

DE BEERS
GROUP OF COMPANIES

**Gahcho Kué Project
Wildlife and Wildlife Habitat Protection Plan**

May

2013

VERSION HISTORY

Version	Changes	Date
1	not applicable	May 2013

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1 INTRODUCTION

1.1 BACKGROUND

De Beers Canada Inc. (De Beers) has proposed to develop an open-pit diamond mine and processing plant at Kennady Lake, Northwest Territories (NWT), called the Gahcho Kué Project (Project). An environmental impact statement (EIS) for the Project was submitted to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) in December 2010 (De Beers 2010a) and a subsequent EIS Update (De Beers 2011) and EIS Supplement (De Beers 2012) were also submitted. As part of the Environmental Impact Review (EIR) process, De Beers collaboratively developed a draft Wildlife Effects Monitoring Plan (WEMP) with government and aboriginal party representatives. In 2013, De Beers updated the WEMP and included a companion document Wildlife and Wildlife Habitat Protection Plan (WWHPP) based on participation in Government of the Northwest Territories (GNWT) sponsored workshops and meetings. One of the requirements of this permitting process is the establishment of a WWHPP, pursuant to Section 26 (1) of the *Mackenzie Valley Land Use Regulations*, which states that the Mackenzie Valley Land and Water Board (MVLWB) may include in a land use permit conditions respecting the protection of wildlife habitat. The WWHPP is a how-to manual for mitigating and monitoring potential local effects and wildlife interactions at the Project site.

This WWHPP document follows the Draft Wildlife and Wildlife Habitat Protection Plan Template, provided by ENR (dated April 2013). Section 2 provides a brief description of the Project and the anticipated activities at the mine. Section 3 describes some of the potential impacts to wildlife from the mine, and the species at risk that may be present. Section 4 outlines mitigation to reduce local impacts, and Section 5 lists the monitoring protocols that will be implemented to monitor mitigation and local impacts. Section 6 describes the proposed reporting schedule, and Section 7 describes the proposed adaptive management procedures.

The WWHPP is a supporting document to the Project WEMP (De Beers 2013a), and should be considered in combination with the WEMP.

1.2 CONTENT AND OBJECTIVES

This WWHPP outlines the policies, practices, designs, and procedures that De Beers will implement to reduce Project-related effects to wildlife and wildlife habitat. The WWHPP is based primarily on experience at the Snap Lake Mine but also includes lessons learned at other NWT mines. The intent is to reduce

effects to wildlife, and maintain safety for wildlife and personnel at the Project site. The effectiveness of mitigation and management practices and policies is determined through the wildlife monitoring program. References to operating procedures relevant to wildlife mitigation and management will be listed in this document.

The objectives the WWHPP include the following:

- to provide a list of mitigation policies and procedures aimed at preventing or reducing Project-related effects on wildlife;
- to describe the means to protect people from wildlife;
- to provide a means for regulators and communities to participate in the development of mitigation relevant to wildlife;
- to meet requirements of the *Species At Risk (NWT) Act* and the Mackenzie Valley Land Use Regulations;
- to determine the effectiveness of environmental design features and mitigation; and
- to provide mine managers with information for making decisions regarding environmental management.

These objectives will be achieved by:

- considering current practices and lessons learned at existing mines in the NWT or similar environments;
- providing a process for regulators, communities and other people interested in the Project to participate in the protection of wildlife and wildlife health;
- incorporating local ecological knowledge; and
- monitoring direct effects to wildlife and wildlife health and the success of mitigation.

1.3 COMMUNITY INVOLVEMENT

Involving communities in wildlife mitigation and monitoring is important so that they can judge for themselves how well De Beers is doing at reducing effects to wildlife, and to identify further mitigation. De Beers has and will continue to provide opportunities for communities to share their views. Recommendations for including local and traditional knowledge (TK) in wildlife mitigation and monitoring as suggested to De Beers during the 2012 community engagement activities, and which are being considered for the Project include the following:

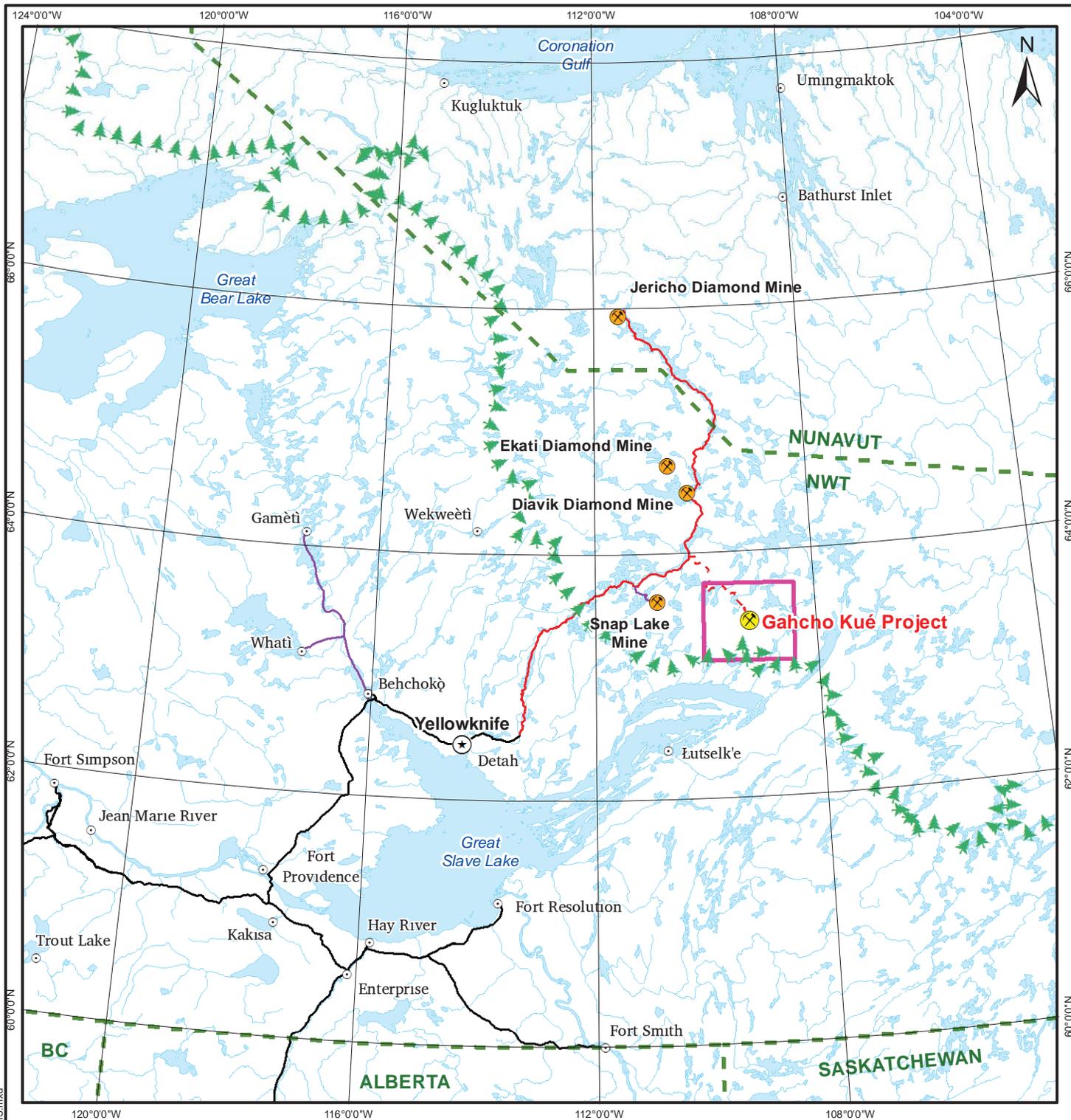
- including input from communities to reflect their priorities in the WEMP and the WWHPP;
- providing opportunities for community members to participate in monitoring;
- involving community representatives in adaptive management;
- providing opportunities for ongoing visits to the Project by community representatives;
- providing updates to communities as the Project progresses;
- employing a senior level TK Position at De Beers;
- providing a cabin at Kirk Lake for community-based monitoring and TK cultural events;
- initiating a survey by community-based monitors if caribou are present near the Project Winter Access Road while the winter road is active; and
- using public education materials and signage on conservation and hunting from the Project Winter Access Road.

2 PROJECT DESCRIPTION

The Project, as proposed by De Beers, consists of an open pit mine located at Kennady Lake. The Project is located approximately 80 kilometres (km) southeast of the Snap Lake Mine, approximately 140 km northeast of Łutselk'e, and 280 km northeast of Yellowknife (Figure 2-1). Kennady Lake is approximately 870 hectares (ha) and located in the headwaters of the Lockhart River system, which flows into Great Slave Lake, approximately 340 km downstream. Infrastructure required at the Project includes:

- three open pits;
- a mill to process kimberlite;
- mine rock and processed kimberlite containment areas;
- effluent treatment facility;
- accommodations and truck shop;
- roads and an airstrip;
- waste management facilities such as a sewage treatment plant, incinerator, and waste storage areas; and
- ancillary equipment and support facilities and infrastructure.

The Project is located in the Southern Arctic Ecozone, characterized by barren-grounds and exposed bedrock, although there are isolated patches of spruce trees near the Project. Terrestrial wildlife that define the area include barren-ground caribou of the Bathurst herd, present predominantly in the spring and fall, grizzly bears, wolverine, wolves, arctic hare, and migratory songbirds, raptors and waterfowl.



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LEGEND

- Gahcho Kué Project
- Existing Mine
- Territorial Capital
- Populated Place
- Highway
- Existing Winter Road
- Tibbitt-to-Contwoyto Winter Road
- Winter Access Road
- Watercourse
- Waterbody
- Territorial/Provincial Boundary
- Treeline
- Regional Study Area

NOTES

Base data source: The Atlas of Canada

GAHCHO KUÉ PROJECT

Location of the Gahcho Kué Project

PROJECTION: Canadian Lambert Conf. Conic	DATUM: NAD83
Scale: 1:5,000,000	



FILE No: B2012-Wild-001-GIS	DATE: September 19, 2012
JOB NO: 11-1365-0012	REVISION NO: 1
OFFICE: GOLD-SAS	DRAWN: DC CHECK: JV

Figure 2-1

3 POTENTIAL IMPACTS TO WILDLIFE AND WILDLIFE HABITAT

Potential impacts to wildlife and wildlife habitat from the Project are divided into three categories in the EIS, and in this document. These categories are:

- direct habitat loss, describing the immediate loss of vegetation and other wildlife habitat from the physical Project footprint;
- indirect habitat loss, describing the changes to habitat use that occur beyond the physical Project footprint, from factors such as noise and dust; and
- Project-related mortality.

