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The Impact of Oil and Gas Industry Policy on Responsible Forest Stewardship in North-eastern BC



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Abstract

In order to maintain a sustainable forest industry in British Columbia (BC) that meets the requirements of social, environmental and economic values, responsible forest stewardship needs to be applied. Today forest stewardship is encouraged in the forest industry through the legislation in the Forests and Range Practices Act, as well as through multiple forest products certification organizations and programs. However, the forest industry is not the only stakeholder in BC extracting natural resources from the land. In fact, there is an array of different industries, such as the agriculture, mining, and oil and gas industries, that all share the use of the same publicly owned crown forestland. Of importance to this report is the dominance of the oil and gas industry in northeastern BC. The oil and gas industry, governed by the BC Oil and Gas Commission (OGC), has a huge impact on the land, clearing hectare upon hectare of forestland each year for oil and gas exploration, and development. The oil and Gas Commission Act was created in 1998 as a single piece of legislation for oil and gas contractors to follow in order to streamline the activities of the industry. Due to this policy change, the oil and gas industry pulled away from many of its obligations to forest industry policy as well as to various other industries' policies that surround the proper management of BC's forest, and hence responsible forest stewardship. Through thorough research, weaknesses were discovered in oil and gas policy to practice responsible forest stewardship in such activities as riparian management, road construction and maintenance, timber harvesting for exploration, and land reclamation. In general, these weaknesses were found to include poor communication skills on behalf of the OGC with contractors and other industries, a lack of monitoring and enforcement of proper practices by the OGC, and a lack of diligence on behalf of the OGC in maintaining records of all oil and gas activities, which in turn has led to uncertainties regarding the sustainability of timber harvesting in northeastern BC.

List of Key Words

- Ecosystem;
- Pipeline;
- Riparian;
- Seismic; and,
- Sustainability

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Introduction

The forest industry of BC has undergone numerous policy changes over the years that have shaped the industry into what it is today. Yet it has only been in the last few decades that there has been significant progress made towards forest practices that promote sustainable forest management¹ that in turn integrate environmental, social and economical values. Today the Ministry of Forests and Range (MOFR) as well as various forest certification organizations such as the Forest Stewardship Council (FSC), use the concept of responsible forest stewardship to accomplish the sustainable forest management goal. The definition of forest stewardship, according to the Association of BC Forest Professionals (ABCFP), “is the care of natural resources taking into consideration the values of landowners and society” (ABCFP, 2002). As an attempt to encourage this concept in the forest industry, the MOFR has made forest stewardship a key component of the Forests and Range Practices Act (FRPA). In fact, “FRPA legislation requires that licensees prepare forest stewardship plans (FSP) that show how operations will be consistent with objectives set by government for soils, timber, wildlife, water, fish, biodiversity and cultural heritage resources” (BCMON, 2007). In addition to licensees having to prepare FSPs, forest stewardship is also enforced at a higher level of forest management. For example, ABCFP encourages forest stewardship through various obligations that its members (professional foresters) must abide by under the organizations Code of Ethics bylaw². Hence, forest stewardship is directly applied to the practice of professional forestry.

However, in spite of the heavy influence of forest stewardship on the practice of forest management, the majority of BC’s forested landscape belongs to the public as crown land. Therefore, other stakeholders can legally lease the same productive forested landscape for the extraction of other natural resources, such as oil and natural gas. The problem is that other stakeholders such as the oil and gas industry abide by their own policies and regulations that do not necessarily match those of the forest industry, therefore creating concerns as to whether responsible forest stewardship is actually occurring or not. An example of the policy diversity between that of the forest industry and that of the oil and gas industry involves the rate of timber harvest. In the forest industry, a cap on how much an individual licensee can legally cut on an annual basis, known as an Annual Allowable Cut (AAC), is enforced. However, in the oil and gas industry, there is no cap on how much timber can be harvested on an annual basis, or even under any specified time interval.

Although policies may differ between the forest and oil and gas industries, the oil and gas industry promotes itself as a leader in environmental stewardship. In fact, “oil and gas companies are working through programs such as the Canadian Association of Petroleum Products Stewardship initiative to continuously improve environmental, health, safety and social performance” (CAPP, 2005). However in spite of good environmental stewardship initiatives, numerous complaints concerning responsible forest stewardship have been made since the creation of the Oil and Gas Commission (OGC) that leads one to question their effectiveness.

¹ Sustainable Forest Management “is the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biological diversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological economic and social functions, at local, national and global levels, and that does not cause damage on other ecosystems” (FAO, 2009).

² ABCFP Code of Ethics Bylaw can be viewed at:

http://www.abcfp.ca/regulating_the_profession/bylaws/code_of_ethics.asp, accessed March 3, 2009.

In this paper, I argue that the oil and gas industry's current policy framework has weak points that are having negative affects on the responsible forest stewardship of northeastern BC's forested landscape. This will be accomplished by first presenting background information as to how the OGC first came about and what it represents, as well as a further description of what the FRPA is. The background section of this report also introduces the Fort Saint John Pilot Project (FSJPP), which governs the sustainable management of the western portion of the Fort Saint John Timber Supply Area (TSA). Next the policies surrounding four major activities of the oil and gas industry are discussed including, riparian management, road construction and usage, timber harvesting, and rehabilitation of abandoned well sites as well as that of pipe and seismic lines. In addition to this, these four categories are compared to the standards of the FRPA to show how they meet up to responsible forest management. Finally, a conclusion reemphasizes the general findings of the report and provides recommendations as how to improve oil and gas industry policy.

Background

The Oil and Gas Commission

Prior to the creation of the OGC in 1998, the oil and gas industry had to gain approval from various other authorities such as the Ministry of Forests (now known as the MOFR) in order to go ahead with its activities³. During February 1998, the consultant, Golder Associates Ltd was hired by the Ministry of Energy and Mines (MOEM) to research the efficiency of the industries' legislative and regulatory framework. The key findings of Golder Associates Ltd were that "there was overlapping legislation, inconsistent legislative application, an overly complex approval process, lack of departmental cooperation, and a shortage of human resources, particularly at peak times" (Golder Associates Ltd, 1998). Golder Associates Ltd also stated at the time that "if regulatory reform did not occur quickly, several companies in the Peace River region planned to withdraw their investment in BC entirely" (Golder Associates Ltd., 1998).

Due to the findings of Golder Associates Ltd and to the overall slump in the BC natural resource sector at the time, the MOEM decided that action had to be taken right away to improve the economic status of the province. However, while the provincial government was eager to increase the efficiency of the oil and gas industry regulatory framework to increase productivity in the sector, "it also wanted to ensure that the expansion of the BC oil patch would not be at the expense of environmental standards or the government's obligations in respect of First Nations" (Rankin, 2000). To meet these objectives, a Memorandum of Understanding (MOU) was signed in February 1998, by both the oil and gas industry, and the government. "The MOU provided for an 'Oil and Gas Initiative', the goal of which was to "make BC one of the most attractive places in North America for oil and gas investment" (Rankin, 2000).

After the signing of the MOU, several important decisions were made right away including that "the OGC would be an agency of government with staff seconded from existing ministries, issuing the same permits as required under existing legislation but through a single wicket" (BC

³ A table displaying the affect of forest industry policies in the petroleum industry prior to the implementation of the OGC can be observed under Appendix I, page 24 -25.

Gov't, 1998). "The signing of the MOU also presented the beginning of an intensive consultation process that included First Nation(s), the oil and gas industry, the environmental community and the government that for the most part went rather smoothly without any hitches" (Rankin, 2000). Finally, just six months later during July 1998, a new legislative framework known as the Oil and Gas Commission Act was completed. Within the Oil and Commission Act, it is stated that the OGC's mandate is to "streamline the process of obtaining approval for upstream activities by providing a single window for necessary permits and approvals, thereby assimilating the essential permits and licenses that were at the time being granted by various ministries" (OGC, 1998). The OGC Act also requires "the Commission to promote the sound development of the oil and gas industry, inter alia, by fostering a healthy environment, a sound economy and social well being".

Today, due to the enactment of the OGC, oil and gas companies no longer are required to answer to, or gain the authorization of a vast array of other ministries, and as a result, the industry is thriving.

