence and the severity of the consequences.

Auditors categorize their findings into the following levels of compliance:

Compliance – where the auditor finds that practices meet FRPA and WA requirements.

Not significant non-compliance – where the auditor, upon reaching a non-compliance conclusion, determines that one or more non-compliance event(s) is not significant and not generally worthy of reporting. However, in certain circumstances, events that are considered not significant non-compliance may be reported as an area requiring improvement.

Significant non-compliance – where the auditor determines a non-compliance event(s) or condition(s) is or has the potential to be significant, and is considered worthy of reporting.

Significant breach – where the auditor finds that significant harm has occurred, or is beginning to occur, to persons or the environment as a result of one or many non-compliance events.

If it is determined that a significant breach has occurred, the auditor is required by the *Forest Practices Board Regulation* to immediately advise the Board, the party being audited, and the Minister of Forests, Lands and Natural Resource Operations.

Reporting

Based on the above evaluation, the auditor then prepares a draft audit report. The party being audited is given a draft of the report for review and comment before it is submitted to the Board.

Once the auditor submits the draft report, the Board reviews it and determines if the audit findings may adversely affect any party or person. If so, the party or person must be given an opportunity to make representations before the Board decides the matter and issues a final report. The representations allow parties that may potentially be adversely affected to present their views to the Board.

The Board then reviews the draft report from the auditor and the representations from parties that may potentially be adversely affected before preparing its final report. Once the representations have been completed, the report is finalized and released: first to the auditee and then to the public and government.

Endnotes

ⁱ Section 72 of the Forest Planning and Practices Regulation:

Roads and associated structures

72 A person who constructs or maintains a road must ensure that the road and the bridges, culverts, fords and other structures associated with the road are structurally sound and safe for use by industrial users.

ⁱⁱ Section 77 of the Forest Planning and Practices Regulation:

Retaining information

77 (1) A person who builds a bridge or major culvert for the purpose of constructing or maintaining a road must do all of the following:

- (a) prepare or obtain
 - (i) pile driving records,
 - (ii) for new materials used to build the bridge or major culvert, mill test certificates, in-plant steel fabrication drawings, and concrete test results,
 - (iii) soil compaction results, and
 - (iv) other relevant field and construction data;
- (b) prepare as-built drawings of the bridge or major culvert;
- (c) retain the information referred to in paragraphs (a) and (b) until the earlier of the date that
 - (i) the bridge or major culvert is removed, and
 - (ii) the person is no longer required to maintain the road.

(2) Subject to subsection (3), a person responsible for maintaining a road must retain a copy of inspection records for a bridge or major culvert associated with the road for at least one year after the bridge or major culvert is removed from the site.

(3) Unless the road has been deactivated, a person must submit to the district manager or the timber sales manager, as applicable, the documents, drawings and records described in subsections (1) and (2) in respect of a road if the person is no longer required to maintain the road because the district manager or timber sales manager

- (a) cancelled the road permit, road use permit or special use permit for the road, and
- (b) does not require the road to be deactivated.

ⁱⁱⁱ Section 112 of the Forest and Range Practices Act

Power to impose conditions

112 (1) Except in prescribed circumstances a person with a discretion under this Act to make an order, grant an exemption, give a consent, grant an approval, or grant an authorization under this Act may

- (a) impose conditions that the person considers necessary or desirable in respect of the order, exemption, consent or approval, and
- (b) remove or vary the conditions by own motion or on the application of a person who is the subject of the order, exemption, consent or approval.

(2) A condition imposed under subsection (1) is conclusively deemed to be part of the order, exemption, consent or approval in respect of which it is imposed, whether contained in or attached to it or contained in a separate document.

(3) If a person is the subject of an order, exemption or condition under this Act, the person must comply with the order, exemption or condition.



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