While the WEMP is designed to monitor for potential indirect regional effects, this WWHPP provides the monitoring for mitigation specific to those effects that occur within the direct physical Project footprint and any Project-related wildlife mortality. A summary of these potential impacts and lessons from experience at existing mining operations in similar environments is provided.

Concerns regarding wildlife at mines are not new in the NWT. Three diamond mines, including Ekati, Diavik, and Snap Lake have been developed and operate in the north-central NWT, and Jericho in Nunavut over the last 10 to 15 years. Various mitigation designs have been implemented, monitored and evaluated at these mines to limit effects to wildlife. Over time, some have been altered through the adaptive management process. This WWHPP draws on the lessons learned at other developments, and applies these improvements to the Project. Documents from other mines that were reviewed in the preparation of this WWHPP included the following:

- the Snap Lake Wildlife Effects Monitoring Program Update (De Beers 2013b);
- the Snap Lake Wildlife Management Plan (De Beers 2008);
- the Jericho Diamond Project Wildlife Mitigation and Monitoring Plan (Tahera 2005);
- the Diavik Diamond Mine Wildlife Monitoring Report (DDMI 2013);
- the Ekati Diamond Mine Wildlife Monitoring Report (BHPB 2010);
- the Snap Lake Mine Wildlife Monitoring Report (De Beers 2013c); and
- Reports from two diamond mine wildlife monitoring workshops (Marshall 2009; Handley 2010).

Some of the improvements documented in these reports include improved landfill practices, use of fencing, building skirts, employee education, and monitoring site nesting activity by raptors. A summary is provided below.

Carnivores and scavengers (particularly fox and ravens) may become attracted or habituated to mine sites if they are fed by staff or have access to food waste (CWS 2007). This has been an on-going concern at the mines. A major improvement in mitigation occurred with a re-design of the Ekati landfill in 2002. Prior to the changes, the landfill was a stand-alone facility, covered occasionally with waste rock. In 2002, Ekati incorporated the landfill directly into the waste rock pile. This led to much more frequent covering of garbage. Following this, and improvements to employee education, the percent of landfill inspections where attractants were observed dropped from over 90% to 65% between 2001 and 2003 (BHPB 2004). This also led to a reduction in the number of scavengers present at the landfill. For example, observations of ravens dropped from 13 occurrences in 2001 to one occurrence in 2003 (BHPB 2002, 2003). There are indications that improved and continual employee education has resulted in a decrease in the presence of scavengers and food waste items at landfills (BHPB 2010; DDMI 2010). The use of skirting on buildings has also successfully prevented wildlife from accessing the area underneath buildings as shelter or dens (BHPB 2008), although frequent monitoring of the integrity of the skirting is necessary.

Electric fencing, flagging, and inukshuks have all been used in an attempt to deter caribou from airstrips and roads at mine facilities, with varying success. At the Ekati Diamond Mine, six caribou have been entangled in the electric fence surrounding the airstrip from 2001 through 2009 and four of these animals died (BHPB 2003, 2005, 2010). At the Diavik Diamond Mine, a caribou became entangled in an electric fence, and was then killed by a grizzly bear (DDMI 2006).

Only a small number of vehicle collisions have occurred with animals at the mines and the Tibbitt-to-Contwoyto Winter Road (EBA 2001; Tahera 2006; BHPB 2010; DDMI 2010; De Beers 2010b), Where collisions did occur, they were often linked to poor visibility due to fog or blowing snow. However, the number of occurrences has been few considering the volume of traffic at the mines and winter roads. Providing wildlife with the right-of-way, speed limits, and regular communication between drivers about the presence of wildlife have been effective at limiting wildlife injuries or mortalities caused by vehicle collisions.

Monitoring has been introduced to detect possible nesting by raptors and ravens within the mines. At Ekati in 2002 there were two instances of rough-legged hawks nesting or attempting to nest within open pits, and a peregrine falcon nested on the stairs of a fuel tank (BHPB 2002). Following these instances,

monitoring was implemented each spring to detect nesting behaviour before egg-laying occurred. BHPB (2010) describes the Pit Wall Monitoring program at Ekati, while Wildlife Surveillance Monitoring is proposed for the Project. Mitigation is case-by-case, but may include removing the nest or isolating the area from disturbance, depending on the level of risk to the birds (BHPB 2003).

The following section summarizes the policies, practices, designs, and procedures derived from lessons learned at these developments. Further detail will be provided in the Safety, Health, and Environment Operational Procedures and Technical Procedures for the Project.

3.1 OVERLAP WITH THE WILDLIFE EFFECTS MONITORING PROGRAM

The WWHPP and WEMP have different objectives. The WWHPP includes wildlife mitigation and monitoring of direct effects, while the WEMP describes monitoring of indirect effects that will take place outside of the Project footprint.

The WWHPP and WEMP are distinct because they fulfill different regulatory requirements. The WWHPP includes the protection policies and practices that are enforceable by the Mackenzie Valley Land and Water Board (MVLWB) under Section 26(1)(h) of the *Mackenzie Valley Land Use Regulations* (stating that the Board may include permit conditions respecting protection of wildlife habitat and fish habitat). By contrast, the WEMP is considered to be a 'follow-up program' under the *Mackenzie Valley Resource Management Act*.

3.2 SPECIES AT RISK

The intent of the *Species at Risk Act*, and the *Species at Risk (NWT) Act* is to protect species at risk from becoming extirpated or extinct as a result of human activity. While the former was enacted by the Government of Canada, the latter was enacted by the GNWT and applies only to wild animals and plants managed by the GNWT (ENR 2010). Species may be considered At Risk as a result of either their national or territorial status. As the *Species At Risk (NWT) Act* is implemented, the NWT Species at Risk Committee will make further assessments, and the Conference of Management Authorities will prepare the List of Species At Risk, providing legal protection for these species (NWT SAR 2013), and possibly leading to changes in the species at risk considered for the Project.

There are six wildlife species at risk with ranges that are known to overlap or likely overlap with the Project (Table 3-1). In the case of migratory birds, only those birds that breed or winter near the Project were included; other species that may migrate through the area were not included.

Table 3-1 Species at Risk for the Gahcho Kué Project

Species	SARC Assessment	NWT List of Species at Risk	COSEWIC Assessment	Federal Species at Risk Act list
Grizzly Bear (western population)	n/a	no status	special concern	no status
Wolverine (western population)	n/a	no status	special concern	no status
Horned Grebe (western population)	n/a	no status	special concern	no status
Peregrine Falcon (anatum-tundrius complex)	n/a	no status	special concern	no status
Rusty Blackbird	n/a	no status	special concern	special concern
Short-eared Owl	n/a	no status	special concern	Schedule 3

Source: NWT SAR (2013).

COSEWIC = Committee on the Status of Endangered Wildlife in Canada; NWT = Northwest Territories; SARC = Species At Risk Committee for the NWT; n/a = not applicable.

4 WILDLIFE AND WILDLIFE HABITAT MITIGATION

The mitigation and management designs, policies, practices, and procedures that De Beers plans to implement to reduce Project-related effects to wildlife abundance and distribution are collectively referred to here as mitigation. This document divides effects into three categories, and proposes mitigation specific to each:

- direct habitat loss;
- indirect habitat loss; and
- Project-related mortality.

The WEMP (De Beers 2013a) focuses on indirect habitat effects and provides regional data to ENR for the assessment and management of cumulative effects. The WEMP will also attempt to evaluate the effectiveness of mitigation and results will be reported annually and used to determine if adaptive management actions are required (WLWB 2010).

4.1 DIRECT HABITAT LOSS

Direct effects to wildlife populations includes the physical disturbance and loss of habitat (e.g., upland and riparian vegetation, wetlands, and water), which results in the direct displacement of wildlife. Direct habitat disturbance occurs through the construction of the Project footprint, such as the creation of roads, mine rock piles, core mine facilities, and increased water levels in some local lakes and streams. Mitigation proposed to reduce direct habitat loss includes the following:

- keep mine footprint as compact as possible;
- cover and contour pipelines so it will not be a barrier to wildlife movement;
- promote natural re-vegetation and practice progressive reclamation as the mine develops;
- backfilling the mined-out pits with processed kimberlite and mine rock will decrease the on-land Project footprint; and
- maintain downstream flows within baseline levels.

4.2 INDIRECT HABITAT LOSS

Indirect effects to wildlife are associated with changes in habitat that can alter the movement and behaviour of individuals in the vicinity of mine sites. Examples of sensory disturbance may include dust on vegetation reducing forage quality, or noise from the Project leading to avoidance by wildlife. Sensory disturbance can reduce habitat quality for wildlife where vegetation remains intact. The mechanisms of indirect effects are poorly understood, but are probably related to dust, noise, human activity, changes to vegetation communities, and memory of previous encounters with industrial development. The following mitigation is proposed to reduce indirect habitat effects to wildlife populations.

- regular application of water (or alternative dust suppression products) to roads, airstrip, and laydown areas to limit fugitive dust emissions;
- enforcing speed limits should assist in reducing production of dust;
- enclose processes that create dust (such as rock crushing), where feasible;
- maintain a minimum flying altitude of 650 metres (m) above ground level (except during takeoff and landing) for cargo and passenger aircraft outside of the Project site (see ENR Flying Low brochure, Appendix B);
- limit as many equipment noise sources as possible by locating them inside buildings;
- recreational use of all vehicles will be prohibited; and
- environmental sensitivity training for personnel.

4.3 PROJECT-RELATED MORTALITY

Occasionally, mining operations lead to the direct mortality of wildlife. This may be either accidental (such as vehicle collisions with wildlife), or the deliberate removal (re-location or intentionally destroyed) of problem wildlife to protect worker safety. The most effective way to reduce the cases of wildlife mortality is to reduce the availability of food and shelter for wildlife, thus limiting the attraction and presence of animals within the Project site. Specific mitigation proposed to reduce direct Project-related wildlife mortality includes the following:

- report all relevant observations of wildlife (particularly caribou, fox, wolverine, and bear) to environmental technicians on-site;
- communicate presence and location of wildlife on-site through radio;

-
- complete land clearing for all facilities outside of the breeding season for migratory birds (15 May to 15 September) if birds are nesting in a work area;
 - prevent upland breeding birds and raptors from nesting on mine infrastructure and man-made structures. If nest is found and eggs are present, then the nest will be monitored and efforts will be made to avoid the area;
 - skirt buildings as required to limit opportunities for animals to find suitable shelter, placing priority on accommodations buildings, waste management buildings, and heated buildings;
 - isolate or remove any physical or chemical hazards to wildlife;
 - report to the Department of Environment and Natural Resources (ENR) any raptor nesting activity observed on Project infrastructure or within 1.5 km of the Project;
 - hunting, trapping, harvesting and fishing by employees and contractors will be prohibited;
 - many site buildings will be connected by corridors, reducing the need for staff to go outdoors;
 - all wildlife will have the right-of-way on roads;
 - speed limits will be established and enforced;
 - drivers will be warned with signage and radio when caribou are moving through an area;
 - at closure, site areas will be re-contoured to reduce hazards to wildlife;
 - problem wildlife will only be destroyed as a last resort, and with the approval of ENR; and
 - contact ENR to receive additional direction regarding new issues that arise.