The Forest and Range Act

Much like the oil and gas industry, back in the late 1990's, "the provincial government sought out new legislation to streamline the forest industry's activities" (MOFR, 2003). It was thought at the time that the amount of planning and paperwork involved with keeping in compliance with the Forest Practices Code (FPC) was inefficient and cumbersome. Hence, a results-based system was proposed by the BC Liberal Government, as part of its "New Era" campaign in 2001. The result was a new forest and range planning and practices framework, know today as the FRPA, which was put into action January 31, 2004.

One of the most important features of the FRPA that pertains to this paper is that it requires forest licensees to complete forest stewardship plans (FSP). "FSPs are envisioned to replace three requirements under previous legislation: the Forest [aka Five-year] Development Plans, Silviculture Prescriptions and Road Layout and Design [aka Road Permits] requirements" (MOFR, 2007a). In addition to this, "FSPs set out results that forest companies must achieve to meet the standards for forest values like forest inventory data, water quality, fish and wildlife, and biodiversity. Government is responsible for establishing these standards" (MOFR, 2007). Under *section 2: division 1*, of the FRPA, it is outlined who must complete FSPs, the contents that FSPs must contain, as well as the length of FSP terms under several different circumstances⁴.

Of particular concern are the two FSPs that have been completed and are currently being implemented in the Fort Nelson Forest District. These two FSPs include:

- In March 2007, Canfor's Fort Nelson operations had their FSP approved; and,
- In May 2008, BCTS Peace Liard TSO (Timber Sales Office) had theirs approved.
(MOFR, 2007a)

⁴ Section 2: division 1 can be viewed in appendix II, page 26 -29.

Fort Saint John's Pilot Project

During the 1990's when the government was planning ways to create a results based framework for the forest industry, it attempted to initiate pilot projects to test the different approaches to results-based management. "Of several initiated, two pilot projects were fully implemented; the Stillwater pilot project, covering an area of about 180,000 hectares near Powell River, and the Fort St. John pilot project, covering about 4.1 million hectares in the Fort St. John TSA" (FSJPPB, 2008). Of particular interest is the Fort Saint John Pilot Project. Along with the Fort Nelson Forest District, the Dawson Creek Forest District, and the Chetwynd Forest District, the majority of Oil and Gas activity occurs in these areas of BC. Instead of switching to the FRPA, the FSJPP is expected to carry on under its own regulations into the future" (FSJPPB, 2008). Therefore, the FSJPP has its own regulations to ensure that responsible forest stewardship occurs within its jurisdiction. Forest Stewardship is accomplished by the FSJPP through following criteria and indicators⁵ associated with the Canadian Standards Association, Sustainable Forest Management division that are listed in detail under a Sustainable Forest Management Plan (SFMP). These standards are used to compare oil and gas industry policies within the pilot project area in this report. Figure 1, displays the Fort Saint John TSA and the FSJPP.

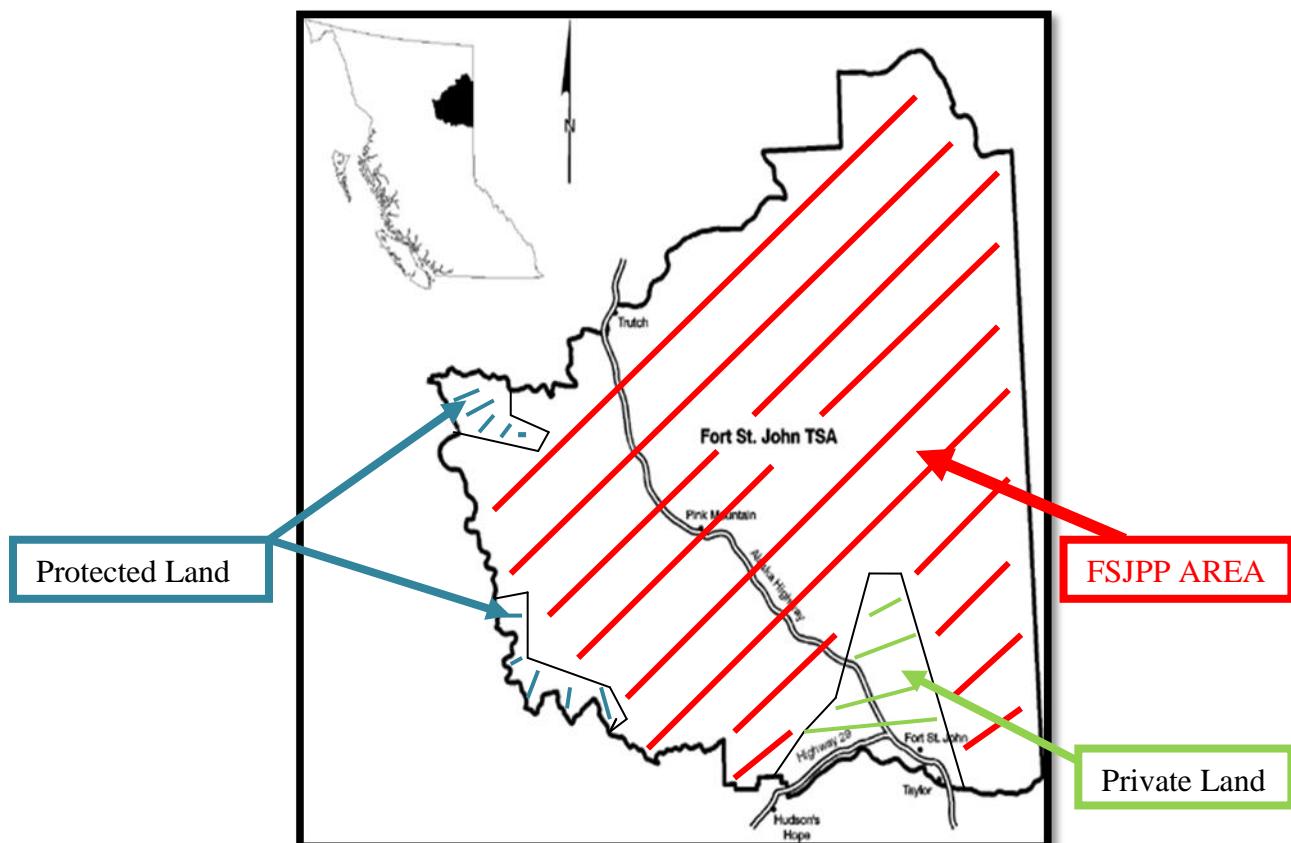


Figure 1: The Fort Saint John TSA in which the FSJPP takes up 87% of. This map was extracted from: (FAIB, 2007).

⁵ The FSJPP/CSA-SFM, criteria and indicators can be viewed at: <http://fsjpilotproject.com/csa.html>, accessed March 6, 2009.

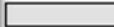
Key Components of Oil and Gas Industry Policy and How they Affect Responsible Forest Stewardship

I. Riparian Management Policy

A major component of responsible forest stewardship is the maintenance of riparian areas⁶ in which drainage from forestland(s) collects. In particular, creating as little disturbance as possible to fish bearing streams and wetland habitat where vegetative biodiversity is high is of great importance under the FSJPP and the rest of northeastern BC. To minimize disturbance to non-fish bearing streams as well as to fish bearing streams, the FSJPP SFMP requires the implementation of reserve and management zone buffers that vary in width in relationship to a particular stream's characteristics. In addition to streams, wetland areas also require buffers based on their characteristics. Tables 1 and 2 show the various buffer widths for different classes of streams and wetlands, which come from the FPC riparian management guidebook.

Table 1: FPC stream classification and reserve/management zone chart extracted from: (FPC, 1995).

Riparian class	Average channel width (m)	Reserve zone width (m)	Management zone width (m)	Total RMA width (m)
S1 large rivers	≥ 100	0	100	100
S1 (except large rivers)	>20	50	20	70
S2	$>5 \leq 20$	30	20	50
S3	$1.5 \leq 5$	20	20	40
S4	<1.5	0	30	30
S5	>3	0	30	30
S6	≤ 3	0	20	20

 Fish stream or community watershed
 Not fish stream and not in community watershed

- S1 – S6 refer to stream class level, which is defined by the average channel width of the stream.
- Reserve Zone width is the buffer width in which harvesting activity cannot occur within.
- Management Zone width is the buffer width in which harvesting can occur in, but at a certain level of retention depending on the stream class.
- RMA stands for Riparian Management Area, which is the sum of the Reserve Zone width and the Management Zone width.

