SLAVE EXPLORATION

WILDLIFE MANAGEMENT PLAN

PREPARED NOVEMBER 2011

TABLE OF CONTENTS

MAPS

1. INTRODUCTION AND BACKGROUND – NORTHERN OPERATIONS

MMG acquired several projects in Canada's north through a series of acquisitions and takeovers. Interest is primarily centered upon "greenstones" and their potential to host VMS style base metal resources. Greenstones are sequences of intermediate volcanic rocks, generally found in isolated 'patches' within the surrounding older shield rocks. Exploration activities are based around two historic and well documented resources, those of the High Lake and Izok deposits. Several outlying and lesser established showings are also of interest, and there is continuously ongoing generative work to locate new discoveries. Exploration activities are run from established temporary camps that are accessed by air from Yellowknife. Accommodations are insulated tents with wood or aluminum frames. Depending on the level of activity, a helicopter may or may not be stationed onsite. A general location map shows current MMG projects.

2. MMG POLICY

Maintaining sustainability in our activities is paramount in MMG company policy. Environmental Stewardship is considered standard practice, of which Wildlife Management is an integral part. In all of our Northern operations priorities rest with minimizing impacts and disturbances to resident populations, whether human or other species. To this end, MMG policy provides a framework that serves to backstop an "attitude" expected of MMG employees and promoted heavily within the organization.

3. OBSERVATION AND DOCUMENTATION

All wildlife observed during our seasonal presence in a particular location is documented for annual review of management practices and contribution to baseline study information. Documentation will include the following observations:

- Date and Time
- Location (make sure camp or field site is clearly stated) with UTM or Lat/Long coordinates if possible
- Period of observation
- Species and number of individuals
- Description of activity and/or direction of travel
- Observers name

4. INTERACTION

It is MMG policy to avoid interrupting normal wildlife activity, and interaction with wildlife is to be avoided if at all possible. Operations will be modified or suspended where interactions are repeatedly occurring. All interactions will be reported, and documented.

Garbage: In the vast majority of cases, problems with grizzly bears and other carnivores (wolverine, wolf, fox) stem from inadequate handling of food and garbage. By using good food and waste handling practices, MMG staff will attempt to eliminate the chance of wildlife being attracted into camp or field situations. These include proper training of all camp and field staff in grizzly bear and wildlife awareness and food management practices, use of electric fencing as appropriate and proper storage and incineration of all food waste.

Camp: Seasonal presence in temporary camps in order to conduct exploration activities will take all necessary steps to avoid disrupting local wildlife. Camp locations will be chosen with consideration to possible migration paths and den sites, and a ground survey conducted prior to construction. During site occupation, burnable garbage will be contained and incinerated on a daily basis in order to avoid attracting wildlife. Precautions will be taken to account for the possibility of the approach of a curious animal. Camps located in bear country will use a perimeter electric fence. Bear bangers and pepper spray will be available to camp staff, and they will be fully trained in their use. As a last resort, a helicopter may be employed as a "deterrent". Wildlife monitors will be responsible for an adequate firearm in camp if required to defend human life (see below). The feeding of wildlife is strictly prohibited and employees in breach of this policy will face disciplinary action which may include dismissal. Hunting is strictly prohibited. A valid license for all Fishing is required, and any harvesting will be reported and closely monitored with the involvement of local authorities. Catch and release is encouraged.

Field: Exploration activities conducted in the field will take all necessary steps to avoid disruption of local wildlife, and operations will be modified or suspended where interactions are repeatedly occurring. Drill pad locations will be chosen with consideration to possible migration paths and den sites. Field crews are encouraged to overfly areas of work prior to exiting helicopter in order to assess the presence of wildlife. Planned traverses will be modified or suspended to avoid wildlife encountered en route. Unavoidable encounters will be dealt with in accordance with guidelines below. Field crews will carry at all times an adequate means of communication, a noisemaker (whistle or bear bangers), and bear spray for protection against dangerous wildlife.

Aviation: Air operations related to exploration activity will take all necessary steps to avoid disruption of local wildlife. Flight paths will be modified or suspended where interactions are repeatedly occurring. During certain times of year air operations may need to be suspended so as not to interfere with caribou calving, nursery groups, and/or migratory paths. Within the limits of safety, helicopters will maintain a minimum flight altitude of 300 m, except for drill operations, and takeoff and landing

SPECIES:

Based on observations the following list has been developed of species most commonly observed in our Northern operating environments.

- Barren-ground Grizzly Bear
- Caribou: Barren-ground and Dolphin and Union
- Arctic Fox / Red Fox
- Arctic Wolf
- Wolverine
- Muskox
- Moose
- Arctic Hare
- Arctic Ground Squirrel
- Ptarmigan
- Tern
- Loon
- Snowy Owl
- Gyrfalcon / Peregrine Falcon / Rough-legged hawk, Golden Eagle
- Snow Goose / Canada Goose
- Raven
- Multitudes of migratory tundra and waterfowl birds

5. UNAVOIDABLE INTERACTION

It is MMG policy to avoid whenever possible interacting with local wildlife in the vicinity of our project sites or field activities. This being said, there will always occur some unavoidable interactions to which the following guidelines apply.

- If an animal is spotted, modify your route of travel in order to avoid the animal. If your routes objective is compromised by the animal's presence, hold position at a

distance until the animal moves on of its own volition. Under no circumstances will any animal be "encouraged" to disrupt its natural activity through the use of noisemakers or helicopters unless a threat is perceived from those species considered to be dangerous wildlife (ie. Bear). If the animal does not appear to be moving, modify the day's objective and move to another location.

- Make sufficient noise or movement to ensure any approaching wildlife is aware of your presence. If possible position yourself upwind so that your scent carries and allows encroaching wildlife to identify you as human.

- If curiosity brings an animal closer, pull people together, shout and employ a 'noisemaker'. This may be a whistle, or a bear-banger.

- As a last resort, carry and be familiar with the use and limitations (i.e., effective distance and effects of wind) of bear spray.

6. DANGEROUS WILDLIFE

Within our Northern operational Environment, there are several species that are considered to be "Dangerous" in certain circumstances. Primarily the Polar Bear, and the Barren Land Grizzly Bear, although to a lesser extent wolf, wolverine, and moose (during certain seasons) can also at times display aggressive behavior towards humans.