4.4 MANAGEMENT OF TOXIC SUBSTANCES

The following are mitigation policies and procedures to decrease the risks to wildlife from ingestion of toxic substances or encounters with toxic spills during all phases of activity on the Project site.

- adhere to and regularly update the Emergency Response and Spill Contingency Plan;
- follow the procedures outlined in the Hazardous Material Management Plan;

- designate and train a spill response team consisting of on-site personnel;
- provide spill containment supplies at fuel transfer and storage areas;
- immediately isolate, clean and report any spills;
- keep spill response equipment readily available and maintained;
- maintain vehicles and equipment; and
- store fuel in double-walled containers or single-walled containers in lined containment areas.

4.5 MANAGEMENT OF ATTRACTANTS

Carnivores observed in the regional study area include grizzly bear, black bear, wolf, wolverine, and fox. Carnivores have a keen sense of smell and can be attracted from long distances if food items are frequently present. Wildlife may also be attracted to infrastructure that can serve as a temporary refuge to escape extreme heat or cold. The waste management systems at the diamond mines have evolved through monitoring and adaptive management and are now similar among the mines. It has become evident from monitoring results that the most important element in reducing interactions between the Project and wildlife is preventing carnivores from accessing food and food wastes. Further information on avoiding conflicts with grizzly bears and black bears is provided in Appendix B.

The Non-hazardous Solid Waste Management Plan, Incinerator Management Plan, and Landfarm Management Plan (De Beers 2013d,e,f) for the Project will closely follow the procedures and practices presently in place at the other mines in the region, and will incorporate the lessons learned from those mines. The following policies and practices will be included in these management plans to reduce the numbers of scavenging wildlife (such as carnivores and birds) attracted to the Project, and limit human-wildlife interactions.

- education and enforcement of proper waste management practices to all workers and visitors to the site;
- waste management awareness programs will be implemented;
- waste will be monitored and the sources of misdirected waste will be identified and managed;
- training will be provided to on-site personnel about wildlife awareness and safety including the dangers of improper food waste disposal and feeding wildlife;

-
- providing designated indoor areas for lunch and coffee breaks for staff working outdoors;
 - separation of food waste and non-food waste through the use of designated garbage cans;
 - food waste and other attractants will be incinerated frequently and regularly to reduce holding time and odours;
 - waste facilities and incinerators will be enclosed;
 - food waste and non-toxic combustible waste will be burned in oil-fired incinerators, according to the Waste Incineration Guidelines (Environment Canada 2010);
 - hazardous material will be shipped off site for recycling or disposal at an appropriate facility;
 - the landfill will be inspected and covered progressively;
 - waste products that cannot be incinerated or landfilled will be collected, sorted, and placed in designated areas within the Waste Management Area until they can be shipped off-site; and
 - ongoing monitoring and review of the efficiency of the waste management program and improvement through adaptive management.

At the Mine, food waste will be collected from the food waste bins, and then placed in sealed clear plastic bags for easy identification. The plastic bags will be stored indoors in sealed containers and transported by flat bed truck daily and directly to the incinerator storage area for immediate incineration. Dual-chamber, diesel oil-fired incinerators will incinerate combustible waste, and will be located inside a building to reduce odour and maintain maximum combustion temperature. Inert solid waste (including the incinerator ash) will be deposited into a landfill located within a small area of the mine rock pile or processed kimberlite facility. The inert solid waste will be frequently buried to control odours and keep it inaccessible.

The effectiveness of the waste management system will be monitored through regular inspections of key waste management areas including the accommodation complex, kitchen, landfill, and the incinerator as part of Wildlife Surveillance Monitoring (Appendix A). Monitoring will also be undertaken specific to the Non-hazardous Solid Waste Management Plan, Incinerator Management Plan, and Landfarm Management Plan (De Beers 2013d,e,f).

4.6 DETERRING WILDLIFE

The goal of wildlife deterrent action is to respond to situations using humane methods that keep both humans and wildlife safe. All deterrent actions start with the least intrusive method, and then increase in intensity. Each deterrent action will stop as soon as the animal moves away from the potentially hazardous site or activity or no longer poses a threat to humans. Deterrents may be used to remove wildlife from roads, airstrip, and potentially hazardous sites and activities. The intensity of the deterrent practice should increase only if previous steps are unsuccessful, and if warranted by the risk to staff or wildlife. All deterrent actions will be documented.

Wildlife deterrent actions will be performed only by designated individuals (such as the environmental monitors or security staff). Training for these individuals will include the following information:

- basic wildlife ecology and behaviour;
- prevention of wildlife-human encounters;
- contingencies for wildlife-human encounters;
- proper use of deterrents (such as bear bangers and firearms); and
- documenting and reporting any deterrent actions undertaken.

For deterrent actions to be successful there must be:

- knowledgeable, trained personnel who will select deterrent actions based on each situation;
- consistent application of deterrents;
- evaluation of the success of each deterrent action;
- documenting and reporting of deterrent actions to inform other staff, communities and regulatory agencies;
- effective implementation of the Non-hazardous Solid Waste Management Plan, Incinerator Management Plan, and Landfarm Management Plan (De Beers 2013d,e,f), particularly as it relates to the disposal of food waste; and
- absence of food, shelter or other rewards for wildlife within the Project site.

Procedures and follow-up for grizzly bear and black bear encounters in camp will follow the Bear Encounter Response Guidelines, provided by Environment and Natural Resources (Appendix B).

4.7 CARIBOU PROTECTION

It is anticipated that caribou will interact with the Project. Baseline studies predict that the most common seasons for caribou to encounter the Project are during the post-calving migration and rut, approximately from August through November. Occasionally, actions may be required to move caribou away from areas where they may be at risk. The appropriate level of action for a situation is one that removes the risk with the least disturbance to the caribou. The decision to use deterrent actions for caribou should consider the number of animals, and the potential for risk to caribou and human safety. The following policies, practices, and procedures are specifically related to caribou protection.

- site roads may include caribou crossing features at key locations;
- all incidents involving interactions, deterrents or injury of caribou will be documented and evaluated;
- all sightings of caribou will be reported to environmental staff;
- if caribou are crossing Project roads, traffic will stop and wait for them to cross (i.e., caribou have the right-of-way); and
- caribou will only be moved away from roads or the airstrip in specific circumstances, such as when there are incoming flights or an emergency.

4.8 STAFF TRAINING

To limit effects to wildlife, a training strategy will be implemented that consists of an orientation for site personnel and visitors. All site personnel will be expected to participate in orientation sessions and must be familiar with all operating procedures and policies appropriate to their tasks and responsibilities before starting work. All new employees and contractors will be educated on the hazards of feeding wildlife, and bear safety training will be provided.

Due to seasonal and year-to-year changes in wildlife-related issues, as well as staff turnover, on-going employee training will also be required. This will include regular and season-specific presentations by environmental technicians to mine employees to review hazards, expectations, policies and procedures.

5 WILDLIFE AND WILDLIFE HABITAT MONITORING

In the EIS, the primary effects to wildlife and wildlife habitat from the Project were related to changes in habitat quantity and quality, and direct mortality. Mitigation is proposed to limit these effects (Section 4). The monitoring component of the WWHPP is designed to determine the effectiveness of mitigation and improve mitigation.

5.1 WILDLIFE SIGHTINGS LOG

Wildlife sighting logs provide a simple means for staff working at the Project to record wildlife observations to the Environment Department. While the information is not collected systematically and contains repeated observations, it provides an indication to Environment staff of the potential for wildlife incidents or other trends in wildlife presence.

5.1.1 Methods

The wildlife sighting logs will be maintained at various areas around the Project site for staff to record observations of wildlife. All staff will be encouraged to add observations to the log. This may include observations of unusual species, potential problem wildlife, observations of caribou, or migrants. Observations of species that pose a risk to human safety will be reported to Environment staff immediately. A wildlife sightings log will be used during patrols of the Project Winter Access Road. A summary of wildlife sightings will be provided in the annual Wildlife Monitoring Report.

5.1.2 Frequency and Duration

Wildlife sighting logs will be maintained at the Project throughout construction, operation and closure, and throughout the year. Environment staff will review the logs weekly.

5.1.3 Action Levels

Environment staff will respond to wildlife sightings or trends of concern as required.

5.1.4 Supporting Documents

- Wildlife Sighting Technical Procedures (Appendix A).
- Wildlife Sightings Form (Appendix A).
- Winter Road Wildlife Sighting Form (Appendix A).
- Bear Encounter Response Guidelines (Appendix B).

5.2 SITE SURVEILLANCE MONITORING

Wildlife is expected to be present near the Project throughout construction, operation and closure. Site surveillance monitoring is intended to provide timely and continual information of wildlife activity at the mine, and will provide direct feedback to mine operations regarding the effectiveness of waste management and wildlife mitigation practices. Examples of wildlife activities that will be documented through the surveillance monitoring include presence of wildlife in areas where food may be available, use of buildings for shelter or nesting, and use of water management ponds by waterfowl.

Through systematically recording the presence of all wildlife within and around the Project footprint, Environmental staff will remain apprised of current and emerging issues, and will be able to manage issues as they arise. To use a common example, surveillance monitoring may detect that wildlife has gained access and is taking shelter beneath a building. The common mitigation is to block the access through improved skirting, and follow-up surveillance monitoring will confirm whether the mitigation was successful, or if further action is required.

5.2.1 Methods

Environmental staff will undertake systematic tours of the Project site and record all wildlife observations or recent wildlife sign (e.g., tracks, scat). The survey will be completed on foot and by truck, and staff will record the area surveyed, and the nature and location of all observations. The surveillance monitoring survey will include areas of the mine where there is risk of wildlife attractants (such as waste management areas), risk of wildlife using the mine for shelter, denning or nesting, or where there are people working outdoors.

5.2.2 Frequency and Duration

Surveillance monitoring will occur systematically at least once per week, or more as necessary. Monitoring will be continuous throughout all phases of the Project.

5.2.3 Action Levels

Environmental staff may at any time suggest or undertake improvements to environmental design features, mitigation and management practices and policies, the need for additional training for staff, or other improvements to mitigation identified by the surveillance monitoring, as required. Investigation and reporting of incidents will be completed as they occur.

5.2.4 Supporting Documents

- Wildlife Surveillance Monitoring Technical Procedure (Appendix A).