⁶ "A riparian area is the banks and adjacent areas of a stream, river, lake or wetland. It contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent upland areas" (FPB, 2008).

Table 2: FPC specified minimum slope distances for buffers around wetland riparian management areas extracted from: (FPC, 1995).

Riparian class	Reserve zone width (m)	Management zone width (m)	Total RMA width (m)
W1*	10	40	50
W2	10	20	30
W3	0	30	30
W4	0	30	30
W5*	10	40	50

* No riparian reserve or riparian management zone is required for upland terrain within a bog dominated or muskeg dominated wetland larger than 1000 ha in boreal, sub-boreal, or hypermaritime climates. However, where a reserve or management zone is established by the district manager, the RMA should reflect the landscape level management strategy as outlined in the *Biodiversity Guidebook*.

- W1 – W5 refer to wetland/riparian class level, which is defined by “whether the wetland is a simple wetland or wetland complex, the wetland size, and the biogeoclimatic unit in which the wetland occurs” (FPC, 1995).
- Reserve Zone width is the buffer width in which harvesting activity cannot occur within.
- Management Zone width is the buffer width in which harvesting can occur in, but at a certain level of retention depending on the wetland class.
- RMA stands for Riparian Management Area, which is the sum of the Reserve Zone width and the Management Zone width.

The oil and gas industry bases riparian management on the same FPC stream and wetland classification systems. In 2007, the OGC specifically mentions in its, *Environmental Practices Summary for Pipelines* (EPSP) document, that its objective is “to ensure oil and gas activities do not harm fish habitat, reduce water quality or adversely reduce quantity” (OGC, 2007a). The report then goes on to say that:

“The principal objective of the management zones of S1, S2, and S3 streams is to maintain the integrity of the reserve zone. A second objective is to protect important wildlife values in the management zone. Activity in the management zone adjacent to S4, S5, and S6 streams should be planned and implemented to meet riparian objectives that include wildlife habitat, fish habitat, channel stability, and downstream water quality” (OGC, 2007a).

It is also important to note that in 2004, five years after the implementation of the OGC Act, the OGC came out with a *Stream Crossing Planning Guide*⁷, specifically for northeastern BC. It is arguable that the publishing of this guide was the result of several issues surrounding oil and gas

⁷ The OGC Stream Crossing Planning Guide can be viewed at <http://209.85.173.132/search?q=cache:52zK-bJTxNcJ:www.ogc.gov.bc.ca/documents/guidelines/Stream%2520Crossing%2520Planning%2520Guide.doc+OGC+Stream+Crossing+Planning+Guide&cd=1&hl=en&ct=clnk&gl=ca>, accessed February 18, 2009.

activities in riparian areas that were brought to the attention of the OGC as well as the Forest Practices Board (FPB) between 1998 and 2004. These issues were documented in the FPB (2001) audit report on the oil and gas industry, titled: Seismic Line Crossings of Streams, East of Fort Nelson, BC: A Special Investigation Report⁸.

The Little Hay River Case Study

Of the issues presented in the FPB (2001) audit report on the oil and gas industry, one of particular interest is that which entails an investigation on the licensee, Impact Exploration Ltd. The investigation is of particular importance to this report in that it shows how riparian ecosystem stability was disregarded by the contractor due to a lack of on site monitoring by the OGC. The events, which occurred before the FPB commencement of an investigation, where as follows:

- “On October 21, 1999 Impact Exploration Ltd. submitted a proposal to develop the Little Hay seismic line project for the approval of the commission.
- On November 18, 1999 the OGC issued a cutting permit to the licensee under the authority of a master agreement⁹.
- During December 1999, Impact Exploration Ltd began the clearing of the 52km long seismic line entailing 21 stream crossings.
- On January 28, 2000, the licensee contacted the OGC stating that the project would soon be complete, and therefore requested an inspection of the operation. **The OGC declined this request and stated that it would look at the project at a later date.**
- On April 5, 2000, the OGC accused the licensee of failing to remove snowfill within some of the stream crossings.
- On April 25, 2000, the licensee requested the OGC to go out and inspect five of the crossings, however once again the OGC declined this request due to it being the Easter long weekend.
- On May 19, 2000, the licensee submitted a report to the OGC, along with photos that were voluntarily taken to prove that they were being falsely accused.
- On March 5, 2001, the MELP stated that despite the report and the photos presented by the licensee that snowfall crossings were not removed and contained dirty snow and therefore, the licensee had failed to respect the guidelines of the Water Act, the FPC, and the Fisheries Act of Canada” (FPB, 2001).

It was not until 2001 that the FPB decided to initiate an investigation on the feud between Impact Exploration Ltd and the OGC. Based on their investigation, the FPB drew several important conclusions that can be directly linked to responsible forest stewardship. Firstly, the licensee created several steam crossings contrary to where the crossings were planned to go without notifying the OGC and gaining written permission. “In some cases, the crossings were found to be several hundred metres from where they were originally planned to go” (FPB, 2001). In addition to this contradiction to what was originally planned, the licensee also created several *mechanical cuts*¹⁰ instead of the planned *hand cuts*¹¹ at a few of the stream crossings.

⁸ Seismic Line Crossings of Streams, East of Fort Nelson, BC: A Special Investigation Report, can be viewed at <http://www.fpb.gov.bc.ca/publications.aspx?id=3094>, accessed February 18, 2009.

⁹ Master Agreement refers to a Master Licence to Cut which must be approved of before an oil and gas licensee can commence harvesting timber.

¹⁰ Mechanical Cuts are oil and gas exploration right of ways that are usually 3m wide.

¹¹ Hand cut lines are oil and gas exploration right of ways that are usually 1.5m in width.

According to the Timber Harvesting Practices Regulation, under section 21, “using alternate methods for stream crossings must be authorized” (MOFR, 1995). Therefore, the licensee under this regulation is clearly in the wrong; however, it should be noted that these unauthorized activities could have been avoided through proper regulation and monitoring on behalf of the OGC, which denied to do so during construction as noted in the FPB investigation report.

A second issue raised by the FPB’s (2001) audit report was the confusion surrounding the conflicting guidelines of multiple government entities on the construction and deactivation of snowfill stream crossings¹². According to the sequence of events that were outlined in the report, the OGC claimed that the licensee did not remove all of the snowfill stream crossings. On top of this, in the various photographs taken of the snowfill crossings, it was noted that there was debris in the snow. “The licensee stated that any debris that was left in the stream crossings could not have been removed without disturbing the channel banks or breaking the ice, thereby introducing more debris into the streams” (FPB, 2001). According to the FPC, Fish Stream Crossing Guidebook, “Snowfills are constructed by filling the channel with compacted clean snow (i.e., free of dirt and debris)” (MOFR, 2002); hence, dirty snow should not have been placed in the streams in the first place. However, before 2002, the MOFR district manager stated, “the MOFR does not approve the use of dirty fill in any stream, but acknowledges that snowfill crossings may end up containing some soil and debris” (FPB, 2001). On the other hand, the MELP and the Federal Department of Fisheries and Oceans stated, “the best management practices require stream crossings to be constructed with clean snow only” (FPB, 2001). To solve this problem of conflicting codes and guidelines on the proper establishment and deactivation of snowfill stream crossings, the FPB made several recommendations under section 185 of the Forest Practices Code of BC Act. One of these recommendations was as follows:

“Prior to 2001-2002 winter seismic operations, MOF, MWLAP and the OGC should meet, discuss and agree on the expectations for snowfill crossings. The agencies should also agree on an approach for enforcement of the Code, in the absence of a formal, structured enforcement system. The intent is to ensure that all enforcement direction and enforcement regarding stream crossings. Staff from Fort Nelson, Fort St. John and Dawson Creek should participate in the meeting. At the conclusion of the meeting, the OGC should consider the need for further communications to licensees regarding government’s expectations for stream crossings” (FPB, 2001).

