



**Forest
Practices
Board**

Audit of Forest Planning and Practices on Oil and Gas Operations

Fort Nelson Forest District

Apache Canada Ltd.

Devon Canada Corporation

FPB/ARC/129

April 2011

Table of Contents

Audit Results..... 1

 Background..... 1

 Audit Approach and Scope 3

 Planning and Practices Examined..... 3

 Findings 4

 Audit Opinion 6

Appendix 1: Forest Practices Board Compliance Audit Process 8

Audit Results

Background

As part of the Forest Practices Board's 2010 compliance audit program, the Board randomly selected the Fort Nelson Forest District as the location for a full-scope compliance audit. Within the district, the Board chose to examine activities involving two oil and gas licensees—Apache Canada Ltd. (Apache) and Devon Canada Corporation (Devon).

The operations audited are throughout the Horn River Basin in the Fort Nelson Forest District. The Horn River Basin encompasses approximately 1.1 million hectares of land in northeastern British Columbia, north of Fort Nelson and south of the Northwest Territories (see map on page 2).

The topography of the area forms a gradient of increasing relief from east to west. The area encompasses parts of the Alberta Plateau, the Rocky Mountain Foothills, the Liard Plateau, and the Liard Plain. This entire region is within the Arctic watershed and is largely drained by the Liard River and its major tributaries. The majority of the audit sample and subsequent activities fell within a muskeg area of the region, made up of black spruce and trembling aspen. It is generally a flat, poorly drained area, with a high water table.

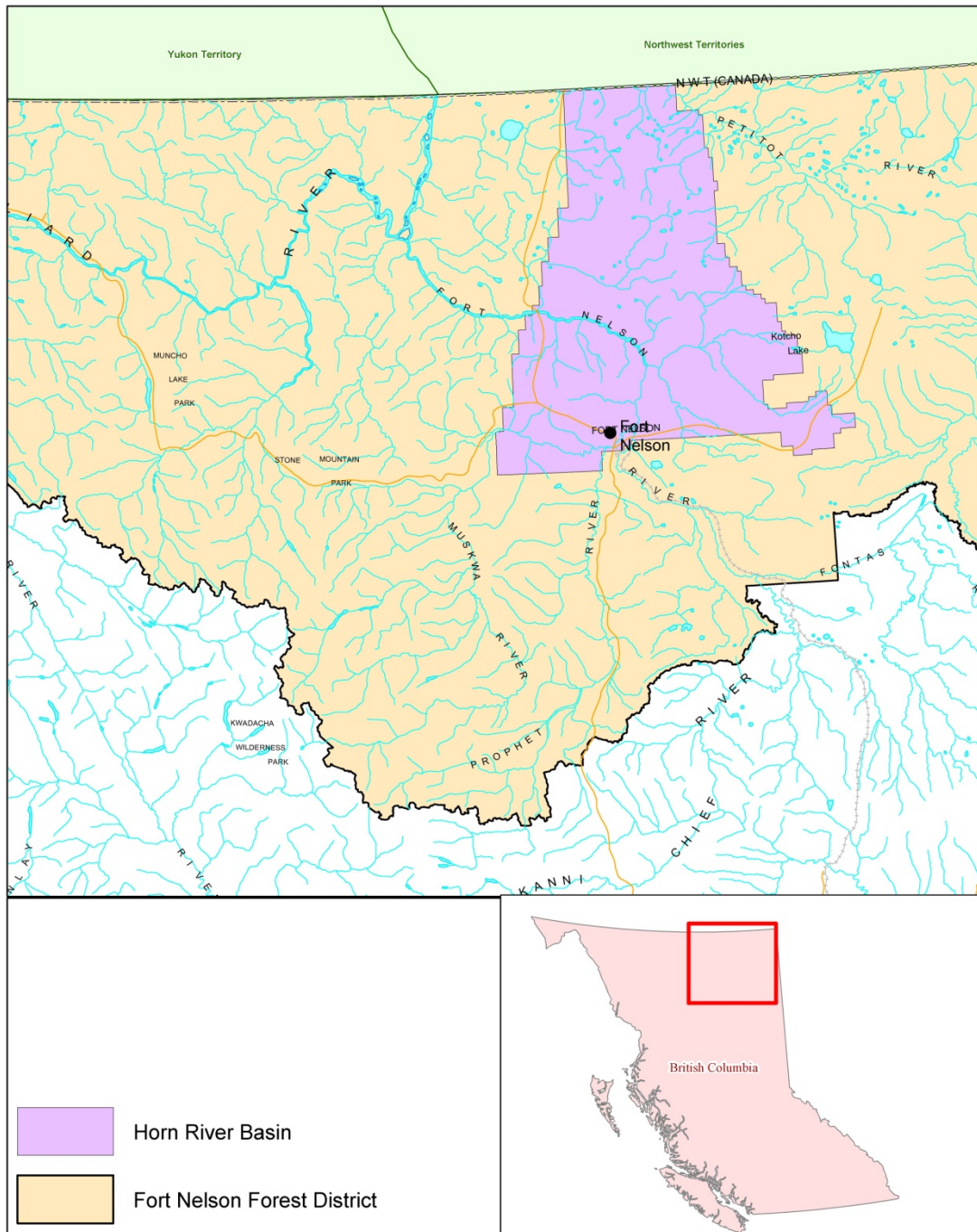


Overview photo of the Horn River Basin.

