



**Forest
Practices
Board**

Audit of Forest Planning and Practices

*Western Forest Products Inc.
Forest Licence A19231*

FPB/ARC/185

February 2016

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Board Commentary

As part of its 2015 annual audit program, the Board chose to audit Forest Licence A19231, held by Western Forest Products Inc. (WFP). Most harvest and road related activities were located on Nootka Island, where Nootka Sound Timber Co. Ltd. managed operations.

The Forest Practices Board conducts about 10 audits in British Columbia every year. Often these audits identify practices that did not comply with forestry legislation—such is the nature of a compliance audit. However, the Board recognizes that to help drive continuous improvement, the identification of notable practices where they exist is important. Highlighting these practices can lead to other licensees learning about and adopting these notable practices and procedures, which ultimately leads to better forest practices in BC.

For the first time in seven years, the Board’s auditors have two notable practices to report—one is an electronic bridge ledger system and the other is a terrain risk management strategy. Auditors were impressed with the initiative and care exhibited by WFP in developing these tools and that both these notable practices are in use across all WFP operations.

WFP kept a very detailed bridge ledger, recording and digitally linking construction, inspection and maintenance documents in one central, easy to follow location. This bridge database is the most user friendly, comprehensive collection of bridge information the Board has seen yet. In addition, WFP developed a terrain risk management strategy that informs and guides its forest road and harvesting activities. It was developed with terrain and hydrological expert assistance, and has been in use by the company since 2013. The Board has not seen this type of strategy elsewhere.

These two practices are notable and worthy of consideration by other licensees.

Audit Results

Introduction

The Forest Practices Board is the public's watchdog for sound forest and range practices in British Columbia. One of the Board's roles is to audit the practices of the forest industry to ensure compliance with the *Forest and Range Practices Act* (FRPA) and the *Wildfire Act* (WA).

As part of its 2015 compliance audit program, the Board randomly selected the Campbell River District as the location for a full scope compliance audit. Within the district, the Board selected Forest Licence (FL) A19231, held by Western Forest Products Inc. (WFP).

This report explains what the Board audited and the results. Detailed information about the Board's compliance audit process is provided in Appendix 1.



Figure 1. Typical timber harvesting in mountainous terrain on Nootka Island.

