

**Interim Operating Practices for Oil and Gas Activities
in Identified Boreal Caribou Habitat in
British Columbia**

September 22, 2011

Introduction

In June 2010, the Government of British Columbia (BC) approved the implementation of management activities for Boreal Caribou including protecting Boreal Caribou and their habitat from oil and gas activities and managing the size and mitigating the effects of the oil and gas footprint. The implementation of these activities has been described in a working plan, the “Implementation Plan for the Ongoing Management of Boreal Caribou (*Rangifer tarandus caribou* pop. 14) in British Columbia” (The Plan). The Plan identifies Government’s goals and objectives for Boreal Caribou management, as well as, the responsible agencies and organizations involved in delivering management activities.

The Oil and Gas Commission (OGC) is responsible for regulating oil and gas activities in BC. With regards to Boreal Caribou and their habitat, the OGC should consider Government’s objectives for the management of oil and gas activities as per the BCIP. In addition, the OGC must consider Government’s environmental objectives for Boreal Caribou when regulating oil and gas activities within identified Boreal Caribou ungulate winter ranges (UWRs) and wildlife habitat areas (WHAs) as stipulated in the *Environmental Protection and Management Regulation (EPMR)* under the *Oil and Gas Activities Act*.

In order to support the OGC in regulating oil and gas activities in identified Boreal Caribou habitat, Government staff and representatives from the oil and gas industry developed additional management operating practices (OPs). The OPs are intended to standardize the management of oil and gas activities in order to manage the size and mitigating the effects to Boreal Caribou and their habitat from industrial activity. The OPs are interim, as they will be reviewed by First Nations and members of the environmental community before being finalized. The Ministry of Environment will advise the OGC of any changes that result from these reviews and/or additional government policy. At present, these operating practices should be considered the best available information to support the management of oil and gas activities to support Boreal Caribou management.

Certain OPs may not be practicable given operational circumstances or conditions applicable to a particular area. As such, operators may need to recommend alternatives to the OPs to the OGC, to ensure the intent of the OPs will be achieved. It is expected that that the OPs will evolve and change based on experience in their use, the outcomes they produce, and research targeted at removing uncertainty in our understanding of Boreal Caribou management.

The purpose of this document is to provide guidance to the OGC in order to support regulating oil and gas activities in identified Boreal Caribou habitat. It is also intended to provide guidance to Government staff and industry practitioners when carrying out oil and gas activities within Boreal Caribou habitat.

The objectives of this document are:

- to identify oil and gas activities and their potential effects of these activities on Boreal Caribou and their habitat in BC;
- to describe OPs and operational guidance for oil and gas activities to minimize the potential effects of these activities on Boreal Caribou and their habitats; and,

- to promote shared stewardship between Government, OGC, and oil and gas practitioners to ensure oil and gas activities are consistent with Government’s commitments for managing Boreal Caribou in BC.

Background

In BC, Boreal Caribou UWRs provide caribou habitat features during the winter period, and are generally considered to be important for the survival of animals through this period. Boreal Caribou WHAs provide the broad, landscape-scale habitat features that are used during other critical periods, such as calving and rutting. In addition, they provide fine-scale calving features that are thought to provide natural predator avoidance capability, and are selected by calving caribou. Inherent to this definition, fine-scale habitat features can be identified within designated WHA polygons. For more information on the rationale for establishing UWRs and WHAs for Boreal Caribou, please refer to [Goddard 2009](#).

Operating Practice for UWRs

The management intent for oil and gas activities in UWRs is to limit activities that:

- significantly reduce terrestrial and arboreal lichen forage
- enhance predator mobility (primarily wolves)
- increase caribou visibility to predators (primarily wolves)
- enhance forage for, and thus production of, other ungulate (prey) species
- cause significant fragmentation of large tracts of annual range where caribou can exist at low densities as an anti-predator strategy and avoid linear corridors

Because the availability of suitable winter forage is not currently a limiting factor in Boreal Caribou habitat, and therefore is not a factor contributing to decline, the primary caribou decline pathways that are addressed within UWRs are (i) predator production and permeability (ease and efficiency of movement), and (ii) caribou mortality from predation. In order to meet the above biological and management intents, the following practices for oil and gas activity within Boreal Caribou UWRs have been identified:

Oil and Gas Activity	Operating Practice	Comments
Seismic and Geophysical Operations	<ul style="list-style-type: none"> • Mulchers and/or hand cutting must be used in clearing seismic lines. • Where technology and/or target depth permits, maximize common use of source and receiver lines. • Maximize source and receiver lines to follow existing or planned seismic survey lines to minimize the need for additional clearing • Source lines must be a maximum of 3m in width with 	

	<p>meandering avoidance techniques and sight line screens at least every 200m.</p> <ul style="list-style-type: none"> Receiver lines must not exceed a maximum of 2m in width with meandering avoidance techniques and sight line screens at least every 200m. Distance between source lines must be greater than 200m. 	
<p>Roads:</p> <p>1) Right-of-way (ROW) Roads</p>	<ul style="list-style-type: none"> all weather road must be < 20 m low grade access road must be < 15 m winter, frozen ground access trails must be <10 m 	<p>Road ROWs should incorporate variable widths, pullouts and shared workspaces to minimize overall ROW width (this applies only to road ROWs, and not to shared infrastructure ROWs).</p> <p>An OGC permit holder who constructs or maintains a road must ensure clearing widths are of the minimum width necessary to accommodate the road, having regard to all of the following:</p> <ul style="list-style-type: none"> the safety of industrial users the topography of the area the drainage of water in the area the stability of terrain in the area operational requirements, including <ul style="list-style-type: none"> the placement of pits, quarries, landings or waste areas the storage of bridge or culvert material the amount of area required to operate equipment within the clearing width, including equipment turnaround sites, snow removal, and fencing and other ancillary structures. <p>In the event, the right-of-way widths as proposed in this document are impractical, the onus is on the industrial developer to demonstrate "operational need" to the regulator, and the steps that will be taken to mitigate any impact to Boreal Caribou and their habitat in the vicinity of the development.</p>
<p>2) Ploughed Roads</p>	<ul style="list-style-type: none"> where roadside snow berms reach greater than 1.5 m in height, create breaks in snow berms every 500 m 	<p>Breaks in snow berms facilitate caribou movement across and off the road.</p> <p>Ensure that breaks on either side of the road are opposite one another, and not offset.</p> <p>Snow berm break placement should coincide with potential and known movement caribou corridors.</p>
<p>3) Shared Road</p>	<ul style="list-style-type: none"> Must use common access corridors. No additional road will be constructed that parallels existing 	

	road and/or linear feature if the proposed road is within a corridor or 400 m wide along an existing road or linear feature for greater than 2 km.	
4) Speed Limits	<ul style="list-style-type: none"> • Post winter speed limits of 80 km/hr on high-grade roads and 60 km/hr on secondary roads within UWRs 	
Line-sight for linear features	<ul style="list-style-type: none"> • Implement line-of-sight management every 500m on linear features (those not sharing a ROW boundary with a road). <p>Use any one or combination of the following techniques:</p> <ul style="list-style-type: none"> • line-blocking using woody debris (or slash) spread across or piled on the ROW • constructing earthen berms to control access and break the line-of-sight • tree planting, willow staking, and/or excavator mounding at strategic locations (including at woody debris and berming locations) for access control and for the creation of micro-sites to promote seedling and seed establishment • creating doglegs at intersections with access roads • encouraging shrub bands across the ROW (native and tall shrub species) • using HDD or boring under Class S1 to S5 streams to leave riparian vegetation in place • minimizing root mat and duff disturbance to promote revegetation (e.g., frozen ground construction) • avoiding the cutting of large diameter trees • meandering linear features through forested areas (e.g., seismic lines) 	In the event the ROW line of sight barriers are impractical or inappropriate as proposed above, the onus is on the industrial developer to demonstrate "operational need" to the regulator, and the steps that will be taken to mitigate any impact to Boreal Caribou and their habitat in the vicinity of the development.
Pipeline Construction	<ul style="list-style-type: none"> • Where the top height of potential barriers (pipe string, soil stockpiles, windrows) exceeds 1.5 m for 72 hrs conduct the following: • retain breaks in pipe sections every 500 m • create breaks in soil stockpile every 500 m • create breaks in windrows every 500 m 	
Well Sites and Pads	<ul style="list-style-type: none"> • Any single well site must not exceed 2 hectares • Maximize the number of wells per pad by using multi-well pads when drilling directional, slant, or horizontal wells, and where multiple downhole targets can be technically reached depending on technical or economic constraints (e.g., target depth, lateral distance, etc.). 	In the event multi-pad horizontal wells are impractical or inappropriate as proposed, the onus is on the industrial developer to demonstrate "operational need" to the regulator, and the steps that will be taken to mitigate any impact to Boreal Caribou and their habitat in the vicinity of the development.
Reclamation and Restoration	<ul style="list-style-type: none"> • Permanently decommission infrastructure to state of functional habitat restoration as soon as practical. • Implement interim reclamation program 	Interim reclamation serves to minimize the immediate development footprint, while at the same time contributing to efficient final reclamation activities. Interim reclamation includes revegetating non-operating portions of well pads, facility sites, and camps to a conifer trajectory as soon as possible (thereby minimizing real-time industrial footprint, promoting soil conservation and subsequent