All field staff receive onsite training with regards to appropriate conduct when approached by dangerous wildlife. This training includes the use of bear deterrents, "Bearwise" videos and annual visits by recognized authorities to discuss the theme.

Established camps located in bear country will be equipped with a perimeter electric fence in order to deter their approach and ingress. A helicopter may be employed as a last resort deterrent towards a determined animal that continuously approaches camp. Although all camps will have a firearm, these will only be employed as a last resort defense against dangerous wildlife that displays persistent, aggressive behavior and is determined to be endangering the safety of personnel.

Only designated and certified individuals at each site will have access to firearms in emergency situations. Firearms will preferably be 12 gauge shotguns (with alternating slugs and SSGs) or centerfire rifles of greater than .30 calibre. Blanks or rubber slugs will be employed if available before resorting to standard rounds as a last resort.

Field personnel will have adequate means of communication with local operations base and carry at all times deterrents (bear bangers and bear spray).

All interactions with animals exhibiting aggressive behavior will be reported and documented. Proper authorities will be notified and official procedures will be followed.

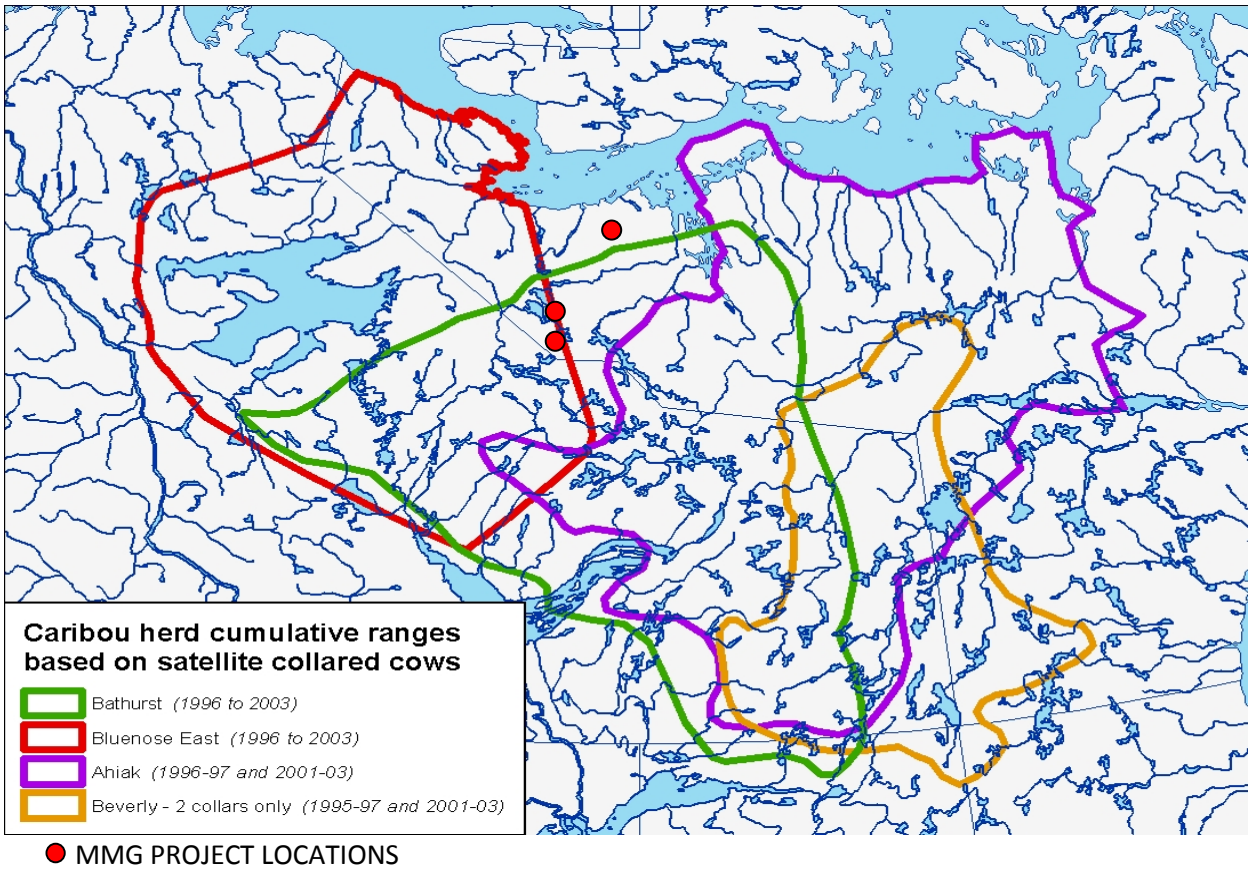
Special Cases Barren Ground Caribou

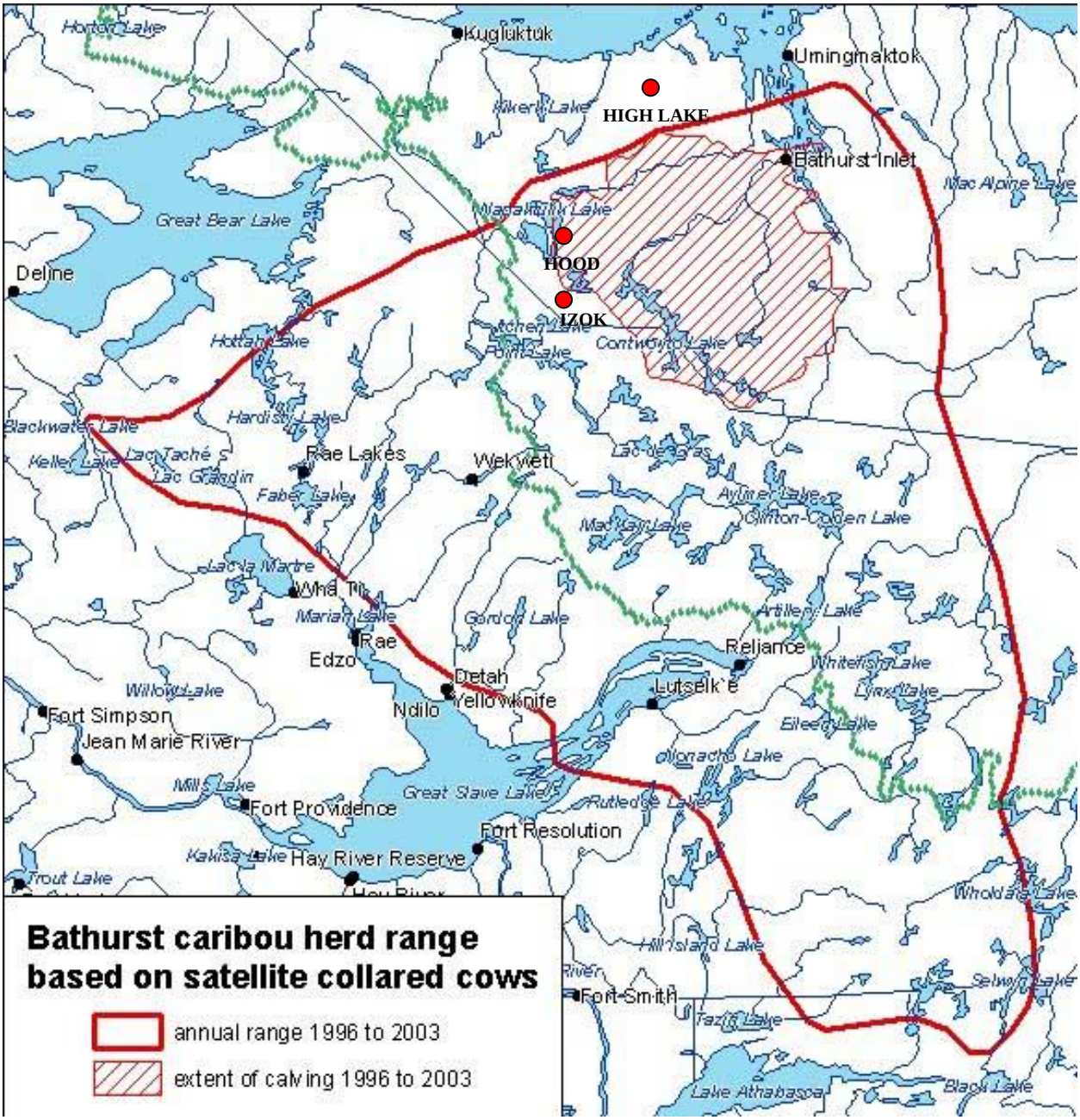
Bathurst Herd

One of the principal concerns in our region of operations is the Bathurst Caribou Herd. Caribou populations are cyclical by nature and their numbers increase and decrease roughly about every 50-60 years. The Bathurst caribou herd is now at a recent low in population size (~32,000 in 2009, down from ~450,000 in the 1980s). MMG is conscious that our activities encroach upon the habitat of the Bathurst Herd and is committed to minimizing the impact resulting from our presence. The included map shows the overall range of the Bathurst Herd, in relation to MMG projects.

Dolphin and Union caribou Herds

Dolphin and Union caribou can be described as a cross between barren-ground caribou and Peary caribou, which inhabit most of the Canadian Arctic Islands. These caribou summer on Victoria Island and winter on the mainland east and west of Bathurst Inlet. In recent years they have been found north of the James River, and are generally the only caribou present in northern portion of the MMG project area during winter.





- MMG PROJECT LOCATIONS

Images taken from “A Management Plan for the Bathurst Caribou Herd” Prepared by the Bathurst Caribou Management Planning Committee – November 2004

1. INTRODUCTION

This wildlife mitigation and contingency procedures report addresses MMG's High Lake and Izok Projects, and is organized in subject specific modules. Each pertains to certain elements of the overall objective to ensure the safety of both personnel on site and animals that may frequent the Project area.

Wildlife encounters may occur at any time and it is everyone's responsibility to ensure the safety of people and animals on site. The report includes general procedures that should be reviewed by **ALL** personnel who work on MMG Project sites, as well as procedures to be followed by specific project personnel.