For both issues brought up by the FPB’s (2001) audit report on the Little Hay River seismic line project, responsible forest stewardship was put at risk. This was partially due to a lack of communication between the licensee, the OGC and the MOFR, as well as due to a lack of enforcement by the OGC. However, it is important to note that upon the creation of the OGC in 1998, “it was not empowered to enforce provisions related to oil and gas activities covered by the FPC and its regulations” (FPB, 2001). This point therefore emphasizes the significance of the FPB recommendation presented above, as well as explains the commission’s lack of monitoring

¹² Snowfill is used for temporary stream crossings during the winter.

of the Little Hay River seismic line project. Despite any progress that has been made over the last few years in improving the level of communication between the OGC and oil and gas licensees, it is has been stated, that “with the passing of Bill 20 – 2008, Oil and Gas Activities Act, and hence an independent company self-policing framework, companies will cut corners, dodge responsibility, and prefer to pay penalties if they are ever caught” (Stuck, 2008).

II. OGC Road Construction and Deactivation Policy

Access to BC's valuable natural resources often requires the construction of new temporary or permanent resource roads. “Across BC there are approximately 650,000 km of resource roads – over 14 times the 45,000 km of public roads and this number is expected to increase by up to 30,000 km per year over the next 5 -10years” (The Forestry – Oil & Gas Task Force, 2006). Although the enhancement of the BC resource road network has many advantages, such as new access to previously inaccessible valuable resource areas, it should be recognized that, “the highest environmental risks related to forest practices are associated with pipelines, *roads*, and seismic lines, because of frequent stream crossings” (FPB, 2002). As a side note, it is also important to note that, “well sites are usually the lowest-risk areas because of their small size” (FPB, 2002). Hence, the proper construction, maintenance, and deactivation of roads by the oil and gas industry, acts as an important component of responsible forest stewardship.

However, current administrative complexity is found to not adequately promote the reduction of such risk. In fact, multiple issues exist around resource road policies that do not promote responsible forest stewardship at all. Of primary concern, is the fact that “currently resource road tenure and management is administered by separate government organizations which include the MOFR, the Ministry of Transportation and Infrastructure, the MOE, Mines and Petroleum Resources, the OGC, and the Ministry of Agriculture and Lands” (BC Gov't, 2007). The problem with having multiple entities, which can all authorize the construction of roads, is that they all contain different rules and regulations. For example, in the past “under the Land Act, roads were not subject to the guidelines of the FPC” (FPB, 2002). Today, according to the FPRA, under section 22 “road application”, if an oil and gas company pursues road construction authorization under the Land Act, that company is still not bounded by the regulations of the FRPA. In light of this issue, it has been found during past audits of the oil and gas industry by the FPB that companies generally only abide by the regulations of the Land Act for the construction of permanent access roads, while temporary roads were typically built under the rules and regulations of the Petroleum and Natural Gas Act and hence in accordance to the FRPA.

On top of different industries applying for road construction authorization under an array of different BC Acts, it has also been found that there has been a lack of proper communication between different industries as to what their current and future road construction plans and activities are. As a consequence, “this has led to multiple roads being built by different resource extraction industries to access the same geographical areas” (ABCFP, 2007). Poor communication resulting in multiple roads going to the same geographical locations clearly goes against responsible forest stewardship. It is also important to note that this lack of communication also leads to infractions of responsible forest stewardship during other oil and gas activities besides road construction, such as cutting seismic lines through Wild Life Tree Patches (WTP)

III. Timber Harvesting Policy

Obtaining a Licence to Cut

Under section 52.3 of the FRPA, “a person must not remove Crown timber unless authorized to do so under the Forest Act or an agreement under the Forest Act; under a grant of Crown land made under the Land Act; or under the Park Act” (FRPA, 2007). Under the Forest Act, oil and gas licensees are required to apply for a Master Licences to Cut (MLTC) in order to harvest timber. The components of a MLTC licence are as follows:

“(2) A master licence to cut

- (a) must be for a term not exceeding 5 years,*
 - (b) must require its holder to pay to the government, in addition to other amounts payable under this Act,*
 - (i) stumpage under Part 7, and*
 - (ii) waste assessments for merchantable Crown timber, whether standing or felled, that could have been cut and removed under the master licence to cut, but, at its holder's discretion, is not cut and removed,*
 - (c) must provide for cutting permits to be issued by the district manager, or a forest officer authorized by the district manager, within the limits provided in the master licence to cut and subject to this Act and the Forest and Range Practices Act, to authorize its holder to harvest Crown timber from specified areas within the area or areas of Crown land specified in the licence to cut, and*
 - (d) may include other terms and conditions that*
 - (i) are determined by the regional manager or district manager or by a forest officer authorized by either of them, and*
 - (ii) are consistent with this Act, the Forest and Range Practices Act, the Wildfire Act and any regulations or standards made under those Acts.*
- (3) The district manager or the forest officer authorized by the district manager must not issue to the holder of a master licence to cut a cutting permit for an area described in subsection (2) (c) unless*
- (a) the holder*
 - (i) has written authority from the government, or*
 - (ii) is authorized under an enactment*
 - to occupy that area, or*
 - (b) the cutting permit will facilitate harvesting for the purposes or circumstances referred to in section 47.4 (2) (b) (ii)” (MOFR, 1996).*

The implementation of MLTC licence process occurred back in 1998 along with the creation of the OGC. “The drive for the master agreement was the need to reduce administrative workload associated with the petroleum industry’s operations in the Fort Nelson, Dawson Creek and Fort St. John Forest Districts” (MEM, 1998). Since, a MLTC falls under the regulations of the Forest Act and hence the standards of the FRPA, oil and gas licensees promote responsible forest stewardship through applying for and abiding by them. However, a MLTC’s power over what an oil and gas licensee cuts is very limited which will become obvious in the section of this essay titled, *Annual Allowable Cut/How Much is Really Being Cut?*

Harvest Design

In most cases, Oil and Gas exploration involves the creation of seismic, 3D, and hand cut lines, that all vary in clearing width, but all can stretch for kilometres on end to potential resource

extraction points. The maximum widths and dimensions of such lines can be viewed under the OGC “Maximum Disturbance Review Criteria”, appendix III, page 30-33. The impacts that clearing exploration lines may have on wildlife and the environment are given as:

“Clearing activity may:

- disturb wildlife during sensitive breeding, nesting or over-wintering periods;
- displace wildlife temporarily or permanently from adjacent lands;
- fragment and alter the habitat on or along the right-of-way;
- improve hunter or predator access to previously remote wildlife populations; and,
- introduce noxious weed species to the area.

(Disrupting the surface cover (i.e., organic mat) in discontinuous permafrost areas may result in thawing of the permafrost and subsequent erosion).

While excessive clearing of vegetation can:

- increase the potential for erosion;
- contribute to timber blow-down damage;
- result in fragmentation of wildlife habitat and reduce biodiversity; and,
- limit the area’s ability to regenerate naturally” (CAPP, 2001).

The practice of developing 3D lines, also known as Low-Impact Seismic (LIS) avoidance lines, became a common practice at the beginning of this millennium. Today, the OGC requires all oil and gas exploration companies to use LIS avoidance lines to replace regular seismic lines whenever possible to limit the impact of oil and gas exploration on the environment. LIS avoidance lines differ from ordinary seismic lines in that they curve or rather deviate back and forth across the straight path line to their endpoints. Figure 5 demonstrates this difference in the Fort Nelson Forest District.



Figure 2: (MOFR, 2007b) Note the LIS avoidance line on the right and a regular straight seismic line on the left of the photo.

The specific characteristics of LIS avoidance lines are as follows:

- “LIS avoidance creates a narrow line. The width depends upon the cutting method, timber type, density, and snow cover depths.

Note: The Workers’ Compensation Board requires a minimum width of 1.5 m to allow six workers to carry a loaded basket stretcher.

- Lines are typically created using hand cuts.
- The line of the cut meanders, following the path of least resistance, avoiding merchantable timber and dense softwood stands, and providing line-of-sight blockage for wildlife.
- In heavily treed stands, or in wetlands where meandering may create a fire hazard, straight lines are cut with deliberate line-of-sight blockages every 400 m. A 200 m line-of-sight blockage is preferred in important wildlife areas (e.g., ungulate wintering habitat).
- Wheeled, low-ground-pressure track vehicles are used on these lines” (CAPP, 2001).