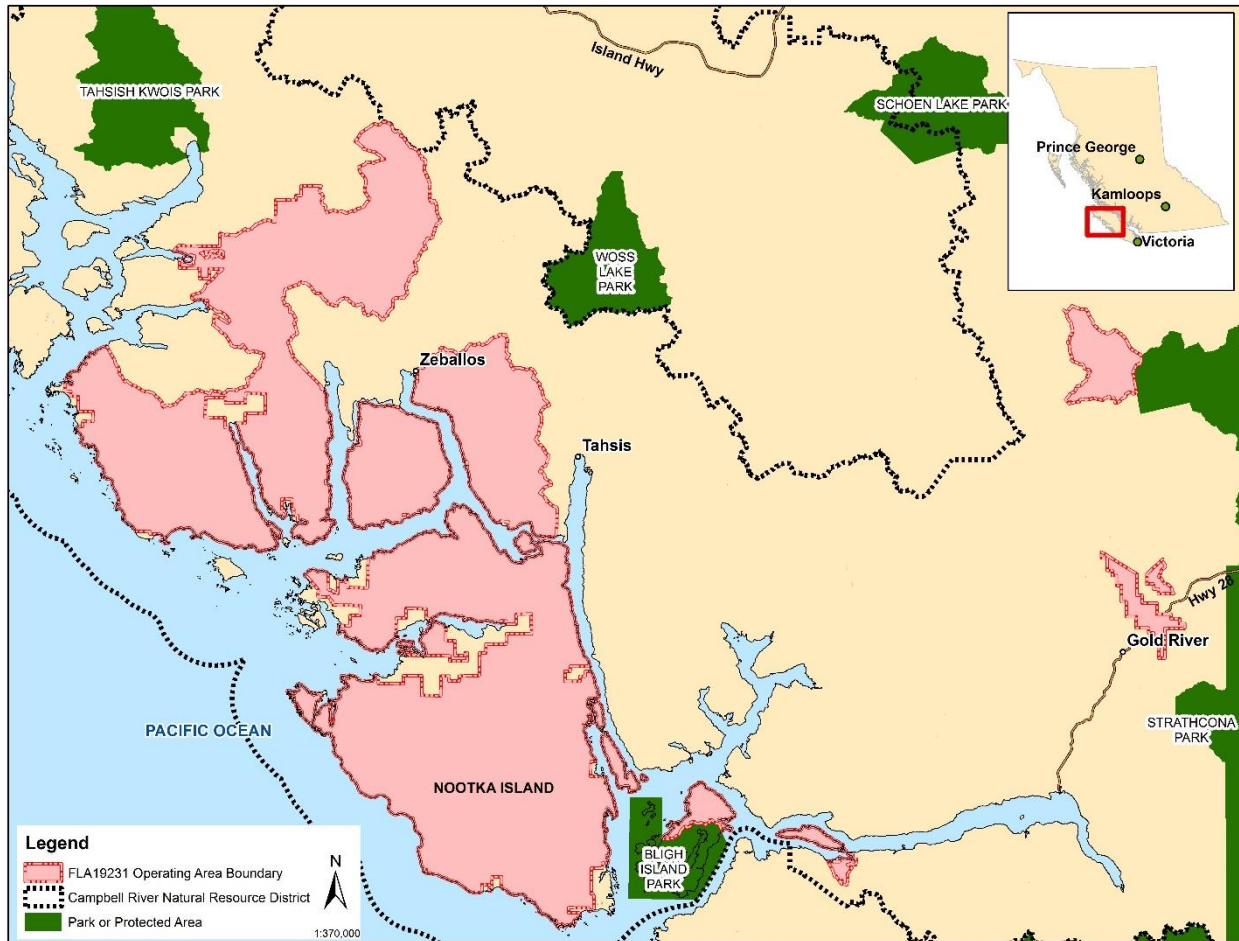
Background

FL A19231 is located on the west side of Vancouver Island within the Strathcona Timber Supply Area and has an allowable annual cut of 303 283 cubic metres. During the two-year audit period, WFP harvested approximately 558 000 cubic metres.

WFP's operations are mainly located on Nootka Island, but also extend northward on Vancouver Island to the Zeballos area, with a few outlying areas north of Gold River. Limited access to Nootka Island creates operational challenges for WFP staff, so they contract Nootka Sound Timber Co. Ltd. to manage operations from its camp on the island. The topography is wet and rugged, characterized by steep mountainous terrain and includes a rich and diverse array of wildlife and many significant fisheries systems, covering both fresh and saltwater species. Marine based outdoor recreation, including kayaking and sport fishing, and the Nootka Island Trail are leading attractions in this scenic area. A map of the audit area is on page 2.

Two professional foresters, a professional engineer and a chartered professional accountant made up the audit team. Field work was carried out from July 20 to July 24, 2015.

Map of the Audit Area



Audit Approach and Scope

The Board conducted a full scope compliance audit, which includes all harvesting, roads, silviculture and protection activities, and associated planning, carried out on FL A19231 between July 1, 2013, and July 24, 2015.

Auditors assessed activities for compliance with FRPA, the WA and related regulations. The Board's audit reference manual, *Compliance Audit Reference Manual, Version 7.0, September 2012*, set out the standards and procedures that were used to carry out this audit.

Planning and Practices Examined

Operational Planning

WFP conducts its operational planning under a forest stewardship planⁱ (FSP) – *Nootka Forest Stewardship Plan: Western Forest Products Inc.*, expiring November 26, 2016. The FSP and stand-level site plans were examined to ensure that they met legislative requirements. Auditors also examined site plans during harvesting, road and silviculture field sampling to ensure that they accurately identified site conditions.

Forestry activities must comply with results and strategies set for objectives established by government in FRPA, WA and related regulations, and the Vancouver Island Land Use Plan. Forestry activities must also comply with several orders established under the *Government Actions Regulation*, including orders for recreation, visual quality, karst, marbled murrelet and ungulate winter range.

Timber Harvesting

WFP harvested 42 cutblocks, covering 1087 hectares. Auditors examined 24 of the cutblocks, totaling 666 hectares.

Road & Major Structure Construction, Maintenance and Deactivation

During the audit period, WFP constructed 66 kilometres of road and 13 bridges, and deactivated 23 kilometres of road. WFP had maintenance obligations on 950 kilometres of road and 168 bridges and major structures.

Auditors examined 49 kilometres of constructed road, 160 kilometres of road maintenance, 12 kilometres of deactivated road, all of the installed bridges and 59 of the maintained bridges and structures.

Silviculture Obligations and Activities

WFP planted 46 cutblocks and brushed 14 cutblocks during the audit period. Regeneration obligations were either declared or due on 66 cutblocks and free-growing obligations were either declared or due on 42 cutblocks. Auditors examined 14 planted cutblocks, 5 brushed cutblocks, 16 cutblocks with regeneration obligations and 16 cutblocks with free-growing obligations. WFP did not conduct any site preparation during the audit period.

Auditors assessed conformance with the *Chief Forester's Seed Transfer Guidelines* for all 14 planted cutblocks.

Auditors assessed whether WFP had met its annual reporting requirements for all of the above silviculture samples.