The Board's audit fieldwork took place on October 4 and 5, 2010, for Apache, and October 6 and 7, 2010, for Devon.

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

Apache Canada Ltd. and Devon Canada Corporation Horn River Area of the Fort Nelson Forest District



Legislation

The use of Crown land for forestry is regulated by the *Forest Act* and the *Forest and Range Practices Act* (FRPA). The *Forest Act* provides the authority to grant tenure agreements to allow forest companies, communities and individuals the right to harvest timber in public forests through tenure agreements with the provincial government.

The use of Crown land for natural gas exploration and development was regulated during the audit period by the *Oil and Gas Commission Act*, the *Pipeline Act* and the *Petroleum and Natural*

Gas Act;ⁱ however, the *Forest Act* provides authority to grant an occupant licence to cut or a master licence to cut, which is the approval granted to oil and gas companies to allow them to clear the land to conduct their activities. Only activities under licences to cut, which are regulated by FRPA, were included in this audit.



Overview photo of an active construction site of a multi-well pad and water storage area.

Audit Approach and Scope

The audit examined compliance with legislated requirements for forest planning and practices of oil and gas operations, including construction activities of wellsites, access roads, compressor/facilities, borrow pits, sumps, campsites, pipelines and other additional clearings. The audit focused on those practices and the associated planning within the Horn River Basin for the period of August 1, 2007, to the final day of field work in October 2010. These activities were assessed for compliance with FRPA and related regulations.

The Board's audit reference manual, *Compliance Audit Reference Manual, Version 6.0, May 2003*, and the addendum to the manual for the 2010 audit season, set out the standards and procedures that were used to carry out the audit.

Objectives Set by Government

There are no approved land use objective orders that are applicable to the audit area. However, there is a strategic level plan that provided guidance for the auditees. The October 1997 *Fort Nelson Land and Resource Management Plan* (FNL RMP) addresses the strategic direction for management of land, water, ecosystems and resources. The plan was developed to balance the economic, environmental and social needs of the people in the planning area, region and province.

The plan recognized that the energy sector is an important element of the economic stability of the Fort Nelson planning area. The plan confirms that energy exploration and development are acceptable uses of land outside of protected areas, while considering environmental values within the regulatory framework.

Planning and Practices Examined

Apache Canada Ltd.

Apache Canada Ltd. (Apache) holds two master licences to cut (M00929 and M01442) which provide direction with regard to surface land activities within the audit area. Only those sites operated by Apache, under the above listed master licences to cut, were subject to audit.

Apache's practices on the ground, related to surface land activities, included the construction of wellsites, facilities, pipelines, borrow pits, sumps, campsites, access roads and other additional clearings such as log decks, staging areas, turnarounds and temporary work spaces.

The following were constructed during the audit period, and therefore assessed as part of the audit:

Activity Type	Population / Sample ⁱⁱ	Total Area Cleared (hectares)
Wellsite	8	20.03
Access Road	9 sections totaling 22.2 kilometres	40.11
Compressor Site	1	7.02
Borrow Pit	27	42.21
Sump	5	8.47
Campsite	1	0.35
Pipelines	9 sections totaling 17.8 kilometres	26.10
Other Clearings	36	1.92
TOTAL		140.63

These activities occurred outside of protected areas, as directed by the FNL RMP. The plan indicates that no resource activities will occur in protected areas unless specific recommendations have been made by the established FNL RMP Working Group.

Devon Canada Corporation

Devon Canada Corporation (Devon) holds four master licences to cut (M00901, M00903, M01367, M01368), which provide direction with regard to surface land activities within the area. Only those sites operated by Devon, under the above listed master licences to cut, were subject to audit.

Devon's practices on the ground, related to surface land activities, included the construction of wellsites, facilities, pipelines, borrow pits, sumps, campsites, access roads and other additional

clearings such as log decks, staging areas, turnarounds and temporary work spaces. The following were constructed during the audit period, and therefore assessed as part of the audit.

Activity Type	Population / Sample ^{III}	Total Area Cleared (hectares)
Wellsite	13	29.61
Access Road	8 sections totalling 10 kilometres	19.79
Compressor Site	1	1.44
Borrow Pit	10	17.64
Sump	6	5.78
Campsite	5	6.02
Pipelines	8 sections totalling 36.5 kilometres	55.94
Other Clearings	54	8.25
TOTAL		144.47

These activities occurred outside of protected areas, as directed by the FNL RMP. The plan indicates that no resource activities will occur in protected areas unless specific recommendations have been made by the established FNL RMP Working Group.

Findings

The audit found that the forest planning and practices undertaken by Apache Canada Ltd. and Devon Canada Corporation, within the Horn River Basin, complied in all significant respects with the requirements of FRPA as of October 2010.