Despite the increased practice of LIS avoidance, many exploration lines are still cut in the straight-regular seismic line fashion. In some cases, exploration companies will go to extremes in order to keep a seismic line straight, including cutting through or removing entire Wildlife Tree Patches. In addition to this, “there have been occurrences in which WTPs were removed for oil gas pads for extraction” (ABCFP, 2007). In reference to this, the OGC states in the Operational Guidance for Oil and Gas Exploration and Development document that:

“Although it is not considered best management to remove trees from a WTP, if the selection process can find no other suitable site, we need to recognize that WTPs can be moved both spatially and temporally in order to meet industry needs and still meet biodiversity goals”(OGC, 2005).

Figure 6, is an example of the heavy use of straight seismic lines still used today in northeastern BC.



Figure 3: (MOFR, 2007): An array of Pipe, 3D, and Seismic Lines in the Fort Nelson Forest District.

Although LIS avoidance may be advancement in reducing the environmental impact of harvesting for oil and gas exploration and development, it does not alone constitute as responsible forest stewardship under forested landscape settings. Removing Wets temporally and/or spatially is a contradiction to responsible forest stewardship. WTPs cannot be simply moved, for “they must represent the natural timber seral stage of the particular cutblock prior to harvest” (MOFR, 2007b). Therefore, oil and gas industry policy does not fulfill the requirements of responsible forest stewardship in regards to harvesting design.

Annual Allowable Cut: How Much is Really Being Cut?

Annual allowable cut (AAC) is the amount of volume of timber that a forest licensee may harvest on a specific tenure on an annual basis. Provincial forest district AACs are determined by the chief forester of BC and are put into place as a means to regulate the amount of timber harvested from the Total Harvestable Land Base (THLB) of the province and to ensure sustainable forest management occurs. The process, which the Chief Forester employs to come up with the AAC for each forest districts is one that involves considering many different aspects that can be broadly categorized under three headings: social considerations (including First Nation’s values), economic considerations and environmental considerations.

“The overall concept of volume control or even in contrast an area control AAC to promote forest sustainability is not practiced or enforced by the OGC upon oil and gas licensees” (BCOGTF, 2006). However, to compensate for the forest harvesting activities of the oil and gas industry, the Chief Forester *tries to take* such activities into account when developing AACs for the forest districts of northeastern BC. For example in the Fort Nelson TSA, “net losses to the THLB included such disturbances to the land such as seismic lines and pipelines” (MOFR, 2006). “However, access roads and well sites, were not included in this calculation, therefore the Chief Forester came up with a proportional estimate to come up with total net loss of the THLB due to oil and gas activities” (BCOGTF, 2006). This information was also missing from the Fort St. John TSA, and therefore the Chief Forester made a similar proportional estimate to that of the Forest Nelson Forest District.

In light of the Chief Forester making deductions to the THLB to compensate for oil and gas activities in both Fort Nelson and Fort St. John Forest Districts, it remains unknown as to how much oil and gas licensees have and continue to harvest. “There are also critics of the Chief Forester that claim that the Chief Foresters estimation is to high” (BCOGTF, 2006). Due to this uncertainty, it is impossible to determine if the harvest rates of provincial forest districts that share the land with oil and gas activities are sustainable or not.

IV. Policy Surrounding the Reclamation of Abandoned Sites

The use of seismic lines, pipelines, and even well sites can be short lived and eventually require a reclamation process to rehabilitate the landscape to its former self. However, “although most of the area disturbed by oil and gas development originally supported productive forests, reclamation of such sites seldom involves reforestation as a primary goal” (Bulmer et. al, 2002). There are four main reasons why oil and gas sites may not be reforested once abandoned which are as follows:

1. The sheer costs associated with doing so (seismic and pipelines typically are km's in length in remote areas); and
2. The chance that an *orphaned site*¹³ may be reclaimed for further use in the near future.
3. An assumption that oil and gas sites cannot be successfully revegetated, especially with regards to abandoned well sites.
4. A lack of legislative enforcement that is present in the forest industry under the FRPA.

In addition to the four factors listed above, even though the FSJPP has specific criteria and indicators for reforestation, the OGC is not obligated to follow these as they are not an official participant of the pilot project.

Despite a lack of enforcement and the associated costs of land restoration, evidence from studies such as that performed by the Technical and Research Committee on Reclamation (TRCR) in 2002, show that some oil and gas companies are practicing reforestation. However the same study also found that “15% of the sample sites in the Dawson Creek area that were rehabilitated, had been reused within eight years” (Bulmer et. al, 2002). This sort of statistic only increases the perception amongst oil and gas licensees that reforestation is a waste of time. The TRCR study also found that “in reclamation work involving soil decompaction, fertilization, grass seeding, and tree planting operations, the cost associated with tree planting ranges approximately 35-40% of the total cost for reclamation, or \$1500 - \$2000 per hectare” (Bulmer et. al, 2002).

When an oil and gas licensee does attempt to rehabilitate an orphaned site, they are obligated to follow the OGC’s environmental practice standards. Under these standards, “an oil and gas licensee must restore vegetation on an abandoned well or test hole-site by either replanting native vegetation or by applying a suitable seed mixture” (OGC, 2007b). The specific criteria that apply to this standard are:

¹³ Orphaned Site: a well site lease that is abandoned either for good or temporarily.

"Criteria Specific Requirement:

a. Species

- *Seed mixtures must not increase the frequency or distribution of any weed species on the surface lease or on adjacent undisturbed ground.*
- *Seed mixtures must include species that are adapted to the climate and soil conditions of the Peace River region of British Columbia. (contact your local Ministry of Agriculture office if you require information or assistance)*
- *Native species must be similar to vegetation, which would occur naturally on undisturbed ground.*

b. Density

- *80% of the density on adjacent undisturbed ground.*

b. Height

- *80% of height on adjacent undisturbed ground.*

c. Health

- *Plants should be healthy based on a visual inspection of their vigour, height, and colour.*

d. Cover

- *The vegetation must cover > 80% of the soil surface if the species on the reclaimed site are similar to the vegetation on the adjacent undisturbed ground.*
- *Where the species composition on the reclaimed site is different from the vegetation on the undisturbed ground, or the undisturbed ground has been cultivated, vegetation on the reclaimed site must cover > 80% of the soil surface.*
- *Vegetation on the reclaimed site must be evenly distributed, or be similar to the distribution on the undisturbed ground" (OGC, 2007b).*

In addition to the OGC environmental practices summary document that is available for well sites and test holes, there is also an environmental practices summary document for pipelines. However the pipeline document makes no reference to standards that should be followed once a pipeline is no longer in use, and its rightaway no longer needs to be kept clear of vegetation. In addition to this, there is no OGC document that describes any reforestation actions for seismic or 3D cutlines.

The lack of reforestation standards for pipe, seismic, and cutlines as well as the lack of enforcement surrounding the reforestation of wellsites is quite concerning from a responsible forest stewardship point of view. Under the FRPA, forest licensees, are obligated to revegetate harvest areas, with strict penalties enforced for non compliance. These same regulations should be applied as well to the oil and gas industry, to aid in sustainable forest management. This is important due to the fact that "typically if harvested sites are not restocked either naturally or by planting right away, the ecology of northeastern BC allows for native grass species to quickly take over, therefore insuring a reduction in future timber supply" (MOFR, 1991).

Conclusion/Recommendations

The findings of this essay show that there are weak points in current oil and gas industry policy that prevent and discourage responsible forest stewardship in northeastern BC. "Forest stewardship is the care of natural resources taking into consideration the values of landowners and society" (ABCFP, 2002), yet oil and gas practices continue to disregard these values and in doing so, put sustainable forest management at risk. The greatest forest stewardship issues related to oil and gas industry policy include:

- a lack of monitoring and enforcement of oil and gas industry policy on behalf of the OGC;
- a lack of proper communication between the oil and gas industry and other industries sharing the same land base;
- a low level of diligence on the part of the OGC in keeping records of all resource roads being used, constructed, maintained, and deactivated by its employees;
- the industry follows road construction, maintenance, and deactivation regulations of Acts that are different from those used by other industries;
- a lack of diligence on behalf of the oil and gas industry in keeping records of the total area of land alteration it causes through the construction of seismic and pipelines, wellsites, 3D and hand cut exploration lines, and other land leases; and
- a lack of a cap on the volume or area of the timber harvested on an annual basis.