5.3 DIRECT HABITAT LOSS MONITORING

Construction of the Project will lead to the direct loss and alteration of vegetation and landscape features that currently provide wildlife habitat. Changes in habitat can influence the local abundance and distribution of wildlife, and will predominantly occur during construction and at certain periods during operation. Following initial construction of the Project, there will be several distinct phases of operation as each ore body is mined, as the mine rock piles and processed kimberlite containment facilities expand, and as areas of Kennady Lake are isolated. It will be necessary to maintain a record of the actual sequence of operations to document habitat loss and alteration.

Indirect habitat effects are monitored through the Vegetation and Soil Monitoring Program (De Beers 2013g), and through the WEMP (De Beers 2013a).

5.3.1 Methods

As-built drawings of the Project footprint and facilities will be prepared, and compared against existing landcover maps to estimate the area of each landcover class disturbed, providing a measure of direct habitat loss for wildlife. Typically, the mine footprint is delineated through satellite imagery and Geographical Information System (GIS) software. However, De Beers may suggest alternate means of producing the maps if the information is available through ground-based surveys. Maps that illustrate actual and predicted habitat loss will be included in the annual report.

5.3.2 Frequency and Duration

A preliminary Project footprint will be prepared at the end of construction. Updates will be provided in years when the footprint is estimated to have expanded by at least 10% from the previous year. A final Project footprint will be provided at closure.

5.3.3 Action Levels

No action level is required, as De Beers is required to keep the Project footprint within the boundaries of the land use permit and lease area.

5.3.4 Supporting Documents

None required.

5.4 WASTE MANAGEMENT MONITORING

Carnivores and scavengers have a keen sense of smell and can be attracted from long distances if food items are frequently present. Mining projects in the region have reported attraction of wolverine, fox, grizzly bear, ravens, and gulls. This increases the risk for accidental mortality of wildlife (e.g., collisions with vehicles) and the potential for wildlife interactions with people and the Project.

Effective waste management practices and staff education are key to decreasing the availability of attractants at mine sites. Environmental design features, mitigation, and waste management will be implemented at the Project to limit the attraction of wildlife, and the associated increased risks of wildlife interactions and mortality. These mitigation strategies will be similar to proven best management practices and policies at other mines in the NWT and Nunavut, including the Snap Lake Mine.

5.4.1 Methods

Environment staff will complete inspections of all waste management process components that involve potential attractants, as described in the Non-hazardous Solid Waste Management Plan, Incinerator Management Plan, and Landfarm Management Plan (De Beers 2013d,e,f). Inspections will include a systematic survey of all waste management facilities and infrastructure, including waste storage areas, transfer vehicles, incineration areas, landfill, and grey and sewage water treatment systems. Environment staff will document the areas inspected, the attractants found, infractions, and follow-up actions.

Observations of wildlife and wildlife signs near these areas will be recorded through surveillance monitoring (Section 5.2), including surveys of all areas where wildlife may access waste or other attractants.

5.4.2 Frequency and Duration

Inspections will be completed systematically at least once per week throughout the year and during construction, operation, and closure. More inspections may be undertaken if required.

5.4.3 Action Levels

Should the inspections identify potential or actual availability of wildlife attractants (food waste in particular), or should observations of wildlife, wildlife sign, or wildlife incidents point to problems in the waste management process, immediate corrective actions will be taken or suggested by the Environment staff. Some level of wildlife activity is anticipated regardless of the efficiency of waste management as wildlife may be present naturally or attracted to site even if there is no food reward. Regardless, the potential or actual availability of food waste for wildlife will be the trigger to initiate an investigation and corrective action.

5.4.4 Supporting Documents

- Wildlife Surveillance Monitoring Technical Procedure (Appendix A).
- Other relevant management plans.

5.5 PROJECT WINTER ACCESS ROAD MONITORING

A Project Winter Access Road is required to access the Project (Figure 5-1). De Beers will operate the Project Winter Access Road, while the Tibbitt-to-Contwoyto road is operated by the Tibbitt-to-Contwoyto Winter Road Joint Venture (the Joint Venture). Although caribou have not been present in the area in high numbers during the time of year when the Project Winter Access Road is operating, the primary concern raised is the potential for increased harvesting of caribou. Therefore, monitoring is proposed to determine the amount and type of public use of the Project Winter Access Road. A pilot monitoring program was carried out in 2013 by winter road security contractors.



I:\CLIENTSIDE_BEERS\11-1365-0001\Mapping\MXD\General\Section3\P2011-Other-045-GIS.mxd

LEGEND

- Gahcho Kué Project
- Tibbitt-to-Contwoyto Winter Road
- Winter Access Road
- Watercourse
- Waterbody
- Index Contour (100m interval)
- Intermediate Contour (20m interval)

NOTES

Source: Figure 3.10-2 in De Beers 2010
 Base data source: National Topographic Base Data (NTDB) 1:250,000

GAHCHO KUÉ PROJECT

Winter Access Road to Project Site

PROJECTION: UTM Zone 12		DATUM: NAD83	
Scale: 1:500,000			
FILE No: P2011-Other-045-GIS		DATE: March 9, 2012	
JOB NO: 11-1365-0001		REVISION NO: 1	
OFFICE: GOLD-CAL	DRAWN: CW	CHECK: PT	



Figure 5-1

5.5.1 Methods

The entire length of the Project Winter Access Road will be monitored for evidence of access and wildlife harvesting from the road. Monitoring will be undertaken in each year that the Project Winter Access Road is open, from construction through closure. Monitoring will focus on documenting the caribou harvest from the Winter Access Road.

Currently, public use of the Winter Access Road is monitored by security patrols of the road. These patrols occur daily, throughout the hauling season. Observations of public use of the road will be documented on a Winter Access Road User Survey (Appendix A), provided to ENR weekly. In the event of a security concern (i.e., large numbers of hunters or caribou), ENR would be contacted immediately. Security patrols are also provided with a Winter Access Road Wildlife Monitoring Form (Appendix A).

5.5.2 Frequency and Duration

Monitoring will be undertaken daily during the winter road operating period.

5.5.3 Action Levels

No action levels are proposed, as De Beers cannot restrict public use of the Winter Access Road. The information collected will be supplied to ENR, AANDC, and other interested land managers.

5.5.4 Supporting Documents

- Winter Road User Survey (Appendix A).
- Winter Road Wildlife Sighting Form (Appendix A).

5.6 Wildlife Incidents

Wildlife incidents refer to a range of possible occurrences at the Project, including:

- human-wildlife interactions that present a risk to either;
- wildlife-caused damage to property or delay in operations;
- wildlife deterrent actions; and
- wildlife injury or mortality.

All incidents will be investigated and reported. Documenting incidents allows for adaptive management and further development of mitigation. All wildlife incidents will require immediate follow-up. They will be reviewed and reported to determine if mine operations contributed to an incident, and what can be done to prevent similar occurrences in future.

5.6.1 Methods

All incidents and deterrent actions will be investigated and documented. This will include photographs, names of people involved, the nature of the incident, and supporting information such as the time, date, location, and follow-up actions that occurred.

Encounters with bears (grizzly bears and black bears) will follow the guidance provided in the ENR Bear Encounter Response Guidelines and Bear Complaint Checklist (Appendix B) and the Safety in Grizzly Bear and Black Bear Country brochure (Appendix B).

5.6.2 Frequency and Duration

Wildlife incident monitoring will be undertaken as required, continuously throughout the construction, operation, and closure phases of the Project.

5.6.3 Action Levels

All incidents will require follow-up to determine what can be done to prevent similar occurrences in future. All wildlife mortalities will be reported to ENR immediately. Migratory bird mortalities will also be reported to Environment Canada.

5.6.4 Supporting Documents

- Accident – Incident Short Report Form (Appendix A).
- Wildlife Deterrent Form (Appendix A).
- Wildlife Encounters (Appendix A).

6 REPORTING PROTOCOL

The WWHPP annual report should include, but not be limited to, the following information:

- any updates or recommended changes to mitigation, environmental design features, or other strategies required to meet the WWHPP objectives;
- occurrences of human-wildlife interactions, and incidents, accidents, injuries, or mortalities involving wildlife;
- records of disturbances to wildlife habitat that were not predicted;
- observations of recreational, traditional, or non-traditional activities near the Project, including the Project Winter Access Road; and
- a discussion of the effectiveness of the mitigation outlined in the WWHPP.

The WWHPP annual report should be submitted to the Board by 31 January of each year, documenting activities for the previous period from 1 November to 31 October.

7 ADAPTIVE MANAGEMENT

7.1 Adaptive Management Plan

The Adaptive Management Plan (AMP) is intended to describe the process through which the Project will practice adaptive management. The AMP introduces a Monitoring Program Framework and an Adaptive Management Response Framework, which defines how results from annual environmental monitoring programs will contribute to the adaptive management process. This report provides the structure and intention through which the Monitoring Program Framework and the Adaptive Management Response Framework will be enacted and connected to adaptively manage the Project.

The present AMP has been developed in consideration of the recent Draft Guidelines for Adaptive Management from the Wek'èezhii Land and Water Board (WLWB 2010), among other documents. The WLWB proposed the concept of a Response Framework that may act as the backbone to adaptive management, particularly as it relates to aquatic effects monitoring (WLWB 2010). The Response Framework provides a structure to monitoring and management outcomes such that management actions respond to changes in the environment in a timely and appropriate manner to prevent significant adverse effects from occurring as a result of Project activities. The present AMP is designed around the WLWB Response Framework approach.

7.2 Mitigation Audit

The mitigation described in this document stems from current practices at existing mines, or was suggested during the environmental assessment process. However, an auditing system is required to evaluate the mitigation. In other words, it should be confirmed that the mitigation proposed here is used and that it works. Further, new mitigation should be documented. Thus, an audit should be undertaken annually, specific to the mitigation listed in Section 4, to evaluate:

- if all mitigation has been implemented;
- which mitigation is perceived to be or shown to be successful;
- if new mitigation has been implemented in response to new issues; and
- if some mitigation is redundant.

This audit is implemented annually, as part of the WWHPP annual report.

7.3 Relevant Management Plans

The following management plans are also relevant to wildlife effects management at the Project site:

- Wildlife Effects Monitoring Program (De Beers 2013a);
- Non-hazardous Solid Waste Management Plan (De Beers 2013d);
- Incinerator Management Plan (De Beers 2013e);
- Landfarm Management Plan (De Beers 2013f);
- Vegetation and Soils Monitoring Program (De Beers 2013g);
- Air Quality and Emissions Monitoring and Management Plan (De Beers 2013h);
- Aquatic Effects Monitoring Program (De Beers 2013i, *in preparation*);
and
- Preliminary Closure and Reclamation Plan (De Beers 2013j).