Fire Protection

There were no active operations so auditors did not inspect fire tools and water delivery systems. Hazard assessments were completed on 42 cutblocks during the audit period and auditors sampled 24 of these cutblocks. Hazard abatement was completed on 43 cutblocks and auditors sampled 3 of these cutblocks, plus another 53 cutblocks where abatement was conducted prior to the audit period.

Findings

The audit found that WFP's planning and activities generally complied with FRPA and the WA as of July 2015.

Auditors identified an area requiring improvement related to road construction and maintenance at a fish stream crossing, as described below in the *Wooden Box Culvert* section.

Auditors also found two notable practicesⁱⁱ, one regarding WFP's bridge ledger and the other regarding WFP's terrain risk management strategy, as described below in the *Bridge Ledger* and *Terrain Risk Management Strategy* sections.

Wooden Box Culvert

While constructing a 400-metre long road to access a cutblock, WFP installed a 5-metre long wooden box culvert to cross a fish-bearing stream (S3)¹ and then removed it after log hauling was complete. To reduce the potential harm to fish and fish habitat, WFP conducted the work during the in-stream work window.² During construction, WFP placed angular rock on the stream banks to stabilize the banks and provide a foundation for the culvert. During removal, WFP left the rock and some soil within the stream channel. The soil was later washed away by heavy rain and the remaining rock constricts the stream channel and could potentially accelerate stream flow and erode the channel when stream flow is high. In late November 2015, auditors returned to the site with a fish biologist to assess the potential impacts on fish and fish habitat. In his opinion, the sediment that entered the stream and the remaining rock will likely have a minimal impact on fish and fish habitat and the stream is in proper functioning condition.³

FRPA requires a person who builds and uses a stream crossing to do so in a manner that protects the stream bank and channel and is unlikely to harm fish or destroy, damage or harmfully alter fish habitat. They must also mitigate disturbance to the stream bank and channel. As the stream channel was disturbed, this is a non-compliance. However, since the potential harm to fish and fish habitat was low, it is considered an area requiring improvement.

Bridge Ledger

WFP kept a very detailed bridge ledger, recording and digitally linking construction, inspection and maintenance documents in one central, easy to follow ledger. It captured all of the necessary information for each structure, including year built, engineering designs, required sign offs, as well as inspection reports and photos. This bridge database is the most user friendly, comprehensive collection of bridge information that our road auditor has seen in his 19 years of auditing for the Board. The detailed inspection notes and photos in this comprehensive database eliminated the need to sample several of the bridges. In addition to allowing the auditors to reduce their sample size, it provided them with confidence that WFP's bridges were well maintained and structurally sound. Auditors found that the ledger was up to date and WFP addressed the action items identified in the ledger for the bridges sampled.

WFP's use of the ledger to help ensure it has met legal requirements and minimized safety and environmental risks is considered a notable practice.

Terrain Risk Management Strategy

Topography in WFP's operating area can be challenging, with many steep and potentially unstable slopes. To help protect values at risk from landslides, such as human safety, soil, water or fish, WFP developed and implemented a terrain risk management strategy. The strategy is a culmination of

¹ An S3 stream is a stream that contains fish and is 1.5 to 5 metres wide.

² Timing windows (periods of least risk) are periods of time when work in and about a stream can be conducted with reduced risk to fish and fish habitat. Anytime that any works come into contact with or impacts fish habitat is considered "instream works." Although the timing window is a time of reduced risk, fish (juvenile or adult) may still be present on site. Care must still be taken to avoid harming fish and fish habitat.

³ Proper functioning condition is the ability of a stream, river, wetland, or lake, and its riparian area, to withstand: normal peak flood events without experiencing accelerated soil loss; channel movement or bank movement; filter runoff; and store and safely release water.

several years' work, starting with a very detailed watershed indicator study in 2009, which assigned stability hazard ratings to roads, sediment delivery potential near fish streams, and determined stream sensitivity to identify sites where extra precautions would be required. WFP then used this information to develop the terrain strategy to provide guidance to forest professionals on when and where to engage a terrain specialist, conduct a terrain stability assessment and employ measures to minimize the risk of a landslide. These measures included retaining trees to stabilize slopes, using harvest systems that minimize soil disturbance, and using road construction and maintenance practices that control drainage and erosion. Although it is not a legal requirement, WFP requires site plan preparers to follow the terrain strategy to help avoid or mitigate potential damage to the environment from landslides as a result of road construction or timber harvesting. Use of the strategy is considered a notable practice. Auditors found WFP followed the strategy when preparing site plans and effectively implemented the measures.

Operational Planning

Auditors found that WFP included objectives from the Vancouver Island Land Use Plan in its FSP. The FSP contained all legally required information and addressed the applicable orders. The site plans were consistent with the FSP and accurately identified site conditions. WFP met operational planning requirements.