As the oil and gas industry continues to progress in its extraction of natural gas and oil in the province of BC, these issues must be dealt with as soon as possible. The following is a list of recommendations as to how oil and gas industry policy could be improved to further promote responsible forest stewardship in northeastern BC:

1. The OGC Act should be amended to insure that a BC Professional Forester and/or Professional Engineer is always present during oil and gas industry construction and planning phases to ensure responsible forest stewardship is always a top priority.
2. A single set of winter stream crossing guidelines amongst all ministries should be established, that is both clear and easy to understand.
3. A single set of minimum road construction and planning standards should be created that all ministries should abide by.
4. The OGC should keep records of all harvest activities so that, that information can be passed onto the Chief Forester on an Annual Basis, for Timber Supply Analysis.
5. Since it is unpractical to revegetate a pipeline, seismic line, 3D line, or well site directly after abandonment due to possible use again in the near future, such disturbances to the land should be spaced out as far as possible from each other to avoid serious forest fragmentation issues.

References Cited

- ABCFP. (2002). *Standards of Professional Practice: Guidelines for Interpretation*. Vancouver: Association of BC Forest Professionals.
- ABCFP. (2007). *ABCFP Response to the Forestry – Oil & Gas Task Force Report*. Vancouver: The Association of BC Professional Foresters.
- BC Gov't. (1998). *Debates of the Legislative Assembly*. (p. 11:7).
- BC Gov't. (2007). *Resource Road Legislation*. Retrieved March 2, 2009, from British Columbia: The Best Place on Earth: www.for.gov.bc.ca/mof/rra/
- BCMON. (2007). *British Columbia's Sustainable Forest Management: BC Forest Facts*. Vancouver: BC Market Outreach Network.
- BCOGTF. (2006). "Forest Stewardship in Areas with Forestry and Oil & Gas Development in Northeast BC – The Forest Professionals' Perspective". Vancouver: The BC Oil and Gas Task Force.
- CAPP. (2001). *Environmental Operating Practices for the Upstream Petroleum Industry: British Columbia - Geophysics*. Calgary: The Canadian Association of Petroleum Procedures.
- CAPP. (2005). *British Columbia's Oil and Natural Gas Industry*. Calgary: Canadian Association of Petroleum Products.
- Bulmer, M. K., et al. (2002). *Soil Productivity and Forest Regeneration Success on Reclaimed Oil and Gas Sites in the Dawson Creek Forest District*. Vernon: The Technical and Research Committee on Reclamation.
- FAIB. (2007). *Forest Analysis and Inventory Branch*. Retrieved April 11, 2009, from Ministry of Forests and Range: <http://www.for.gov.bc.ca/hts/tsa/tsa40/maps.htm>
- FAO. (2009, March 18). *Annex 6: Definitions and Basic Principles of Sustainable Forest Management in Relation to Criteria and Indicators*. Retrieved March 18, 2009, from FAO Corporate Document Repository: <http://www.fao.org/docrep/003/x6896e/x6896e0e.htm>
- FPB. (2001). *Seismic Line Crossings of Streams, East of Fort Nelson, BC: A Special Investigation Report*. Victoria: Forest Practices Board.
- FPB. (2002). *FPB/ARC/50: Audit of Forest Planning and Practices, and Forest Practices Code Enforcement in the Fort Nelson Forest District*. Victoria: Forest Practices Board.
- FPB. (2008). *Glossary of Board Terms*. Retrieved March 19, 2009, from The Forest Practices Board: <http://www.fpb.gov.bc.ca/content.aspx?id=1202>
- FPC. (1995). *Riparian Management Guidebook*. Victoria: Ministry of Forests and Range.
- FRPA. (2007). *The Forest and Range Practices Act*. Victoria: BC Gov't.
- FSJPPB. (2008). *Fort St. John Pilot Project – results-based legislation that works, Board Bulletin, Volume # 8*. Fort Saint John: Fort Saint John Pilot Project Board.
- Golder Associates Ltd. (1998). *Report on the Regulation of the Oil and Gas Industry in British Columbia*. unpublished.
- MEM. (1998). *Energy and Minerals Division: Information Letter*. BC, Canada: The Ministry of Energy and Mines.
- MEM. (2003). *Oil and Gas in British Columbia*. Fort Saint John: The Ministry of Energy and Mines.

- MOFR. (1991). *Ecosystems of BC*. Victoria: The Research Branch of the Ministry of Forests.
- MOFR. (1995). *Timber Harvesting Practices Regulation*. Victoria: Ministry of Forests and Range.
- MOFR. (1996). *The Forest Act*. Victoria: The Queen's Printer.
- MOFR. (2002). *Fish Stream Crossing Guidebook*. Victoria: Forest Practices Code.
- MOFR. (2003, February 4). *Overview of the Transition*. Retrieved February 27, 2009, from Ministry of Forests and Range:
<http://www.for.gov.bc.ca/code/training/fpc/overview.html>
- MOFR. (2006). *AAC Rationale for the Fort Nelson TSA*. Victoria: Ministry of Forests and Range.
- MOFR. (2007a). *Fort Nelson Forest District: Stewardship - Forest Stewardship Plans*. Retrieved February 27, 2009, from Ministry of Forests and Range:
<http://www.for.gov.bc.ca/dfn/Stewardship/fsp.htm>
- MOFR. (2007b). *Stand Level Biodiversity Management - Module 3-B, Wildlife tree patches (WTP)*. Retrieved March 20, 2009, from Ministry of Forests and Range:
<http://www.for.gov.bc.ca/hfp/training/00001/module03/tree-patches.htm>
- OGC. (1998). *Oil and Gas Commission Act*. Fort Saint John: BC Gov't.
- OGC. (2005). *Operational Guidance for Oil and Gas Exploration and Development for Northeast BC*. Fort Saint John: The Oil and Gas Commission.
- OGC. (2007a). *Environmental Practices Summary for Pipeline Projects*. Fort Saint John: Oil and Gas Commission.
- OGC. (2007b). *Environmental Practices Summary for Wells and Test Holes*. Fort Saint John: Oil and Gas Commission.
- Rankin, M. e. (2000). *Regulatory Reform in the British Columbia Petroleum Industry: The Oil and Gas Comission*. Calgary: Faculty of Law: University of Alberta.
- Stuck, W. (2008, April 9). *B.C. makes it easier for companies to exploit natural gas reserves*. Retrieved March 11, 2009, from Globe and Mail:
http://www.sqwalk.com/bc2008/001267.html#stueck_globe
- The Forestry – Oil & Gas Task Force. (2006). “*Forest Stewardship in Areas with Forestry and Oil & Gas Development in Northeast BC – The Forest Professionals' Perspective*”. Vancouver: ABCPF.

Appendix I

Forest Practices Code of British Columbia Act (© 1995)

Regulations and Their Impact on the Petroleum Industry

Regulation Name	Main Provisions	Anticipated Impact on Oil and Gas Operations
Strategic Planning	Rules to be followed by the chief forester in establishing resource management zones, landscape units for biological diversity, interpretative forest sites, and sensitive areas.	Sensitive areas may be defined and could affect permitting ¹ and allocation ² processes.
	Standards ³ publication is also authorized.	Although "standards" are not currently in force, they may be issued in the future and may affect future oil and gas operations.
Operational Planning Part 2	Submission requirements for forest development, 5 year silviculture, and access management plans.	Relevant particularly for access management plans.
	Referral requirements.	May be necessary for logging plans.
Operational Planning Part 3	Forest development plans.	Not applicable to oil and gas industry.
Operational Planning Part 4	Logging plans.	Mandatory for oil and gas operations.
Operational Planning Part 5-7	Silviculture prescriptions, stand management prescriptions and 5 year silviculture plans.	May apply in certain cases.
Operational Planning Part 8	Access management plans.	Not applicable to oil and gas industry.
Operational Planning Part 9	Range management.	Not applicable to oil and gas industry.
Operational Planning Part 10	Riparian management zones.	Restrictions to operations within designated riparian zones apply to oil and gas operations.
Forest Road	Generic regulations for road layout, design, construction, maintenance, and de-activation.	Access roads authorized under the <i>P&NG Act</i> or the <i>Land Act</i> MEMPR requirements will be consistent with the Code.
Timber Harvesting	Marking of features prior to commencing harvesting, yarding, skidding landings, special harvesting practices.	Relevant to all work sanctioned under license to cut provisions.
Forest Service Road Use	Speed restriction, traffic control.	Applicable where use is made of a forest road.
Administrative Remedies	Penalties for non-compliance, ranging from withholding logging plan approvals, to fines.	All parties including oil and gas operators conducting forest practices will be affected.
Administrative Review and Appeal	Procedures for requesting reviews of operational plans. Procedures for filing an appeal against administrative determinations.	Applicable to oil and gas companies which become involved in reviews or wish to appeal decisions.
Silviculture Practices	Reforestation, pesticides, survey requirements, soil rehabilitation.	Selective provisions will apply to oil and gas operations.
Provincial Forest Use	Primary and ancillary uses under the <i>Land Act</i> , <i>Wildlife Act</i> , and the need	Section 6 exempts oil and gas activities from this regulation.