7.4 Contingencies

Contingencies refer to actions taken to manage unforeseen circumstances or non-compliance issues. The surveillance monitoring (Section 5.2) is in essence a form of contingency monitoring, as it will be undertaken throughout the year and throughout the Project area. Surveillance monitoring will detect unforeseen events involving wildlife or wildlife habitat. Any unforeseen events detected through the wildlife surveillance monitoring will be managed either through Wildlife Incident reporting (Section 5.6), or through the Mitigation Audit (Section 7.2).

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9 ACRONYMS AND GLOSSARY

9.1 ACRONYMS AND ABBREVIATIONS

BHPB	BHP Billiton Diamonds Inc.
CWS	Canadian Wildlife Service
DDMI	Diavik Diamond Mines Inc.
De Beers	De Beers Canada Inc.
EBA	EBA Engineering Consultants Ltd.
EIS	Environmental Impact Statement
ENR	Government of the Northwest Territories, Department of Environment and Natural Resources
GIS	Geographical Information System
GNWT	Government of the Northwest Territories
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
NWT	Northwest Territories
Project	Gahcho Kué Project
TK	Traditional Knowledge
WEMP	Wildlife Effects Monitoring Program
WLWB	Wek'èezhii Land and Water Board
WWHPP	Wildlife and Wildlife Habitat Protection Plan

9.2 UNITS OF MEASURE

ha	Hectares
km	Kilometres
m	Metres

9.3 GLOSSARY

Adaptive
Management

The exact definition of adaptive management varies among monitoring components, but typically adheres to having four themes as follows (WLWB 2010):

- 1) learning in order to reduce management uncertainties;
- 2) using what is learned to change policy and practice;
- 3) focusing on improving management; and
- 4) doing the above in a formal, structured and systematic way.

Habitat

The physical location or type of environment in which an organism or biological population lives or occurs.

Monitoring
Components

A term used to broadly describe the aspect of the environment and population that may be impacted and monitored. Monitoring components used here included:

- habitat;
- caribou and other wildlife VCs; and
- people.

APPENDIX A
TECHNICAL PROCEDURES AND FORMS

WILDLIFE SURVEILLANCE MONITORING TECHNICAL PROCEDURES GAHCHO KUÉ PROJECT

OBJECTIVE

To inform adaptive management at site to prevent wildlife incidents from occurring and record the species, number and location of wildlife interacting with the Gahcho Kué mine site.

FIELD PROCEDURES

Wildlife observations and sign monitoring surveys will be completed at least once a week. Each survey should take about 2 to 3 hours. Observers will travel to different areas / sites within the mine footprint (see monitoring site list below) to record all wildlife or wildlife sign.

Record if wildlife or wildlife sign was or was not observed at each site. Collect the following information:

- Time upon arrival at location / monitoring site
- Did you observe any wildlife or sign (Yes or No)
- Location or monitoring site
- Species observed
- Number of individuals
- Sex / group composition (Male, Female, Female with Young, Male and Female with Young, Unknown)
- Behaviour or activity (Feeding, Lying, Standing, Walking, Trotting, Running, Alert)
- Photo number (if photo taken)
- Any relevant comments about the sighting

If wildlife sign is observed then record the following:

- Time observed
- Location of sign
- Species (if possible)
- Type of sign observed (e.g. tracks, scat, digs, den)
- Number of sign
- Photo number (if photo taken)
- Any relevant comments about the sign

Any reports of sign or observations of species from mine staff working in the area shall be recorded on the data sheets in the additional comments section on the reverse side of the data sheet. Photos of sign and wildlife should be taken where possible to help in identification of species after completion of the survey. Record the photo number on the data sheet and download and file the photos by date.

Wildlife observations or sign observed en route between systematic monitoring sites should also be recorded in the same manner as described above.

If no wildlife is observed, no sign seen and no reports of wildlife from staff, then an “N” should be recorded on the data sheet and in the database for that monitoring site / location.

Consult with the environmental leader before each survey to see if there are any staff reports to be aware of during the survey and make sure to record the staff observations in the database. Get the environmental lead to identify individuals at the mine site to talk to about wildlife observations.

AREAS FOR SYSTEMATIC MONITORING

The following areas / sites should be visited at least once a week:

- Accommodations building (entire perimeter)
- Waste transfer area (entire perimeter)
- Incinerator building (entire perimeter)
- Emulsion plant
- Airstrip building
- Truck shop
- Fuel storage
- Mill
- Power plant
- Sewage treatment plant
- Fine processed kimberlite containment area
- Others as defined by the environmental lead

EQUIPMENT AND MATERIALS

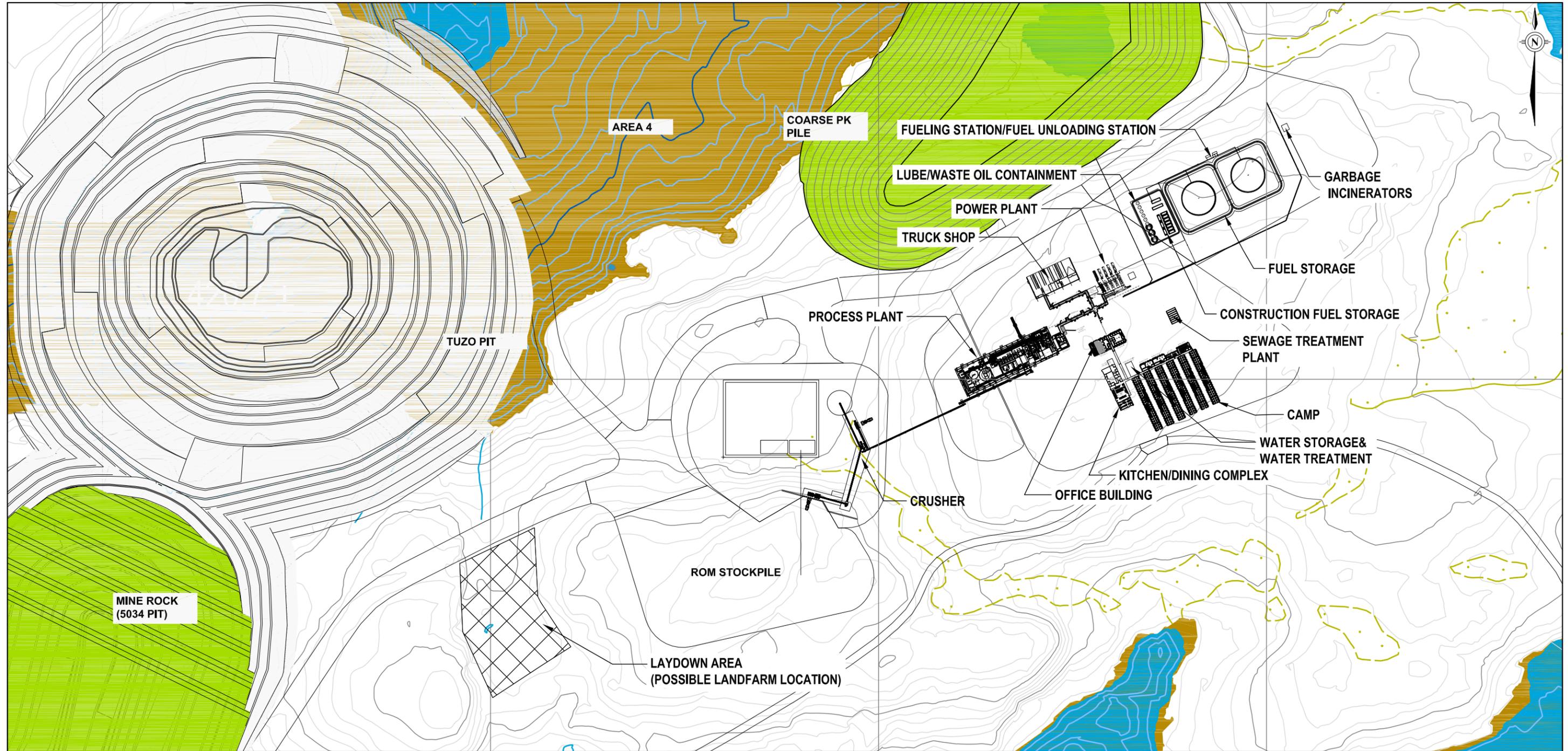
- Binoculars
- Radio
- Personal Protective Equipment
- Field Guides (Suggested)
- Digital Camera
- Map of project site
- Data Sheets

FOLLOW UP

After the data have been collected, entered into the database, and checked for errors, the results should be shared with the environmental lead. Any concerns with wildlife sightings and the mine operations should immediately be brought to the attention of the environmental lead so the appropriate action can be taken. The environmental lead for the site should sign and date the data sheet showing that they are aware of all the observations and comments. Any wildlife incidents observed or reported during this survey should be reported in the Wildlife Incident Report Form (see separate form). Reporting forms and a summary of findings are to be included in the Wildlife and Wildlife Habitat Protection Plan annual report to inform the need for adaptive management at site.

ADDITIONAL COMMENTS OR NOTES:

Environmental Lead Approval (Signature): _____ Date: _____



LEGEND:

- | | | | | | |
|--|--|--|-------------------------|--|--------------|
| | EXISTING GROUND CONTOURS
5 m INDEX - 1 m INTERMEDIATE | | MARSH AREA | | LAKE/POND |
| | BATHYMETRY CONTOURS
5 m INDEX - 1 m INTERMEDIATE | | SCRUB | | DRAINED AREA |
| | CATCHMENT BOUNDARY | | DRAINAGE FLOW DIRECTION | | MINE ROCK |

NOTES

Base data source: EBA Figure 1.6b - Site Layout. Project No. E14103040, Rev. 0.