Key Considerations

MMG must assign overall accountability, recording and reporting responsibility to designated on-site personnel if the Plan is to be effective. These individuals need to have responsibility for the entire site in order to effectively plan, implement and monitor mitigation measures. The Wildlife Mitigation and Monitoring Plan (Vol. 8, Sect. 2.2) contains monitoring plans set out to evaluate the effectiveness of mitigation measures.

Whenever it is necessary to deter or herd wildlife off or away from project infrastructure, the deterrent action will be conducted by the Wildlife Response Team (WRT). All members of the WRT will receive specialized training in deterrent use and herding techniques including the setting up of temporary deflection fencing. Wolfden will consult with environmental and area managers to determine the actual make up of the WRT. Security personnel will be the only on-site personnel to have access to a firearm; therefore it is critical that at least one member of the security team be on the WRT.

Food wastes are the strongest wildlife attractant on site. The location of the incinerator and handling and disposal of garbage is a key component of the wildlife mitigation and contingency procedures report. The effective management of food and associated waste is critical to prevent wildlife from being attracted to the project footprint. The fewer steps between the generation of waste and final disposal, the greater the confidence in the success of this mitigation measure. Details of the recommended food waste management and mitigation procedures are found in the following sections of the report:

- Section 2: Handling and Disposal of Food Wastes and
- Appendix I: Wildlife Mitigation / Contingency Measures – Direct and Indirect Mortality from Attraction to Project Footprint.)

These measures are aimed at preventing food wastes from ever getting outside and reducing the time and resources required to effectively deal with them.

The wildlife mitigation and contingency procedures report is a dynamic document, designed to evolve to meet the changes in the project development from construction to closure. The report will form a key part of the project Environmental Management System.

This wildlife mitigation and contingency procedures report was prepared by:

Andy McMullen at BEAR*WISE* of Yellowknife, NWT

2. MITIGATION PROCEDURE: HANDLING AND DISPOSAL OF FOOD WASTE

PURPOSE

To ensure the proper and safe handling of food wastes at the High Lake and Izok Project sites.

SCOPE

This procedure applies to all employees at the High Lake and Izok Project sites.

OVERVIEW

The improper handling, storage and disposal of food and food wastes can quickly result in wildlife being attracted to site. If wildlife finds an easily attainable food reward they can quickly become a serious threat to human safety including a significant risk of property damage. More often the result is a dead wildlife.

The leading causes of wildlife being attracted into camps and receiving food rewards are:

- Outside storage of the food waste (garbage bins or storage boxes),
- Poor scheduling of garbage pickup and disposal,
- Overloading of incinerators.

This mitigation procedure outlines the steps that the MMG Projects will take to ensure that none of these problems occur anywhere on the project site.