	for "special use permits".	
Treecone and Vegetative Material	Regulations covering the collection of seeds.	Not applicable to oil and gas industry.
Performance-Based Harvesting	Provisions allowing the forest district manager to refuse to issue a license to cut because of failure to comply with the Code provisions.	Important provision which applies to oil and gas operations.
Forest Recreation	Provisions to regulate recreational activities in forested lands.	Not applicable to oil and gas industry.
Range Practices	Range practices, developments.	Not applicable to oil and gas industry.
Cutblock and Road Review	Restrictions on the clearcut operations of "major license holders".	Some road-related provisions may be applicable to oil and gas operations.
Forest Fire Prevention and Suppression	Fire fighting equipment, and fire risk assessments related to industrial activities.	Fire prevention provisions are applicable.

Appendix II

FOREST AND RANGE PRACTICES ACT

SBC 2002, c. 69

Part 2 – Forest Stewardship Plan, Site Plan and Woodlot Licence Plan

Division 1 – Forest Stewardship Plan

Forest stewardship plan required			
3	(1)	Before the holder of	
		(a) a major licence,	
		(b) a timber sale licence that requires its holder to prepare a forest stewardship plan,	
		(c) a community forest agreement,	
		(c.1) a community salvage licence, or	
		(d) a pulpwood agreement	
		harvests timber or constructs a road on land to which the agreement or licence applies, then, subject to section 4, the holder must prepare, and obtain the minister's approval of, a forest stewardship plan that includes a forest development unit that entirely contains the area on which	
		(e) the timber is to be harvested, and	
		(f) the roads are to be constructed.	
	(2)	Before the timber sales manager	
		(a) invites applications for, or enters into, a timber sale licence to which subsection (1) does not apply,	
		(b) grants a road permit to the holder of a timber sale licence referred to in paragraph (a), or	
		(c) constructs an access road to an area to be harvested under a timber sale licence referred to in paragraph (a),	
		then, subject to section 4, the timber sales manager must prepare and obtain the minister's approval of a forest stewardship plan that includes a forest development unit that entirely contains the area	
		(d) that will be the subject of the activities described in paragraphs (a), (b) and (c) of this subsection , and	
		(e) on which timber is to be harvested and roads are to be constructed.	
➔	(3)	Repealed. [2008-4-15(b) (B.C. Reg. 390/2008)]◀	
	(4)	A forest stewardship plan may apply to one or more of each of the following:	
		(a) holders of agreements under the <i>Forest Act</i> ;	
		(b) agreements under the <i>Forest Act</i> ;	
		(c) areas of land that are, or will be, subject to an agreement under the <i>Forest Act</i> .	
Exemption from forest stewardship plans			
4	(1)	If a forest stewardship plan held by the holder of a licence or an agreement referred to in section 3 (1) or by the timber sales manager referred to in section 3 (2) does not apply to an area outside the forest development unit to	

		which the plan pertains, in which area the holder or timber sales manager will harvest timber or construct a road, the holder or timber sales manager, as the case may be, is exempt in respect of the outside area from the requirement for a forest stewardship plan, but only for the following purposes:
		(a) harvesting timber to eliminate a safety hazard;
		(b) harvesting timber to facilitate the collection of seed, leaving an opening not greater than 1 ha;
		(c) removing felled trees from landings and road rights of way;
		(d) harvesting timber not exceeding a volume of 500 m ³ that, in the opinion of the minister,
		(i) is in danger of being significantly reduced in value, lost or destroyed, by insect infestation, fire or disease, or
		(ii) has been treated or will be treated by the holder or timber sales manager to facilitate the entrapment or elimination of pests;
		(e) other prescribed purposes.

→	(2)	A person is not required to prepare a forest stewardship plan under section 3 (1) or (2) for timber to be harvested or roads to be constructed if the timber harvesting or the road construction
		(a) is only for one or more of the purposes referred to in subsection (1) (a) to (e) of this section, or
		(b) is to be carried out in prescribed circumstances or under prescribed conditions. ←

Content of forest stewardship plan		
5	(1)	A forest stewardship plan must
		(a) include a map that
		(i) uses a scale and format satisfactory to the minister, and
		(ii) shows the boundaries of all forest development units,
		(b) specify intended results or strategies, each in relation to
		(i) objectives set by government, and
		(ii) other objectives that are established under this Act and that pertain to all or part of the area subject to the plan, and
		(c) conform to prescribed requirements.

	(1.1)	The results and strategies referred to in subsection (1) (b) must be consistent to the prescribed extent with objectives set by government and with the other objectives referred to in →subsection (1) (b) (ii). ←
	(2)	A forest stewardship plan must be consistent with timber harvesting rights granted by the government for any of the following to which the plan applies:
		(a) the timber supply area;
		(b) the community forest agreement area;
		(c) the tree farm licence area;
		(d) the pulpwood area.
	(3)	A forest stewardship plan or an amendment to a forest stewardship plan must be signed by the person required to prepare the plan, if an individual or, if a corporation, by an individual or the individuals authorized to sign on behalf of the corporation.

Term of forest stewardship plan		
6	(1)	The term of a forest stewardship plan
		(a) is the period, not exceeding 5 years, that the person submitting the plan for approval specifies at the time of submission, and
		(b) begins on the date specified in writing by the minister in approving the

			plan.
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	(2)	The minister by written notice given to the holder may extend the term of a forest stewardship plan, before or after it expires for an additional period not exceeding 5 years in the circumstances specified by regulation.
	(3)	The extended forest stewardship plan may include changes to the extent authorized by regulation.

Limited protection for forest development units			
7	(1)	A proposed forest stewardship plan must be considered to have received the minister's approval under section 16 (1) for the parts, if any, of the forest stewardship plan that pertain to	
		(a)	a cutting permit, road permit or timber sale licence if the permit or licence is in effect on the date of the submission of the forest stewardship plan to the minister, or
		(b)	an area that conforms to the prescribed requirements.
	(1.1)	A proposed forest stewardship plan must be considered to have received the minister's approval under section 16 (1) for the parts, if any, of the plan, including but not limited to results and strategies described in it, that pertain to a forest development unit that is in effect on the date of the submission of the forest stewardship plan to the minister unless	
		(a)	one or more of the following events occur during the period specified in subsection (2):
		(i)	an enactment applicable to the forest development unit is made or amended;
		(ii)	an objective set by government applicable to the forest development unit is established, varied or cancelled;
		(iii)	if specified by regulation, another objective applicable to the forest development unit is established, varied or cancelled by order under this Act;
		(iv)	an area of land in or adjacent to the forest development unit is designated by order under the regulations as a community watershed;
		(v)	a community watershed in or adjacent to the forest development unit is varied or cancelled by order under the regulations;
		(vi)	timber in the vicinity of the forest development unit has suffered catastrophic damage, and
		(b)	the minister considers that the forest development unit is inconsistent with the events described in paragraph (a) that occur.
	(2)	The specified period under subsection (1.1) begins 4 months before the date the existing plan was submitted for approval and ends 4 months before the date the proposed plan was submitted for approval.	

Mandatory amendments			
8	(1)	Subject to subsection (2), the holder of a forest stewardship plan, within the applicable period under subsection (1.1), must propose and submit for approval by the minister, amendments to the plan that take into account an event described in section 7 (1.1) (a) (i), (ii) or (iii) that affects an area under the plan.	

	(1.1)	The applicable period under subsection (1) is	
		(a)	2 years, or
		(b)	a longer period specified
		(i)	in an enactment referred to in section 7 (1.1) (a) (i),
		(ii)	in an objective set by government referred to in section 7 (1.1) (a) (ii), or

				(iii) in an order referred to in section 7 (1.1) (a) (iii).
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		(2)	If a different period than that described in subsection (1) is specified in relation to a forest stewardship plan for the purposes of this section in any	
			(a) objective for a wildlife habitat area established under the regulations, or	
			(b) objectives set by government referred to in paragraph (b) of the definition of that term in section 1 (1),	
		that different period applies to the forest stewardship plan instead of the period mentioned in subsection (1).		