GAHCHO KUÉ PROJECT

Site Layout

PROJECTION: UTM Zone 12 DATUM: NAD83



FILE No: P2013-MIQ-001-CAD_WWHPP DATE: May 8, 2013

JOB No: 12-1365-0018 REVISION No: 0

OFFICE: GOLD - SAS DRAWN: TAH CHECK:

Figure A-1

**Accident - Incident
Short Report Form**
Must be submitted within 24 hours
Rating of 6 or more requires 3 page AI Form within 72 hours

YELLOW FIELDS REQUIRE COMPLETION N/A or pen mark required to identify attention				Date of Accident/Incident	Date Reported	Date of Investigation	
SITE		DEPARTMENT		Time of Accident/Incident	Time Reported	Date Submitted	
TYPE OF MISHAP Multiple Selections Possible					BRIEF DESCRIPTION OF INJURY, LOSS, POTENTIAL LOSS, OR HAZARD		
ACCIDENT			INCIDENT				
INJURY	PROPERTY DAMAGE LOSS TO PROCESS		POTENTIAL FOR LOSS				
FIRST AID	<input type="checkbox"/>	ENVIRONMENT	<input type="checkbox"/>	INJURY			<input type="checkbox"/>
MEDICAL AID	<input type="checkbox"/>	EQUIPMENT	<input type="checkbox"/>	ENVIRONMENT			<input type="checkbox"/>
LOST TIME	<input type="checkbox"/>	MATERIAL	<input type="checkbox"/>	EQUIPMENT			<input type="checkbox"/>
OCCUPATIONAL ILLNESS	<input type="checkbox"/>	LOSS TO PROCESS	<input type="checkbox"/>	LOSS TO PROCESS			<input type="checkbox"/>
			<input type="checkbox"/>	HAZARD			<input type="checkbox"/>
			<input type="checkbox"/>	SHE NON-CONFORMANCE			<input type="checkbox"/>
LOCATION OF OCCURRENCE							
EMPLOYEE NAME:			OCCUPATION:			YRS OF EXPERIENCE IN OCCUPATION:	
Describe what happened including the event and IDENTIFY THE ROOT CAUSE							
STATE WHAT ACTION WILL PREVENT THIS EVENT FROM RE-OCCURRING Root Cause must be addressed in these actions.					RESPONSIBLE PERSON	DATE TO BE COMPLETE	
WITNESSES:							
RISK ASSESSMENT RATING	PROBABILITY	+	HIGHEST CONSEQUENCE	=	RISK ASSESSMENT RATING	=	
	<input type="text"/>		<input type="text"/>		<input type="text"/>		
Rating of 6 or more requires completion of 3 page AI Form within 72 hours							
COMMENTS	PRINTED NAME	SIGNATURE	TITLE	DATE			
			Employee				
			Immediate supervisor				
			JOSHEC Rep.				
			DBC Dept. Mgr.				
			SHE Coordinator				
			SHE Manager				
			Mine Manager				
Note: Any Supervisor or Manager or their designate may require an Investigation be completed on any incident regardless of the risk rating where other potentially more serious outcomes could result.							
Effective November 10, 2009.			Approved by: SHE Manager		File: A130 Accident-Incident Short Form		

TECHNICAL PROCEDURES			
Division:	Mining	P & P No:	
Section:	Environment	Effective:	
Issued By:	Operations Manager		
Subject:	WILDLIFE SIGHTINGS TECHNICAL PROCEDURE		
Revision:		Replaces:	

PURPOSE

The purpose of this procedure is to describe the management of the Wildlife Sightings Form.

SCOPE

The wildlife monitoring logs provide an opportunity for all staff at the Gahcho Kué Mine site to record the date, time and location of wildlife observations on site.

RESPONSIBILITY

The Environment Department is responsible for:

- Maintaining the wildlife monitoring logs.

• _____

PROCEDURE

The wildlife monitoring log tracks wildlife observations on the Gahcho Kué Mine site, for both human interest and to support incidental observations reporting by De Beers and contractor wildlife reports.

Step	Procedure
1	The Wildlife Sightings Form is posted on various bulletin boards in camp and remote offices. If the current log is full, it is replaced as soon as possible with a new one. They are regularly replaced once a month. (Wildlife Sightings Form).
2	Periodically check the wildlife monitoring log and note any observations that may require action, such as regular sightings of a wolverine or nesting bird.

3	When the log sheet is full, remove from the bulletin boards and replace with a new log sheet (see Step 1). File the original hard copy in the Environmental Office under Wildlife Sightings Form and update the Wildlife Sightings Form database.
4	The Environmental Technician will enter all incidental observations noted on the Wildlife Sightings Form in the De Beers site wildlife spreadsheet (Wildlife Sightings Form Spreadsheet). The Environmental Technician will email the database to Golder Associates in Yellowknife at the end of each month.

DATA HANDLING & STORAGE

Hard copies of the Wildlife Sightings Form are filed in the Environmental Office in the Wildlife Sightings Form binder. The Environmental Technician maintains an electronic spreadsheet of site wildlife and caribou observations.

Electronic copies of the De Beers site wildlife spreadsheet are emailed to Golder Associates Ltd. after each site update.

REPORTS

The data provided by De Beers is incorporated into a report submitted by Golder Associates in relation to wildlife sightings at the Gahcho Kué Mine.

ATTACHMENTS

Wildlife Sightings Form

WILDLIFE DETERRENT FORM GAHCHO KUÉ PROJECT		Incident Report No.
SPECIES: <input type="checkbox"/> Black Bear <input type="checkbox"/> Grizzly Bear <input type="checkbox"/> Caribou <input type="checkbox"/> Fox <input type="checkbox"/> Wolverine <input type="checkbox"/> Wolf Other: (specify) _____ # of Animals Involved: _____		
SEX: <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> Unknown ESTIMATED AGE: <input type="checkbox"/> Calf/Cub/Kit/Pup <input type="checkbox"/> Sub-adult <input type="checkbox"/> Adult <input type="checkbox"/> Unknown		DATE: TIME:
LOCATION:		
WEATHER :		
ANIMALS BEHAVIOUR: <input type="checkbox"/> FEARFUL <input type="checkbox"/> NOT FEARFUL <input type="checkbox"/> AGGRESSIVE <input type="checkbox"/> Cautious		
(Phased) DETERRENT ACTION Time Start: <input type="text"/> Time Finished: <input type="text"/>		REASON FOR DETERRENT: <input type="checkbox"/> On Road or Airstrip <input type="checkbox"/> Investigating Camp / Equipment <input type="checkbox"/> Destroying Equipment / Property <input type="checkbox"/> Endangering Human Safety <input type="checkbox"/> Endangering Self Other (specify): _____
TYPE: (Mark number used): 2 each	SUCCESSFUL (Provide detail on back)	
<input type="checkbox"/> Approach w/ Vehicle <input type="checkbox"/> Approach on Foot <input type="checkbox"/> Shouting / Yelling <input type="checkbox"/> Air Horn <input type="checkbox"/> Pen Launched Bangers * <input type="checkbox"/> 15 mm Bangers * <input type="checkbox"/> 15 mm Screammers <input type="checkbox"/> Warning Shots <input type="checkbox"/> 12 Gauge Scare Cartridges <input type="checkbox"/> 12 Gauge Rubber Bullets OTHER (SPECIFY)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	FORM COMPLETED BY : REPORT SUBMITTED BY: DATE / TIME REPORTED TO ENR: HERDED WITH VEHICLE: (Followed only) <input type="checkbox"/> ATV <input type="checkbox"/> Skidoo <input type="checkbox"/> Truck <input type="checkbox"/> Helicopter Distance: _____

<p>DAMAGE by WILDLIFE</p> <p><input type="checkbox"/> Equipment / Supplies: Damage \$ _____</p> <p><input type="checkbox"/> Human Injured Other (specify) _____</p>	<p>WILDLIFE KILLED <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>ENR Contact: Contact No:</p>
<p>Comments:</p>	

De Beers Winter Road Access Reporting

Winter Road User Survey

SIDE ONE: USER INFORMATION

Monitoring Station: Gahcho Kué Winter Road Snap Lake

Monitor's name: _____

Vehicle Information

Description of vehicle: _____

Vehicle license place origin (Territory/Province): _____ License plate no: _____

Accessory vehicles: (Snowmobiles/ATVs) **NO** **YES** How many? _____

Number of people in the vehicle: _____

Northbound Date: _____ Time: _____ am / pm
(Spell out Month)

Southbound: Date: _____ Time: _____ am / pm
(Spell out month)

Community representation (indicate the community for EACH person in the vehicle)

Yellowknife	_____	N'Dilo	_____	Ingraham Trail	_____
Dettah	_____	Rae/Edzo	_____	Wha Ti	_____
Gameti	_____	Wekweti	_____	Lutsel K	_____
Other (specify)	_____				

Purpose for using the winter road (check all that apply):

Sight-seeing: ____ Camping: ____ Trapping: ____ (Licence #) _____
 Fishing: ____ (Licence #) _____
 Hunting: ____ (Licence #) _____
 Other (specify) _____

Hunter classification: GHL ____ Special GHL ____ Resident ____ Non-Resident ____
(Use one √ per hunter) Non-Resident Alien _____

How many days for hunting? 1 2 3 Other _____

What animal species are you hunting? (check all that apply)

Caribou	_____	Moose	_____	Grouse	_____
Wolf	_____	Wolverine	_____	Ptarmigan	_____
Other (specify)	_____				

SIDE TWO: HARVEST / SURVEY DATA

See previous page for road user data.

Did any of you kill any wildlife this trip? YES / NO If **YES**, what species and how many?

(please specify details below)

Caribou _____ Moose _____ Wolf _____ Wolverine _____ Grouse _____

Ptarmigan _____ Other (specify) _____

Where? _____

Did you notice any disease or injury with these? **YES / NO**

What wildlife did you see? (Indicate how many):

Caribou _____ Moose _____

Wolf _____ Wolverine _____ Other (Specify) _____

Where were these sightings? (identify lake or portage #, if possible)

Were any of them lame or injured? **YES / NO** (please specify details below):

Did you see any infractions, e.g., meat wastage? **YES / NO** If **Yes** (identify where) _____

Did you see any contaminant spills? **YES / NO** If **Yes** (identify where) _____

Comments: _____

PROCEDURE

1. IMPACT ON WILDLIFE

The project area provides both year-round and seasonal habitat for wildlife species. Wildlife may be impacted by the loss or modification of habitat and disturbance from vehicles and equipment during sensitive life-cycle periods (e.g., breeding and rearing). The environmental awareness and orientation sessions provide some insight into wildlife encounters.

2. VEHICLE AND EQUIPMENT USE

- Drivers will maintain a safe and appropriate speed on the roads especially the winter road, and drivers will not chase animals down roads. Instead, drivers will stop and turn off their headlights to allow stressed animals to disperse.
- Hunting, firearm use, fishing and/or the presence of dogs is not permitted on site unless prior authorisation is obtained from the Camp Manager or designate.
- When encountering wildlife, remember they have the right of way.
- Never feed wildlife! Feeding wildlife may cause them to stay at the site and become habituated to human contact. The consequences of feeding may result in serious harm to humans, and/or the animal being relocated or destroyed.
- If encountering wildlife on the road, stop the vehicle and allow wildlife to pass. Be sure to:
 - Remain in the vehicle.
 - Avoid using the horn.
 - Avoid provoking the animals.
 - Wait for the animal(s) to pass before continuing.
- If encountering wildlife on foot:
 - Back away slowly and do not make direct eye contact.
 - Do not make sudden movements.
 - Call in the sighting by radio as soon as possible without alarming the animal.
 - Stay in radio contact until you are at a safe distance and return to a safe area (e.g., inside a vehicle) as soon as possible.