There will be

NO OUTSIDE STORAGE OF FOOD WASTE

PROCEDURE

Food Wastes:

- Incinerators will be located in a building within an electric fenced area.
- All food waste will remain inside the building in which it is generated until it is picked up by site services and taken directly to the incinerator(s) for immediate disposal.
- Food wastes and other domestic garbage from all areas of the accommodation complex (dorms, office and dry) are to be brought to the kitchen storage area for disposal with kitchen wastes.
- Food waste from the process plant, mining shop facilities and remote lunchrooms is to be collected at the end of each shift and taken to the incinerator building.

- Waste and uneaten food from lunches being consumed away from the main dining area and lunchrooms are to be brought to the camp kitchen for proper disposal.
- Waste from the kitchen and kitchen storage area is to be collected at least twice daily and taken to the incinerator for immediate incineration. Depending on the number of people in camp, the frequency of collection and incineration of garbage may have to be increased.
- At no point will food waste and kitchen garbage be allowed to accumulate to greater than a proper incinerator load i.e. no more than 60% of the incinerator(s) burning chamber.
- Small amounts of cooking grease from grills and grease traps will be incinerated with kitchen garbage – this aids in burning wet garbage. Large amounts of grease presents a fire and wildlife attractant risk and must be handled according to the "Used cooking oil from the deep fat fryer" procedure below.
- Waste aerosol cans and batteries are disposed of and handled separately. See Waste Management Plan.

Used cooking oil from the deep fryer:

Each time that the cooking oil in the deep fryer is changed approximately 5 gallons of used oil will be produced. This is too large a volume to be mixed with the regular kitchen wastes and presents a serious fire hazard if not disposed of properly.

- Used oil is to be poured into two 5-gallon pails, filled only half way. This is done to minimize spills when handling and to keep the volumes at the appropriate level for safe incineration.
- These sealed pails are to be kept in the kitchen away from outside doors.
- The used oil will be incinerated separately from other kitchen waste.
- The oil from one pail, approximately 2½ gallons, will be poured into a heavy-duty metal container and put into the incinerator to be burned.
- The second pail will remain in the kitchen until it can be incinerated. The emptied pail will be returned to the kitchen immediately for re-use.

TRAINING

- Waste Management Plan: All employees who deal with food and food wastes will be provided detailed instruction on the Waste Management Plan and their roles and responsibilities within the plan.

NOTE: The above practices and procedures apply to both the main mine site and dock facilities.

RESPONSIBILITY

Site Services personnel are responsible for:

- Collecting and incinerating garbage from the camp kitchen storage area at least twice a day.
- Collecting and incinerating food wastes from the remote lunchrooms such as the process plant, mining shop and airport facilities at least once a day.
- Cleaning out the incinerator on a regular basis and properly disposing of non-burnables and ash.

- Informing the Site Supervisor of any problems or potential problems.

The Site Supervisor is responsible for:

- Ensuring that waste is collected and incinerated daily.
- Ensuring that the incinerator is cleaned out on a regular basis and that non-burnables and ash are properly disposed.
- Informing Site Services of any problems or potential problems.

DEFINITIONS N/A

REFERENCES AND RELATED DOCUMENTS

Waste Management Plan (To be developed in EMS)

Operational Procedure: Incinerator Use (To be developed in EMS)

Operational Procedure: Solid Waste Handling and Disposal (To be developed in EMS)

3. MITIGATION PROCEDURE: WILDLIFE SAFETY TRAINING PLAN

PURPOSE

To ensure that all personnel at the High Lake and Izok Projects are provided guidance on how to respond in a manner that is safe to both humans and wildlife should they encounter wildlife on or around the site.

SCOPE

This wildlife safety training guide outlines the recommended levels of training that specific groups of people at the High Lake and Izok Project sites should receive. Training starts from the general to the specific and provides an opportunity for anyone on site to become more aware of the wildlife and wildlife safety issues in the High Lake and Izok Project areas.

OVERVIEW

The High Lake and Izok Project areas provides both year-round and seasonal habitat for wildlife species. It is important that human activity at the sites does not result in wildlife encounters that put people or wildlife at risk. All personnel on site have a role to play in ensuring human safety, conservation of wildlife, and documenting wildlife activities in the Project area.

PROCEDURE

WILDLIFE AWARENESS

Site Orientation to include:

- General site rules regarding wildlife.
- No Feeding Wildlife policy
- Wildlife have the Right of Way
- No Littering policy
- Relevant sections of the Waste Management Plan
- Reporting Wildlife
- Encountering Wildlife
- Bear Encounters

General wildlife awareness training is self-directed learning where people are able to obtain and view the educational materials dealing with wildlife found in the High Lake and Izok areas.

- Species to include are grizzly bear, caribou, muskox, wolverine, fox and wolf.
- Printed publications will be stocked and made available in recreation areas.
- Videos can be signed out from the Environment office for private or group viewing in the TV lounges.

Wildlife Awareness training can be supplement with presentations by guest speakers who are knowledgeable about wildlife in the area.

Bear Awareness Training will be mandatory for anyone working outside or participating in leisure activities outside i.e. joggers, walkers, hikers, photographers etc.

- Training can be self-directed by viewing the video Staying Safe in Bear Country or by attending a bear awareness presentation when available.
- Both the video viewing and presentation options will include the completion of a multiple-choice test.

WILDLIFE SAFETY

Bear Safety Training provided by qualified contractor or Conservation Officer to include:

- Bear ecology
- Behaviour
- Human/ Bear encounters
- How to react in a bear encounter
- Prevention
- Detection
- Deterrents
- Field Worker Safety

Carnivore Safety Training provided by qualified contractor or Conservation Officer to include:

- Ecology and behaviour of Wolf, Fox and Wolverine
- Wildlife/ Human encounters
- How to react in a wildlife encounter
- Prevention
- Rabies
- Detection
- Deterrents

Deterrent Training provided by qualified contractor or Conservation Officer to include:

- Ecology and behaviour of Caribou, Wolf, Fox and Wolverine
- Wildlife/ Human encounters
- How to react in a wildlife encounter
- Prevention
- Detection
- Waste Management Plan

- Wildlife Deterrent Plan
- Detailed Deterrent training

TRAINING	WHO
Site Orientation	**EVERY EMPLOYEE, CONTRACTOR AND VISITOR**
General Wildlife Awareness	**EVERY EMPLOYEE, CONTRACTOR AND VISITOR**
Bear Awareness	**EVERY EMPLOYEE, CONTRACTOR AND VISITOR WORKING OUTSIDE**
Bear Safety Training	**ENVIRONMENT STAFF** **WILDLIFE RESPONSE TEAM** **EXPLORATION CREWS** **SURFACE SURVEYORS**
Carnivore Safety Training	**ENVIRONMENT STAFF** **WILDLIFE RESPONSE TEAM** **EXPLORATION CREWS** **SURFACE SURVEYORS**
Deterrent Training	**WILDLIFE RESPONSE TEAM**

RESPONSIBILITY

The Environment Department is responsible for:

- Ensuring that all employees, contractors and visitors at the High Lake Project site receive wildlife safety training appropriate to their roles and responsibilities.