The full scope compliance audit assessed oil and gas operations as they related to the forest planning and practices requirements under FRPA and associated regulations. Auditors assessed wellsites, facilities, borrow pits, sumps, access roads, campsites, temporary worksites and pipeline right-of-ways to determine if construction and maintenance activities complied with FRPA.

Examples of practices noted during the audit were:

- Establishing the location of wellsites, facilities, borrow pits, campsites and temporary worksites to generally avoid existing streams and non-classified drainages.
- Catch basins constructed in the low corner of two wellsites to control surface drainage.
- Multi-hole wellsite constructed on single pads rather than numerous pads, which lessens the overall footprint of the activities.
- Bridge construction encroached the banks of a stream in one instance.
- Conducting activities during frozen ground conditions as per plan.
- Rehabilitating temporary access structures as per plan, including replacing top soil and ground cover on wellsites, campsites and temporary worksites concurrent with operations.
- Establishing and locating drainage structures to ensure natural drainage was maintained, with the exception of one mainline constructed.

- The lack of maintenance activities on one mainline had impacted several natural drainage patterns due to inadequately sized and plugged culverts from sloughing shoulders of the road.
- Utilizing techniques such as mulching, rip-rap, grass seeding, silt fencing and straw bales in and around stream crossings to minimize soil erosion and sediment transfer.
- Boring pipelines underneath major river crossings encountered within the pipeline right-of-way to avoid removing streamside vegetation.
- Natural drainage patterns were maintained along pipeline right of ways.

Auditors also noted that winter access and new pipeline projects were following existing corridors created from seismic lines wherever possible, thus reducing additional disturbance on the land base.

Audit Opinion

In my opinion, the forest planning and practices carried out under Master Licences to Cut M00929 and M01442 by Apache Canada Ltd. within the Horn River basin, for the period August 1, 2007, to October 5, 2010, complied in all significant respects with the requirements of the *Forest and Range Practices Act* (FRPA) and related regulations, as of October 2010.

In my opinion, the forest planning and practices carried out under Master Licences to Cut M00901, M00903, M01367 and M01368 by Devon Canada Corporation within the Horn River basin, for the period August 1, 2007, to October 7, 2010, complied in all significant respects with the requirements of FRPA and related regulations, as of October 2010.

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.

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.



Christopher R. Mosher CA, EP(EMSLA)
Director, Audits

Victoria, British Columbia
April 14, 2011

ⁱ On October 4, 2010, the *Oil and Gas Activities Act* came into effect, replacing some of these provisions; however, all activities audited were conducted under the older legislation.

ⁱⁱ A population is the total amount of an activity conducted in the audit period. A sample is a subset of the population that was actually audited. In this audit, 100 percent of all Apache activities within the Horn River Basin and within the audit period were audited, so the population and sample are the same number.

ⁱⁱⁱ A population is the total amount of an activity conducted in the audit period. A sample is a subset of the population that was actually audited. In this audit, 100 percent of all Devon activities within the Horn River Basin and within the audit period were audited, so the population and sample are the same number.

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. (The transitional provisions of FRPA state that the Code continues to apply to forest practices carried out under a forest development plan, until there is an approved forest or range stewardship plan, at which point the requirements of FRPA apply.)

Selection of Auditees

The Board conducts about eight or nine 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 forest 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 2007, the Board randomly selected the Robson Valley Timber Supply Area as a location for an audit. After assessing the activities within that area, we discovered that two licensees 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, the audit focused on the status of the outstanding obligations of these two licences.

For BCTS audits, a forest 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 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 field work 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 to two weeks in the field.

Evaluating the Results

The Board recognizes that compliance with the many requirements of the Code, 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 Code, 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 auditor's draft report 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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Oil and gas companies near Fort Nelson pass forestry audit

VICTORIA – An audit of two oil and gas companies working in the northern part of the Fort Nelson Forest District found that their operations met the requirements of the Forest and Range Practices Act, according to a report released today.

Apache Canada Ltd. and Devon Canada Corporation were audited for forest planning and practices associated with oil and gas development in the Horn River Basin. Activities examined included clearing trees for construction of well sites, compressor/facilities, borrow pits, sumps, campsites, and pipelines, as well as access road construction and maintenance.

“Because oil and gas companies carry out similar types of harvesting and road activities as forestry companies, the board occasionally audits them to make sure they are following provincial forestry legislation,” said board chair, Al Gorley. “Some of the things Apache and Devon did that lessened disturbance in the area included building roads in the winter when the ground was frozen, and using existing access corridors whenever they could.”

The Horn River Basin encompasses approximately 1.1 million hectares of land in north-eastern British Columbia, north of Fort Nelson and south of the Northwest Territories border.

The Forest Practices Board is B.C.’s independent watchdog for sound forest and range practices, reporting its findings and recommendations directly to the public and government. The board audits forest and range practices on public lands and appropriateness of government enforcement. It can also make recommendations for improvement to practices and legislation.

-30-

More information can be obtained by contacting:

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