- Call in a wildlife sighting to your supervisor, the Safety, Health and Environment (SHE) Superintendent, or the Environmental Technician.
- When returning to the camp, fill out the Wildlife Management Log.

3. USE OF FIREARM AS A DETERRENT

- When returning to the camp, fill out the Wildlife Management Log.

REFERENCES AND RELATED DOCUMENTS

- General Site Orientation.

APPENDIX B

**GOVERNMENT OF THE NORTHWEST TERRITORIES DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES WILDLIFE GUIDELINES**

2010

Bear Encounter Response Guidelines



Photo by Dean Cluff/ENR

North Slave Region
Environment & Natural Resources

North Slave Region Bear Encounter Response Guidelines

Implementation of these guidelines will allow ENR greater ability to provide advice and assistance in deterring bears that find themselves in areas of development, before they become habituated and must be destroyed as nuisance wildlife.

Report any interactions between people and bears, and any instances of bears coming into camp to:

ENR North Slave Region Contact list:

Wildlife Emergency (On Call Officer)	(867) 873-7181
Fred Mandeville, Wildlife Manager	(867) 873-7019
North Slave Regional Office	(867) 873-7184

The attached *Bear Complaint Checklist* should be completed prior to calling ENR. It is critical that as much information as possible be provided at this point in order for ENR to provide appropriate advice and guidance.

PREVENTION:

Preventing the attraction of bears to the site is the most important aspect of dealing with bears.

A. Food

1. Do not feed any wildlife.
2. Feed any pets inside and store dog food in a sealed container indoors.
3. Clean fire pits and BBQs after each use.
4. All camp food must be stored in a manner that makes it inaccessible to wildlife.
5. If camps are to be vacant for more than 1 week, all food items should be stored in an odour-proof, animal-resistant container.

B. Waste

1. Any food waste and food-related wastes (ex. packaging) stored on site must be kept in a central area and sealed animal-resistant container for final disposal.
2. Food wastes and food-related wastes must be burned in an appropriate device on a daily basis, or brought to an approved landfill site or recycling depot on all back hauls from camp.
3. All waste containers must be cleaned and treated with a bleach solution on a regular basis.

C. Entrails from fish

1. Dispose of at least 3km from camp
2. Not in water or on ice, preferably on an island.
3. The area used for cleaning fish must be washed with bleach after each use.
4. A plastic tub offers a good way to transport fish in a boat and to camp, which is easily cleaned after.

D. Camp Structures

1. The camp must be designed and laid out in a manner that reduces attraction of wildlife to the camp and provides safety. Some key areas to consider are the location and proximity of cooking structures to sleeping quarters and the prevention of blind spots in the camp.
2. It is recommended that an electric fence designed for bears be installed around camps. The fence must be properly maintained.
3. All exit doors should have a window to allow workers to check for bears before leaving buildings.
4. Avoid creating hiding areas within camp.
5. Watch for signs of digging under skirting of buildings and animal tracks.
6. Keep all doors closed, unless moving personnel or equipment into or out of buildings.
7. Ensure that all access doors to areas under buildings are closed and secured, unless work is actually being performed.

E. Dead Animals

1. Do not approach any dead wildlife.
2. Report any dead wildlife found within 5 km of camp

If you have access to the Internet, the Department's *Safety in Grizzly and Black Bear Country* contains basic precautions and safety tips to keep in mind while you are in bear country. Be aware that varying geographic conditions may limit the actions you are able to take. The manual is available at the North Slave Regional Office or it can be found online at:

http://www.enr.gov.nt.ca/live/documents/content/Bear_Safety.pdf

TRAINING

The NWT Mine Health and Safety Regulations (s.15.05) requires that all field personnel involved in mineral exploration undertake bear-safety training. However, wildlife/human encounter prevention is a key component to the training. ENR staff supports this requirement to be performed by qualified personnel, as it is both a worker safety and wildlife issue.

Formal training of personnel in preventing and responding to wildlife encounters/interactions can reduce the likelihood of injury to personnel and wildlife. Therefore, all field personnel working on the project must receive wildlife/human interaction/encounter training from a professional trainer. The training should include:

1. Recognizing the causes of encounters/interactions,
2. How to prevent encounters/interactions,
3. How to respond to encounters/interactions, and the proper storage, transportation, use and application of deterrents

RESPONSE

A. *Bear in the vicinity*

1. Take note of the location of the sighting.
2. If safe to do so, take note of what direction the bear is heading.
3. Record a brief description of the bear using the *Bear Complaint Checklist*.
4. Report the bear to the ENR contacts listed
5. Monitor the movement of the bear. If it is within sight of camp and it is safe to do so. (i.e., the bear is several hundred meters away and there is a vehicle or a building nearby)

B. *Bear In Camp*

1. Take note of the location of the bear.
2. Take note of the direction of travel and what it is doing.
3. Phone the ENR contacts listed.
4. Sound the bear alarm.
5. Monitor the movement of the bear; if safe to do so, until bear response personnel arrive.
6. Stay indoors or in your vehicle. Do NOT approach the bear.
7. Keep all doors closed and close all windows.

DENNING BEARS

- A. If a bear is located in, at or near a den site, work in the area must halt. All employees should safely retreat from the area and report the occurrence to the Site Supervisor, Wildlife Monitor, and the Renewable Resource Officer in your area as soon as possible.
- B. Staff from ENR will be required to assess the site and may implement measures to ensure bears are not unduly disturbed. This may include the establishment of an exclusion zone of 300 meters around the den in which no work will be permitted. Work inside the exclusion zone will remain stalled until after den emergence.

DESTRUCTION OF BEARS

- A. A bear may be destroyed if human life is in imminent danger.
- B. The incident must be reported immediately to the ENR contacts listed. If a bear is killed the complainant will be required to:
 1. Report the kill to the contact identified at the end of this guide without delay.
 2. Skin the bear, leaving the claws and penis (if applicable) attached, and preserve the hide by freezing or salting it and storing it in a cool place. Be generous with the salt and do not freeze the salted hide.
 3. Turn in the hide, the skull, and any other biological samples requested to an ENR Renewable Resource Officer.

As per the NWT Wildlife Act, no person may retain any part of a bear killed in defence of life or property.

Bear Complaint Checklist

1. Complainant Details:

Date/Time of report: _____

Complainant's name: _____

Affiliation/Location of complainant: _____

Contact number for complainant: _____

Other on-site contacts: _____

Wildlife monitor's name: _____

2. Camp Details:

Location of complaint: _____

Latitude/Longitude: _____

Type of Camp: Permanent/Mobile

Number of people in camp: _____

How long has the camp been here (if mobile): _____

Are there any aircraft on site? If yes, type: _____

3. History of the Problem:

Date/Time Bear First Sighted: _____

Type of Bear: Grizzly _____ Black _____

Sex of Bear: Male _____ Female _____ Unknown _____

Age of Bear: Cub _____ Juvenile _____ Adult _____

Has bear been observed before: _____

Description of bear/s: _____

What was the bear attracted to: _____

Did the bear obtain food? _____

Behaviour of bear: Fearful _____ Not Fearful _____ Aggressive _____

Damage by bear: _____

Den site found (description): _____

4. Deterrent Action:

Was the bear deterred? Yes _____ No _____

If yes, type of deterrent used: _____

Present Status of Bear: _____

Other Information:

Reporters name/title: _____

Weather on site at time of report: _____

Checklist forwarded to: _____

Please:

- obey Transport Canada regulations and do not fly below 1,000 feet;
- find out where outfitter camps are located and avoid them during hunting season;
- avoid barren-ground caribou calving grounds during calving season;
- do not take-off or land in a calving area during calving season;
- do not chase or harass wildlife by flying too close; and
- respect our wildlife – keep to a safe altitude.

**Remember,
flying close enough
to an animal
so that it runs away
is too close!**

If geological survey or mineral exploration work is planned at any time, but especially during outfitting or calving seasons, please contact the regional office of Environment and Natural Resources for information before flying.

Mackenzie Mountains and Mackenzie Valley:

Sahtu Region(867) 587-3500
Dehcho Region(867) 695-7450
South Slave Region(867) 872-6400

Tundra:

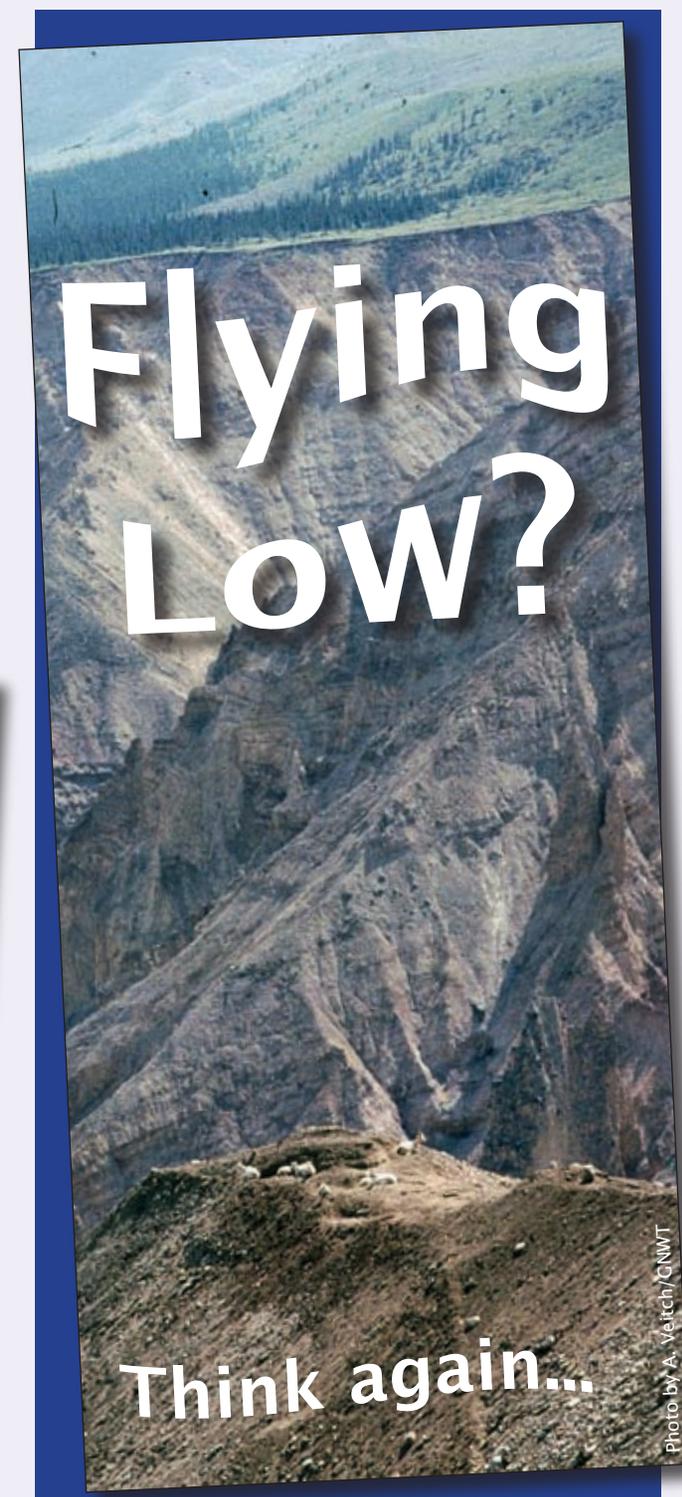
Inuvik Region.....(867) 777-7308
North Slave Region.....(867) 873-7184
South Slave Region(867) 872-7450



Visit the Wildlife Division web site
of Environment and Natural Resources
at <http://wildlife.enr.gov.nt.ca>.