DEFINITIONS

REFERENCES AND RELATED POLICIES

Project General Site Rules

Operational Procedure: Wildlife Sighting and Activity Log (See Section 4.)

Operational Procedure: Bear Encounters (See Section 9.)

Operational Procedure: Wildlife Response Team – Bear Response (See Section 10.)

Operational Procedure: Reporting Bear Sightings and Encounters (See Section 8.)

Operational Procedure: Encountering Wildlife Carcasses (See Section 15.)

4. MITIGATION PROCEDURE: WILDLIFE SIGHTING AND ACTIVITY LOG PROCEDURES

PURPOSE

To ensure that all personnel at the High Lake and Izok Projects are aware of the need to complete the Wildlife Sighting and Activity Log.

SCOPE

Applies to all employees, contractors and visitors at MMG Project sites.

OVERVIEW

Recording wildlife sightings and activity provides MMG with a historical record of wildlife use of the area and can be used by the Wildlife Response Team to predict timing of potential wildlife encounters.

PROCEDURE

- Whenever wildlife is spotted within the area of the Project, the sighting is to be recorded in the Wildlife Sighting and Activity Log on return to camp.
- The information to be recorded includes:

  Date

  Recorders name.

  Location of wildlife observed

  The type and number of wildlife.

  A general description of the animal's behaviour i.e. moving north, feeding, etc.

TRAINING

- Initial Orientation Program for all employees, contractors, and visitors will include information on the need to report wildlife sightings in the Project area.

RESPONSIBILITY

Every individual is responsible for:

- Reporting and/or recording wildlife sightings.

The Project Environmental Manager is responsible for:

- Ensuring that all employees, contractors and visitors understand this policy and procedure.
- Ensuring that the wildlife Sighting and Activity log is posted in a location accessible by all employees.
- Maintaining the Wildlife Sighting and Activity Log book and ensuring its accuracy.

- Compiling monthly summaries of the data from the log sheets.

REFERENCES AND RELATED DOCUMENTS

DEFINITIONS

REFERENCES AND RELATED POLICIES / PROCEDURES

Induction Program

Operational Procedure: Wildlife Encounters (See Section 7.)

Operational Procedure: Reporting Bear Sightings and Encounters (See Section 8.)

Wildlife Safety Training Plan (See Section 3.)

5. MITIGATION / CONTINGENCY PROCEDURE: TRAFFIC MANAGEMENT

PURPOSE

The purpose of the traffic management procedures is to reduce the risk of wildlife/vehicle collisions and the potential disturbance of wildlife from vehicle and aircraft traffic in the Project area.

SCOPE

Traffic management procedures apply to anyone operating vehicles or aircraft in the High Lake Project area during all phases of the Project. The procedure addresses:

- recommended traffic speeds;
- vehicle and aircraft operators' directions regarding the presence of wildlife on or near roads and the airstrip; vehicle and aircraft operators' notification of sensitive wildlife habitat to avoid.

OVERVIEW

Project Sites of Concern:

High Lake:

- camp and infrastructure
- core shack
- fuel cache locations

Izok (Ham Lake Camp):

- camp and infrastructure
- core shack and enviro shack outside of bear fence
- fuel cache and core lay down
- airstrip
- dock and pump site
- roadway linking camp to airstrip
- seasonal winter trail / ice airstrip

Vehicle traffic on access roads and trails, and aircraft landing and taking-off from the airstrip present the potential for accidental wildlife mortality due to vehicle/wildlife collisions. Vehicle and aircraft traffic may also cause a disturbance to wildlife in the vicinity of the project site.

NOTE: Vehicle traffic on roads is predicted to be the largest source of dust. Controlled traffic speeds combined with watering of roads will mitigate dust generation from site roads.

PROCEDURE

General:

- Wildlife are to have the right-of-way when crossing or attempting to cross roads or the airstrip.
- All vehicles are to be restricted to designated roads and prepared work areas within the designed footprint of the site.
- Recreational use of off-road vehicles is to be prohibited.

Air Traffic:

- Where logistically feasible, aircraft are to maintain a minimum flying altitudes as outlined in the table below:

Minimum Flying Altitude	Situation
> 300 m (approx. 1,000 ft)	• Minimum flying altitude for all project related aircraft.
> 650 m (approx. 2,100 ft)	• All site supply and crew change flights except during landing and take off. • Whenever flying over areas likely to have nesting migratory birds. • Whenever flying over known raptor nesting areas during the nesting season.
>1,100 m (approx. 3,600 ft)	• Near areas where birds are known to concentrate (e.g., breeding colonies, moulting areas). • Near identified caribou water crossings when sites are active.

- Caribou will be herded off the runway prior to aircraft landings and takeoffs. Herding techniques are described in “Herding Guidelines”.

Surface Vehicle:

SURFACE VEHICLE TRAFFIC SPEEDS:	**Maximum Vehicle Speed (km/hr)**		
ALL WEATHER ROADS:	Light Vehicle	Snowmobile	Equipment
• Camp and service roads. • Dock, fuel cache and laydown areas.	20	20	20
• All auxiliary roads e.g., service roads and airstrip access.	40	40	40

•			

SURFACE VEHICLE TRAFFIC SPEEDS:	**Maximum Vehicle Speed (km/hr)**		
WINTER ROAD:	Light Vehicle	snowmobile	Equipment
• Approaching and exiting portages.	20	20	10
• Travel over portages.	Posted speed		
• Travel over ice.	60	30	20

- Further restrictions on speeds may be applied based on actual driving conditions and the presence of wildlife.