WFP addressed site specific resources in site plans by accurately identifying and prescribing practices for various resource features. Resource features common to this audit include scenic areas, fish streams, invasive plants and cultural/heritage features. For example, to protect scenic areas WFP designs the appearance of timber harvesting to meet the visual quality objectives in their FSP, which may include using standing timber and topography to screen openings or creating small openings that are less visible. Auditors found WFP achieved visual quality objectives.

Timber Harvesting

Harvesting was conducted in accordance with site plans and the requirements of legislation. Soil disturbance was well managed and within limits, and riparian features were protected. WFP harvested all cutblocks as planned and auditors did not have any concerns.

Riparian Management

Riparian areas are very important in the audit area, which has many significant fisheries systems located within potentially unstable terrain. To help ensure they were protected, WFP identified wetlands, streams and non-classified drainages on maps and marked them in the field, established wildlife tree patches and machine free zones and retained vegetation around them, and used designated stream crossings. WFP demonstrated sound riparian management.

Road and Bridge Construction, Maintenance and Deactivation

Auditors had no concerns with road and bridge construction, maintenance or deactivation, other than the culvert installation described above.

Construction

New roads were constructed in-block and under a road permit. Auditors found that roads were well constructed, drainage structures were functional and natural drainage patterns were maintained.

On some roads, construction required specialized techniques for blasting and drainage control to stabilize the roads. WFP engaged a terrain or riparian specialist when required and followed their recommendations.

Maintenance

Auditors found all roads with maintenance obligations were stable. They found no evidence of rutting, siltation or road failures. Many of the roads were constructed utilizing rock ballast to stabilize the road surface. WFP demonstrated good sediment control practices at a number of stream crossings by installing sediment ponds adjacent to stream channels along ditch lines.

WFP has a system for risk rating road sections and assigning an inspection frequency, with higher risk roads inspected more frequently. WFP maintained a very detailed road inspection tracking and documentation system and addressed issues identified during inspections in a timely manner.

Deactivation

To help ensure roads were stable, WFP seasonally deactivated inactive roads and maintained natural drainage patterns. To do so, WFP installed waterbars and cross-ditches, removed culverts and grass seeded exposed mineral soil.

Bridge Construction and Maintenance

Auditors had no concerns with bridge construction. All 13 bridges constructed during the audit period spanned the stream channel. WFP prepared bridge site plans and crossing assurance statements as required by legislation.

Auditors found that WFP's bridges were well maintained and structurally sound. WFP kept a very detailed bridge ledger to record and track bridge maintenance items, as discussed above in the *Bridge Ledger* section.

Silviculture Activities and Obligations

Auditors found that WFP met reporting and silviculture planning and practice requirements. WFP planted cutblocks with suitable seedlings, brushed them and met its regeneration and free-growing obligations. WFP met its annual reporting requirements by submitting the required information on time and to the standard required by the government.

Fire Protection Activities

WFP complied with the *Wildfire Act*.

The WA requires licensees to assess the fire hazard at specified intervals, including an assessment of the fuel hazard and its associated risk of a fire starting or spreading. WFP had completed and documented a hazard assessment for the 24 cutblocks sampled. The assessments met content requirements.

If an assessment identifies a hazard, it must be abated within the required time frame. Hazard abatement activities may include installing fuel breaks and piling and burning slash. WFP met abatement obligations by piling slash in a safe location and burning it within the required time frame, when safe to do so.

Auditors found that WFP met its assessment and abatement obligations.

Audit Opinion

In my opinion, the operational planning, timber harvesting, road construction, maintenance and deactivation and fire protection activities carried out by Western Forest Products Inc. on Forest Licence A19231, between July 1, 2013, and July 24, 2015, complied in all significant respects with the requirements of the *Forest and Range Practices Act*, the *Wildfire Act* and related regulations, as of July 2015.

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.

Without qualifying my opinion, I draw attention to the *Wooden Box Culvert* section of this report, which describes an area requiring improvement.

Also without qualifying my opinion, I draw attention to the *Bridge Ledger* and *Terrain Risk Management Strategy* sections of this report, which describe two notable practices.

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
January 21, 2016

ⁱ 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.

ⁱⁱ A notable practice is a common practice of the auditee that generally has a positive social or environmental effect and goes beyond compliance with legislation and industry standard practice. It is a practice that, if conducted by other licensees, could improve forest and range practices within the province.

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 eight or nine compliance audits annually. Most of these are audits of agreement holders. 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.

The Board also audits the government's BC Timber Sales Program (BCTS). 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 from

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.

Unsound Practice – where the auditor identifies a significant practice that, although they are found to be in compliance with FRPA or WA, are considered to not be sound management.

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.



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