Proportional objectives			
9		In prescribed circumstances, the minister may establish targets, in specified proportions between or among the holders of forest stewardship plans, for sharing the responsibility to obtain results consistent with objectives set by government.	

Appendix III

OGC Maximum Disturbance Review Criteria (©2003)

ACCESS ROUTES MDRC Code Requirements		
Project Planning and Application Preparation	Size and Spacing	Construction Techniques
<p>Clearings and setbacks</p> <ul style="list-style-type: none"> ➤ Use existing open seismics, cleared rights-of-way, existing abandoned trails, and/or other open corridors.* <p>Access</p> <ul style="list-style-type: none"> ➤ Details of access route, including presence and percent of slopes, width and condition of seismic lines to be used, should be submitted with application. ➤ Permanent access routes should run parallel to pipeline routes. ➤ In sensitive or Special Management Areas, companies should, where possible, coordinate access plans with other users. ➤ Variations to access width maximums must be approved by the OGC. ➤ New temporary well access on Crown Land, which requires new cut and/or stream crossings, must be applied for on the well application and must be clearly marked and labeled on maps. <p>Water Sources</p> <ul style="list-style-type: none"> ➤ Access to water sources can not be considered under the Application for Well Authorization and should be included on water use application.▼ <p>Photography and assessment reports</p> <ul style="list-style-type: none"> ➤ Submit any reports, photographs of the project area, assessments and/or studies** with application. ➤ Reclamation strategies should be submitted with the application. 	<ul style="list-style-type: none"> ➤ Temporary summer access roads should be no more than 15 metres wide if using borrow pits, and 20 metres wide if using ditch cut for padding. ➤ Temporary winter access shall be a maximum of 10 metres in width. ➤ Permanent access shall be a maximum of 20 metres wide. ➤ Standard corridor width for access roads with adjacent pipeline right-of-way is 25 metres. ➤ Variable width access should be considered in areas with challenging terrain or other features where extra operating area is required. ➤ A distance of 80 metres must be maintained between access and flare pits/stacks and flare line ends. 	<ul style="list-style-type: none"> ➤ Temporary summer access roads should not be constructed as high-grade roads. ➤ Where new construction methods are proposed, a concise supplement detailing material, design and operational information should be included with application. <p><i>Note: Materials with the potential to cause environmental damage or contamination by way of function, nature or composition (eg. aspen corduroy) will not be approved unless measures are taken to ensure no damage will occur.</i></p>

RIGHT OF WAY FOR PIPELINES MDRC Code Requirements

Project Planning and Application Preparation	Size and Spacing	Construction Techniques
<p>Clearings and setbacks</p> <ul style="list-style-type: none"> ▶ Use existing open seismics, cleared rights-of-way, existing abandoned trails, and/or other open corridors.* <p>Access</p> <ul style="list-style-type: none"> ▶ Locate pipeline right of way adjacent to well access and incorporate cleared areas of log decks, camps, etc. ▶ Should extra temporary work space be required due to excessive debris or snow load, and/or terrain limitations, details must be included with application (or amendment) for consideration. <p>Watercourses</p> <ul style="list-style-type: none"> ▶ A water use application is required for hydrostatic testing.▼ <p>Photography and assessment reports</p> <ul style="list-style-type: none"> ▶ Submit any reports, photographs of the project area, assessments and/or studies** with application. 	<p>▶ Standard pipeline right-of-way size is 15 metres. A total 25-metre wide corridor is acceptable when the pipeline runs adjacent to an access road.</p> <p>▶ Maximum corridor width of 50 metres may be allowed if there is a multi-use and/or multi-party use corridor (it is encouraged that companies locating pipelines as close as safely and functionally possible to limit disturbance).</p>	<p>▶ When crossing streams or creeks via bore or directional drilling techniques, alternate access routes should be considered if there are no crossing structures in place. New crossings will not be authorized, if an existing route is available.</p>

* Hand cut and avoidance type seismics are considered low impact disturbance. These should not be proposed as a new line if adjacent seismic or other linear corridors are within functional distance of operations.

** A fisheries study may be requested by the OGC for contentious crossings. A fisheries professional may be required to monitor construction in and around contentious crossing areas.

▼ Water sources required for drilling must be applied for as per Sec. 8 of the Water Act
<http://www.ogc.gov.bc.ca/documents/forms/streams/ogc-081shorttermwateruse.doc>

OTHER MDRC Code Requirements		
Project Planning and Application Preparation	Size and Spacing	Construction Techniques
<p>General</p> <ul style="list-style-type: none"> ▶ Locate log decks, borrow pits, temporary campsites, remote sums and work spaces in existing clearings. ▶ Centralized sites should be considered. <p>Temporary Camps and Decking Sites</p> <ul style="list-style-type: none"> ▶ If no clearings exist within operational area, site locations should be considered in the following order: <ol style="list-style-type: none"> a) Areas of disturbance created on the project b) Non-marketable vegetation/timber; non-commercial forest c) Immature deciduous/coniferous d) Mature deciduous/coniferous ▶ Centralized camps must not be located in gravel pits without sewage containment. <p>Borrow Pits and Remote Sumps</p> <ul style="list-style-type: none"> ▶ Should be tested to ensure appropriateness of site and results submitted with application. ▶ Water diversion will NOT be permitted from stocked borrow pits, or those occupied by nesting waterfowl or beavers. <p><i>Note: Signage should be posted at borrow pits, which have been stocked.</i></p> <ul style="list-style-type: none"> ▶ A permit is not required for water diversion from borrow pits. 	<p>Temporary Camps and Decking Sites</p> <ul style="list-style-type: none"> ▶ Standard campsite – 2400m² ▶ Standard decking site – 1200m² <p>Borrow Pits and Remote Sums</p> <ul style="list-style-type: none"> ▶ Typical borrow pit size is 4800 m² ▶ Standard remote sump size 3600 m² may be considered for multi-project use. A list of wells feeding the sump must be provided with application. 	<p>General</p> <ul style="list-style-type: none"> ▶ Where possible, feather the edges of new-cut clearings. <p>Borrow Pits</p> <ul style="list-style-type: none"> ▶ Within the clearing, pits should be set back 15 metres from the road edge for pipeline placement.

WELL SITES MDRC Code Requirements

Project Planning and Application Preparation	Size and Spacing	Construction Techniques
<p>Clearings and setbacks</p> <ul style="list-style-type: none"> ► Use existing clearings and multi-well pad drilling where possible. ► Well site edge (<i>and other associated disturbances</i>) must be setback from the breaks or banks of classified streams and water bodies (<i>as per Forest Practices Code Act</i>). <p>Access</p> <ul style="list-style-type: none"> ► Note or show route of potential pipeline right of way with well application. ► Avoid cutting new access to water removal sites. <p>Watercourses</p> <ul style="list-style-type: none"> ► Watercourses in the immediate vicinity of new disturbance should be identified and classified. ► Water required for drilling should be drawn from lakes or ponds greater than 5 hectares in area. A permit is required before water can be taken from natural water sources.▼ <p>Photography and assessment reports</p> <ul style="list-style-type: none"> ► Submit any reports, photographs of the project area, assessments and/or studies** with application. 	<ul style="list-style-type: none"> ► Standard wellsite is 14400 m² ► Well center must be a minimum of 80 metres from any public road or railroad right-of-way; and 100 metres if the content of the well is sour. ► Well sites may be located adjacent to pipeline right-of-ways and temporary access roads. Land owner/tenure holder consent is required if less than 60 metres between wellhead and right-of-way or access. ► Flare stacks must be at least 50 metres from the well center and must have a blackened area with a radius of 1.5 times the stack height, free of vegetation - 10m for cultivated areas and 30m for forested areas. ► Trailers located on leases must be 50 metres from the well center. 	<ul style="list-style-type: none"> ► Feather edge of the lease, deviating from the conventional square-shape. Blend site in with the landscape and consider aesthetics. ► Use low-impact construction techniques such as pad matting or muskeg flip.