June 2007



A variety of wildlife, quality guides and outfitters, spectacular scenery and solitude that only a location away from human habitation can offer...

The Northwest Territories is a popular destination for big game hunters and eco-tourists alike. But their experience can be ruined by low-flying aircraft that disturb wildlife.

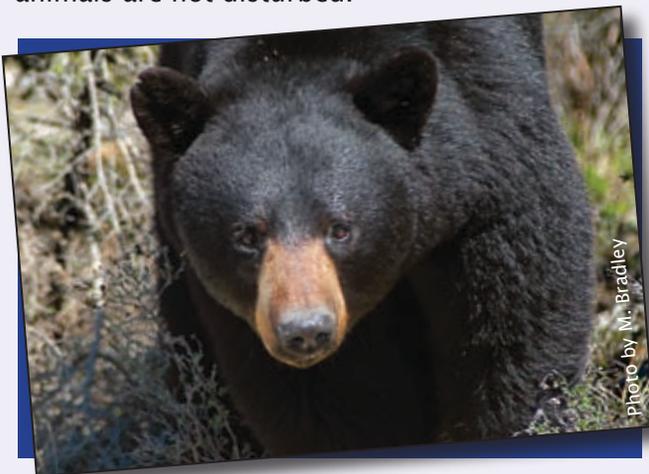
Increased exploration and development throughout the NWT also means increased air traffic. Pilot encounters with wildlife are becoming more frequent. If you are a fixed wing or rotary pilot, please respect our wildlife and keep to an elevation that does not disturb them.

Wildlife are Protected Under NWT Law

Section 38 of the NWT *Wildlife Act* protects wildlife by making it illegal to disturb or harass wildlife. Flying close enough to an animal that it runs away is flying too close!

In addition, Transport Canada regulations stipulate that aircraft may not fly lower than 1,000 feet above ground.

Please keep your aircraft at a safe elevation so animals are not disturbed.



In the Mackenzie Mountains

Big game hunters pay sizable fees for the chance to take home a trophy animal from the Mackenzie Mountains. Much of the hunting in this area is done on foot or on horseback and it is a time consuming process. Sound is amplified by the mountains and low flyovers can frighten an animal into flight, causing hours, or even days, of stalking to be wasted.

Wildlife that are affected by low level flyovers in the Mackenzie Mountains include Dall's sheep, mountain goat, mountain caribou and moose.

During the mid-July to end of September hunting season, please be cautious and avoid outfitter areas.



In the Mackenzie Valley

Boreal caribou are a threatened species found throughout the Mackenzie Mountains. Unlike barren-ground caribou, during the May calving period, boreal caribou go into hiding to have their calves. Low flying is especially harmful, stressing the female, which can cause separation from calves and lead to calf death. If electromagnetic surveys are going to be conducted in April or May, please contact the regional ENR office for information.

On the Tundra

During Hunting Season

Hunters also pay large fees for a hunting experience on the tundra. In late summer and



early fall, outfitters have active barren-ground caribou sport hunting camps. Aircraft must remain at least 1,000 feet above ground.

During the mid-August to end of October hunting season, please be cautious and avoid outfitter areas.

During Calving Season

Caribou are a valuable resource to the people of the Northwest Territories. From the end of May to the end of June, female barren-ground caribou come together at herd-specific locations on the tundra to give birth to their calves. Low flyovers, take-offs and landings in these areas are especially harmful as they can stress the cows, which can cause separation from calves and increased calf mortality.

Avoid barren-ground calving grounds from mid-May to early July. This is especially important during times of low barren-ground caribou numbers. Please contact the regional office of Environment and Natural Resources in your area.

Other Wildlife

Grizzly bears, pelicans, whooping cranes, polar bears, muskoxen, black bears, eagles and other wildlife are also disturbed by low flying aircraft. Please respect our wildlife and keep to a safe altitude.

If You Encounter a Bear...



- Remember the 3 S's... Stop, Stand still, Stay calm.
- Ensure others know that a bear is in the vicinity.
- Do not run.
- Leave the bear an open avenue of escape.

...at a DISTANCE

- Alert the bear to your presence - speak in low tones, slowly wave your arms.
- Quietly walk back the way you came or make a wide detour.
- Keep an eye on the bear.
- Stay downwind.
- Consider using warning shots, noisemakers.

...that is NEARBY

- Do not shout or make sudden movements.
- Avoid direct eye contact.
- Back away slowly.
- Climb at least four metres up a tree to escape a grizzly. (Ineffective against black bears).

Deterrents...



- Include... 12 gauge cracker shells, air horns, flares, and chemical repellents such as pepper spray.
- Are not completely effective against every bear in every situation.
- Should not make you less careful to avoid bear conflicts.
- Are potentially dangerous - use with extreme caution.

If a Bear Charges...



- Many charge are bluffs - the bear will often veer to the side at the last minute.
- Use a chemical repellent only at close range.

- If you have a firearm and contact appears unavoidable, shoot to kill.
- Play dead only during a grizzly bear attack (lie on your side, curl into a ball with your legs tight to your chest, hands clasped behind your neck).

If you must shoot a bear in self-defense, report the kill to a Renewable Resource Officer as soon as possible. If an Officer is not immediately available, skin the bear and preserve the hide. The hide must be turned in to an Officer. You may not keep any part of a bear killed in self-defense.

For Further Information...



For further information, contact any Environment and Natural Resources Office:

Area Code (867)

Aklavik	978-2248
Deline.....	589-3421
Fort Good Hope.....	598-2271
Fort Liard.....	770-4311
Fort McPherson.....	952-2200
Fort Providence.....	669-3002
Fort Resolution.....	394-4596
Fort Simpson.....	695-7433
Fort Smith.....	872-6400
Hay River.....	875-5554
Inuvik.....	678-6670
Lutsel K'e.....	370-3141
Norman Wells.....	587-3500
Behchokò.....	392-6511
Tsiigehtchic.....	953-3605
Tulita.....	588-3441
Tuktoyaktuk.....	977-2350
Ulukhaktok.....	396-4505
Yellowknife.....	873-7181



Northwest Territories Environment and Natural Resources

May 2009

Safety in Grizzly and Black Bear Country



Black Bear

Welcome to Bear Country



Grizzly and black bears can be found throughout the Northwest Territories. They are an important part of the northern ecosystem.

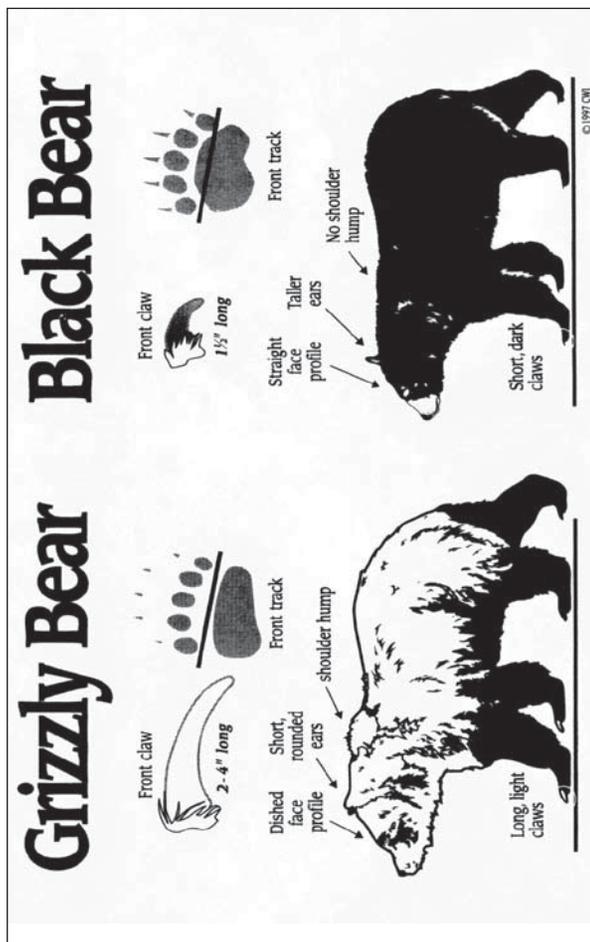
Northerners are committed to maintaining healthy populations of all wildlife, including grizzly and black bears. Treat them with respect. Remember that you are in a bear's territory.

While You are Travelling...



- Always be alert.
- Travel in groups.
- Travel only during daylight.
- Avoid carrying strong smelling foods.
- Make noise where visibility is limited.
- Avoid bear feeding areas such as flood plains, berry patches and areas rich in horsetails and other grasses.
- Avoid bear travel areas like shorelines, trails along the water or near berry patches.
- Watch for fresh bear droppings and tracks.
- Carry bear deterrents.

What's the Difference Between...?



If You are Camping...



- Avoid camping in areas frequented by bears.
- Always sleep inside a shelter (tent, cabin, etc.).
- Don't keep food in tents or areas of camp other than the cook tent.
- Keep a clean camp - wash all dishes and utensils after every meal.
- Avoid cooking greasy foods.
- Burn all garbage every day or take it to a bearproof disposal site. Burying garbage does not eliminate odors.
- If you're going to leave the campsite:
 - bearproof your camp - store food and other attractants (dish detergent, toothpaste, etc.) in an inaccessible place.
 - let someone know where you are going.
 - take a partner and bear deterrents with you.



Grizzly Bears

If You are Fishing...



- Be cautious near streams or lakes - bears frequent these areas.
- Clean fish away from camp and store them underwater.
- Burn fish guts away from camp.
- Store fish-cleaning knives away from camp.
- Don't wear clothes that smell like fish to bed.

If You are Hunting...



- Avoid hunting late in the day and returning to camp in the dark.
- Stay alert when dressing game or handling meat and only do so away from camp.
- Avoid shooting more than your party can pack out in a single load.
- If you must leave meat in the field, leave it near a visible landmark with a clear approach route and cover it with a tarp to discourage scavengers.
- Don't keep bloodied clothes in your tent.