Wildlife Advisory System:

The goal of the wildlife advisory system is to alert all Project employees and contractors that wildlife are on, or close to roads or the airstrip so that appropriate precautions are to be taken.

Wildlife sightings:

- Any wildlife sighted in the Project area is to be recorded in the "Wildlife Sighting and Activity Log".
- Any bear sighted **< 1 km** from the project footprint will be considered an encounter and the "Reporting Bear Sighting and Encounters" procedure will be followed.
- Wildlife **< 1 km and > 500 m** from roads or the project footprint and moving towards project roads or infrastructure:
  - Reported to the Environment Department or designate via radio.
  - Environment Department will notify vehicle operators working in the area.
  - Sighting recorded in the "Wildlife Sighting and Activity Log". (Wildlife type, numbers etc.)
- Wildlife **< 500 m** from roads or the project footprint:
  - Reported to the Environment department, via radio.

- When notified Environment personnel will be dispatched to the location to monitor the situation.
- Based on monitoring of the wildlife, the Environment department will advise Area Manager of appropriate action(s) to be taken.
- Each sighting is to be recorded in the "Wildlife Sighting and Activity Log".
- If appropriate, Area Manager to implement a Caribou / Muskox Watch.

Caribou / Muskox Watch:

Experience at other Nunavut and Northwest Territories mine sites shows that caribou or muskox are the species most likely to come into conflict with vehicles and aircraft in the Project area. Based on this, extra precautions will be taken when dealing with these species.

For instance a "Caribou / Muskox Watch" system will serve as a communication tool to alert vehicle and equipment operators of the presence of caribou or muskox on or near the project infrastructure. This advisory system will include the use of radio broadcasts and roadside signage to alert drivers of presence of caribou or muskox and what mitigation measures are to be put into effect.

Traffic or activity controls that may be put into place to minimize the risk of vehicle / wildlife conflict include, but are not limited to:

- reduced traffic speed
- traffic rerouting or stoppage
- construction and operations activities controlled or stopped
- cancel or reschedule flights
- herding or deterrent action

Traffic or activity controls will remain in effect until monitoring by Environment personnel determines that the risk of vehicle / wildlife collisions has either been reduced or increased. Controls will be adjusted appropriately.

Advisories and specified actions are shown in the chart below. Codes and warning signs are to be posted at key areas on site.

MMG IZOK AND HIGH LAKE - CARIBOU / MUSKOX WATCH			
CODE		TRIGGER	ACTION
GREEN	**NO CONCERN**	**NO CARIBOU OR MUSKOX WITHIN 500 M OF PROJECT INFRASTRUCTURE.**	**POSTED TRAFFIC SPEEDS REMAIN IN EFFECT IN ALL AREAS.**
YELLOW	**BE AWARE**	**CARIBOU OR MUSKOX <500 M BUT >100 M OF PROJECT INFRASTRUCTURE.**	**TRAFFIC SPEED REDUCED TO 30 KM/HR WITHIN 1 KM OF REPORTED WILDLIFE.** **POSTED TRAFFIC SPEEDS REMAIN IN EFFECT IN ALL OTHER AREAS.**
ORANGE	**CAUTION**	**CARIBOU OR MUSKOX <100 M OF PROJECT INFRASTRUCTURE.**	**TRAFFIC SPEED REDUCED TO 20 KM/HR WITHIN 1 KM OF REPORTED WILDLIFE.** **TRAFFIC RESTRICTIONS MAY BE IN PLACE, GO TO CHANNEL? FOR INSTRUCTIONS.**
RED	**ALERT**	**CARIBOU OR MUSKOX ON ROADS OR PROJECT INFRASTRUCTURE.**	**TRAFFIC RESTRICTIONS IN PLACE, GO TO CHANNEL? FOR INSTRUCTIONS.**

In addition to presence, the numbers of animals and their behaviour will have a bearing on the level of alert implemented and the mitigation measures to be put into effect.

YELLOW	**LARGE HERDS OF CARIBOU WITHIN THE PROJECT AREA.**	**AIRCRAFT PILOTS NOTIFIED AND IF POSSIBLE THE AREAS ARE TO BE AVOIDED.**
ORANGE	**HERDS OF CARIBOU > 500 M FROM PROJECT INFRASTRUCTURE BUT DIRECTION OF TRAVEL IS TOWARDS PROJECT INFRASTRUCTURE.**	**TRAFFIC SPEEDS TO BE REDUCED.**
RED	**ANY NUMBER OF CARIBOU OR MUSKOX CROSSING OR ATTEMPTING TO CROSS A ROAD OR THE AIRSTRIP.** **TRAFFIC OR ACTIVITY IN THE AREA IS STRESSING THE ANIMALS PREVENTING THEM FROM CROSSING.**	**TRAFFIC OR ACTIVITY WILL BE STOPPED.** **HERDING ACTION MAY BE IMPLEMENTED IF ANIMALS STALL ON ROAD OR AIRSTRIP.**

Wildlife / Vehicle Collisions:

In the event that wildlife is injured or killed as a result of a collision with a vehicle at the High Lake Project site, the Nunavut Department of Environment (NDE), Kugluktuk will be contacted immediately.

- Injured wildlife will be put down as quickly and humanely as possible.
- Information and samples will be collected as outlined in the “Encountering Wildlife Carcasses” procedures.

- NDE will be asked to provide direction on disposal of carcass.

TRAINING

- Orientation program.
- Vehicle and equipment operators will be provided a detailed briefing by their supervisors.
- Tibbitt to Contwoyto Winter Road Joint Venture orientation power point presentations.

RESPONSIBILITY

Vehicle and aircraft operators are responsible for:

- Reporting wildlife sightings.
- Keeping informed of traffic advisories, both radio and signage.
- Immediately complying with advisories.
- Following the directions of Environment personnel at the scene.

Environment Department Personnel will:

- Monitor wildlife.
- Advise the Area Manager of wildlife activity.
- Recommend mitigation action(s).
- Record animal presence, behaviour, mitigation measures taken and the results.
- Provide NDE with reports as required by NDE.

Airport Personnel will:

- Inform helicopter pilots to where feasible maintain a minimum flying altitude of 300 m (approx. 1,000 ft) AGL and not approach within 1,100 m (approx. 3,600 ft) of identified caribou water crossings, and waterfowl concentration nesting areas.
- Inform pilots of the location of these sites and other sensitive wildlife habitat.