		reclamation efforts, and discouraging the emergence of browse and forage for other ungulates).
Surface disturbance	<ul style="list-style-type: none"> • Use minimum-disturbance access techniques for short-term and low-impact activities (e.g., gravel exploration, micro-seismic, surface water monitoring infrastructure) such as: <ul style="list-style-type: none"> - track pads - equivalent to frozen ground access - use of existing linear features - minimal width clearing - matting 	
Stewardship	<ul style="list-style-type: none"> • Develop and deliver boreal caribou education sessions for company employees and contractors where developments are planned within UWRs. • No firearms are allowed in possession of company employees or contractors, except for authorized safety purposes. • Only working animals are allowed in possession of company employees or contractors. • No use of personal snowmobiles, ATVs or other motorized recreational vehicles by company employees or contractors when resident on company lands and facilities within UWRs. 	

Operating Practices for WHAs and Identified Calving Habitat

The biological intent of WHAs is to provide calving caribou with landscape-scale security from predation and isolation from disturbance. Consequently, the management intent for industrial development in WHAs is to broadly address the calf predation decline pathway for caribou, which is accomplished across the WHA by limiting:

- predator permeability and mobility (primarily wolf)
- caribou visibility to predators (wolf and black bear)
- forage for, and thus production of, other ungulate (prey) species (moose and deer)

In addition to managing industrial activity within WHAs, there is also a need to more aggressively manage industrial activity at or near fine-scale calving features that are selected and used by caribou at certain times of the year. Calving Boreal Caribou in BC are believed to select lake complexes for calving, which are defined as lakes 1 – 20 ha in size that are within 200 m of each other, and buffered around the perimeter by 250 m. For the purpose of management, these lake complexes will be identified and defined as fine-scale features. Managing fine-scale features is an interim step that will require further research to verify caribou use. This research may suggest changes to the identification of fine-scale features and/or OPs to ensure ongoing use.

The biological intent of these fine-scale features is to provide calving female caribou and newborn calves with areas of security from predation and isolation from disturbance. Consequently, the management intent for industrial development is specifically to address the calf mortality and predation decline pathway for caribou, which is accomplished by limiting:

- disruption of birthing processes
- disruption of cow-calf bonding processes
- disruption of post-natal care and feeding

In order to meet the above biological and management intents, the following industry practices are required for oil and gas activity within Boreal Caribou WHAs and fine-scale features:

Oil and Gas Activity	Operating Practice	Comments
All oil and gas activities	<ul style="list-style-type: none"> • Activity (as defined under the <i>Oil and Gas Activities Act</i>) shall not be commenced on any site/location within WHAs during April 15th to June 30th, unless the activity is demonstrated as ongoing effective April 15th. • No oil and gas activity within mapped fine-scale features within boreal caribou WHAs. 	<p>The fine-scale features will be identified and maintained by OGC and be made available to industry.</p> <p>In the event, there is no existing access, or it is impractical to use existing access, or avoid conducting oil and gas activity within WHA and fine-scale habitat features, the onus is on the industrial developer to demonstrate "operational need" to the regulator, and the steps that will be taken to mitigate any impact to Boreal Caribou and their habitat in the vicinity of the development.</p> <p>Oil and gas activity as defined under the <i>Oil and Gas Activities Act</i></p>
Seismic and Geophysical Operations	<ul style="list-style-type: none"> • No seismic activity during April 15 to June 30 • Mulchers and/or hand cutting must be used in clearing seismic lines. • Where technology and/or target depth permits, maximize common use of source and receiver lines. • Maximize common use of source and receiver lines. • Maximize source and receiver lines to follow existing or planned seismic survey lines to minimize the need for additional clearing • Source lines must be a maximum of 3m in width with meandering avoidance techniques and sight line screens at least every 200m. • Receiver lines must not exceed a maximum of 2m in width with meandering avoidance techniques and sight line screens at least every 200m. • Distance between source lines must be greater than 200m. 	
Infrastructure development (e.g., roads, facilities, and pipelines)	<ul style="list-style-type: none"> • No new infrastructure development during April 15 to June 30. • No new camp sites, equipment lay down areas, or 	

	<p>airstrips.</p> <ul style="list-style-type: none"> No cutting activities for infrastructure development during April 15 to June 30. 	
<p>Roads:</p> <p>1) Right-of-way (ROW) Roads</p>	<ul style="list-style-type: none"> all weather road must be < 20 m low grade access road must be < 15 m winter, frozen ground access trails must be <10 m 	<p>Road ROWs should incorporate variable widths, pullouts and shared workspaces to minimize overall ROW width (this applies only to road ROWs, and not to shared infrastructure ROWs).</p> <p>An OGC permit holder who constructs or maintains a road must ensure clearing widths are of the minimum width necessary to accommodate the road, having regard to all of the following:</p> <ul style="list-style-type: none"> the safety of industrial users the topography of the area the drainage of water in the area the stability of terrain in the area operational requirements, including <ul style="list-style-type: none"> the placement of pits, quarries, landings or waste areas the storage of bridge or culvert material the amount of area required to operate equipment within the clearing width, including equipment turnaround sites, snow removal, and fencing and other ancillary structures. <p>In the event, the right-of-way widths as proposed in this document are impractical, the onus is on the industrial developer to demonstrate "operational need" to the regulator, and the steps that will be taken to mitigate any material adverse effect to boreal caribou and their habitat in the vicinity of the development.</p>
<p>2) Ploughed Roads</p>	<ul style="list-style-type: none"> where roadside snow berms reach greater than 1.5 m in height, create breaks in snow berms every 500 m. 	<p>Breaks in snow berms facilitate caribou movement across and off the road.</p> <p>Ensure that breaks on either side of the road are opposite one another, and not offset.</p> <p>Snow berm break placement should coincide with potential and known movement caribou corridors.</p>
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Reclamation and Restoration	<ul style="list-style-type: none"> • Permanently decommission infrastructure to state of functional habitat restoration as soon as practical. • Implement interim reclamation program 	Interim reclamation serves to minimize the immediate development footprint, while at the same time contributing to efficient final reclamation activities. Interim reclamation includes revegetating non-operating portions of well pads, facility sites, and camps to a conifer trajectory as soon as possible (thereby minimizing real-time industrial footprint, promoting soil conservation and subsequent reclamation efforts, and discouraging the emergence of browse and forage for other ungulates).
Surface disturbance	<ul style="list-style-type: none"> • Use minimum-disturbance access techniques for short-term and low-impact activities (e.g., gravel exploration, micro-seismic, surface water monitoring infrastructure) such as: <ul style="list-style-type: none"> - track pads - equivalent to frozen ground access - use of existing linear features - minimal width clearing - matting 	
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	<p>company employees or contractors.</p> <ul style="list-style-type: none">• No use of personal snowmobiles, ATVs or other motorized recreational vehicles by company employees or contractors when resident on company lands and facilities within WHAs.	
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