The Area Manager will:

- Ensure that the traffic management procedures are implemented and enforced.
- Broadcast traffic advisories and direct site services to change advisory signage.
- Directs Wildlife Response Team (WRT) to implement mitigation measures.

DEFINITIONS

NDE: Government of Nunavut Department of Environment.

REFERENCES AND RELATED POLICIES / PROCEDURES

Operational Procedure: Wildlife Encounters (See Section 7.)

Operational Procedure: Reporting Bear Sighting or Encounter (See Section 8.)

6. MITIGATION / CONTINGENCY PROCEDURE: MIGRATORY BIRD MITIGATION

GOAL:

To reduce and prevent potential disturbances to migratory birds from mining and human activities at the Project sites.

OBJECTIVES:

1. To list mitigation / contingency procedures within the wildlife mitigation and contingency procedures report that are applicable to migratory birds at the Project site.
2. To detail mitigation / contingency procedures specific to migratory birds.

OVERVIEW:

MIGRATORY BIRDS IN THE HIGH LAKE PROJECT STUDY AREA:

Almost all birds of the Project study area are migrants, but there are a few notable exceptions, including two species of ptarmigan, raven, gyrfalcon, and the snowy owl. These species may undertake short local migrations for periods of the winter but do not go to predictable wintering areas as do true migratory birds like waterfowl and most passerines.

MIGRATORY BIRDS CONVENTION ACT

The Migratory Bird Convention (MBC), signed in 1916 between Great Britain (Canada) and the United States, was established to stop the widespread decline in populations of migratory game birds and insectivorous birds, as well as to stop the indiscriminate slaughter of these populations by market hunters for the food and feather industry. In Canada the Migratory Bird Act and the Migratory Bird Regulations are the legal instruments for implementing the MBC.

The Migratory Bird Act and the Regulations provides protection to the majority of bird species that use the High Lake area. The sections of the migratory bird regulations most relevant to operations at the High Lake Project site are:

Section 6.

Subject to subsection 5(9), no person shall

a) disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or

b) have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird

except under authority of a permit therefore. SOR/80-577, s. 4.

Section 35.(1)

Subject to subsection (2), no person shall deposit or permit to be deposited oil, oil wastes or any other substances harmful to migratory birds in any waters frequented by migratory birds.

The operators of the High Lake Project are aware of their responsibilities and role in protecting migratory birds within the project area and are taking steps to mitigate to the greatest extent possible any disturbances to nesting or breeding birds and their habitats.

WILDLIFE MITIGATION AND CONTINGENCY PROCEDURES REPORT AND MIGRATORY BIRDS:

There are no known areas where migratory birds congregate within the Project area and to date there has been no key migratory bird terrestrial habitat sites identified. However, MMG has plans in place to deal with any changes in this status.

Wildlife Mitigation / Contingency Measures:

Appendix I (wildlife mitigation and contingency procedures) contains the Wildlife Mitigation / Contingency Measures which summarize the proposed mitigation measures for each of the potential wildlife impacts contained in the Nunavut Impact Review Board environmental assessment terms of reference. Listed below are the Wildlife Mitigation / Contingency Measures that are applicable to migratory birds.

MITIGATION / CONTINGENCY MEASURES SPECIFIC TO MIGRATORY BIRDS:

General Mitigation:

- Where feasible and practical, Project facilities will be built outside of the nesting season when migratory birds are absent.
- Minimize the area of surface disturbance, particularly wet meadow and esker habitats.
- Minimize disturbance of beach shorelines adjacent to water bodies.
- Aircraft are to maintain a minimum flying altitude of:
  - > 650 m (approx. 2,100 ft) above ground level (AGL) or greater when over areas likely to have nesting migratory birds
  - > 1,100 m (approx. 3,600 ft) AGL over area where birds are known to concentrate (e.g., breeding colonies, moulting areas)
- Personnel and equipment to avoid occupied waterfowl nesting areas, raptor nests and any other active nests.

Nesting Season:

The exact dates when migratory birds nest in the Project area are difficult to predict but can be estimated based on when the species arrives in the project area. The majority of migratory birds arrive in late May to early June. Canada Geese arrive slightly earlier around mid May.

Shortly after arrival in the Project area birds will begin to set up territories and build nests. Then they will lay eggs that are incubated for a certain time period. The time between when the eggs hatch and when the young leave the nests varies greatly between species and can range from 24 hrs to 24 days.

Mitigation:

The project construction phase has the greatest potential for conflict with nesting birds; appropriate design criteria and construction scheduling will significantly reduce the potential for destruction of eggs or active bird nests. Examples of project scheduling that will reduce conflicts with nesting migratory birds include:

- Winter road activities will be completed before migratory birds return.
- Where feasible and practical, construction of all building and stockpile pads and roadways will be conducted outside of the nesting period.

Nesting on Infrastructure:

Tank farms, fuel caches, camp and infrastructure all present potential perching or nesting opportunities for some migratory birds. However cliffs, dikes and outcrops in the High Lake area provide an abundance of natural perching and nesting habitat.

Migratory birds likely to nest on mining infrastructure are smaller species that will have little effect on mining operations; however changes in activity levels near the nest may have an impact on the birds.

Mitigation:

- Anyone finding a nest is to report it to their supervisor immediately. The supervisor will report the finding to the Environmental manager.
- Nests will not be disturbed during the nesting period unless the nests or the birds affect operations.
- If the nests or birds using them affect operations or pose a safety risk, EC will be consulted. A permit to move or destroy the nest may be required.
- Bird nests on mining infrastructure can be removed following the breeding season and appropriate deterrents installed to prevent birds form nesting at these sites again.
- Prior to post-stockpiling disturbance of the overburden and ore stockpiles, a survey will be conducted to determine whether migratory birds are nesting on these sites. If nests are found they will be avoided where practical until nesting is completed.

Airport and Aircraft Controls

Aircraft collisions with the larger migratory birds such as ducks, geese and gulls present the greatest risk to humans from migratory birds. Aircraft traffic can also negatively impact on nesting migratory birds and raptors.

Mitigation:

This report sets out the procedures to be followed when herding or deterring wildlife from the airstrip. These can also be applicable to deterring migratory birds such as ducks, geese and gulls.

More detailed and specifically relevant information can be found in the following publications available from the aviation branch of Transport Canada:

Transport Canada - Sharing the Skies Manual (TP13549 E)

http://www.tc.gc.ca/CivilAviation/Aerodrome/WildlifeControl/tp13549/menu.htm

Transport Canada – Wildlife Control Procedures Manual TP 11500

http://www.tc.gc.ca/CivilAviation/Aerodrome/WildlifeControl/tp11500/menu.htm

The Environmental and Airport managers will review these documents and determine the best options for the safe operation of the High Lake airstrip at Sand Lake and to ensure that wildlife responders are trained in the techniques chosen.

Aircraft associated with the Project will be subject to minimum altitude restrictions and pilots will be informed of areas to avoid, such as nesting waterfowl or raptor sites.

Access to Contaminated Water

Experience from mine sites in the Northwest Territories has shown that failure to effectively monitor and clean-up the melt water from contaminated snow can result in harm to migratory birds.

Many fuel spills are minor and cleanup easily done with the use of absorbent materials designed for collecting fuels and oils. During the winter snow is a natural absorbent for effectively soaking up fuel. Collected snow can be temporarily stored in drums with locking lids or, if the volume of snow is not too great, it can be placed in the incinerator and the fuel or oil burned off.

It may be more difficult to deal with volumes of snow produced by a larger spill. Then it is necessary to temporarily store the snow in engineered or large portable containment berms. When the snow melts, the fuel is released and collected from the surface of the water. Since it can take a long time for the contaminated snow to completely melt and all the fuel to collect in the sump, there is a period of time that the contaminated water presents a risk to migratory birds and other animals. However steps can be taken to prevent access.

As well other potential sources of contaminated water include:

- Sumps within land farms and tank farms.
- Trenches or sumps created for capturing fuel as a result of a spill during snow free period.

The following mitigation measures can be used for all of the situations noted above. Proper mitigation can also prevent small mammals from being exposed to the contaminated water.

The mitigation measures listed below will be incorporated into the Spill Prevention, Countermeasures & Control Plan.

Mitigation:

Past experience at mine sites in the Northwest Territories shows that it is difficult to constantly monitor contaminated snow storage areas and remove the contaminated water produced from melt. The oil industry has significant experience in preventing birds and small mammals from gaining access to waste oil pits and they have concluded that the most effective way to ensure that migratory birds do not have access to the pits is to use physical barriers. Applications in the Arctic require barriers that are portable and easily installed and removed.

Netting: The Canadian Wildlife Service website migratory birds environmental; assessment guidelines section links to the U.S. Fish and Wildlife Service web site where it is stated that, "Netting appears to be the most effective method of keeping birds from entering waste oil pits."

US Fish and Wildlife Service Region 6 Environmental Contaminants

Oil Field Waste Pits

http://www.r6.fws.gov/contaminants/contaminants1c.html

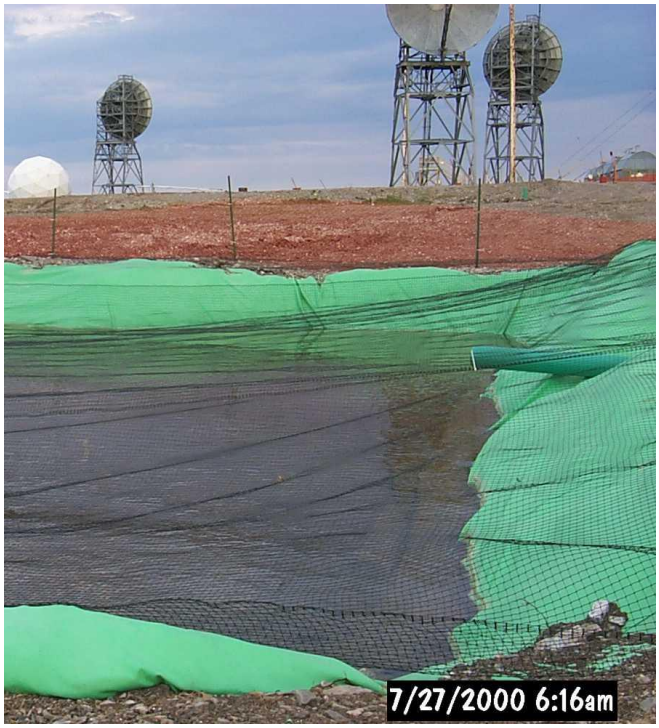
Polypropylene Netting:

The Polypropylene netting technique is applicable to northern situations and was used successfully as part of the cleanup operation of the Lady Franklin DEW Line fire. Birds were prevented from gaining access to contaminated snow and melt water.

Properly installed netting can be used to cover small areas such as a sump within a berm to large ponds. Areas for potential use of netting at the High Lake Project site include:

- Storage berms for contaminated snow.
- Land farm and tank farm sumps.

- Interception trenches and sumps.



Lady Franklin DEW line contaminated water collection pond.

(Source: Andy McMullen)

The effectiveness of netting to exclude birds and other wildlife depends on its installation. Snow-loading and the prevention of ground entry by small mammals must be considered in the installation design. This is done by suspending polypropylene netting with a maximum mesh size of 1½" over top of the contaminated water and extending it down the sides of the support frame (U.S. Fish and Wildlife Service). The netting must be supported to prevent the net from sagging onto the surface of the water.

Proper monitoring and maintenance are necessary to prevent wildlife and migratory birds from accessing the contaminated water. Any signs of digging and any damage to netting must be repaired immediately. It may be necessary to re-stretch the netting or to adjust or add supports to keep the netting above the surface of the water.

CONTINGENCY MEASURES:

Construction during Nesting Season

Project scheduling of initial construction of roads, building pads, tailings dams etc. should be conducted outside of the nesting season where logistically feasible. However, some construction activity will be required to take place during the nesting season. In order to reduce negative impacts on nesting birds and prevent costly delays in project development, contingencies must be planned and agreed to ahead of time.

Ground Surveys:

Prior to construction of project infrastructure during the nesting season, a ground survey will be conducted to search for nests. If nests are found, they will be recorded and observed to determine if they are being used (active nests). If active, nests will be marked and operators will be instructed to avoid these areas until the nesting season is over.

Deterrents:

The size of the boundaries around protected nest sites will be site specific and may be difficult to determine and discussions with regulators time consuming. If construction is to take place during the nesting season, it is more difficult to schedule activities as the discovery of an active bird nest could bring the planned construction activity to a halt. The agricultural and aviation industries used deterrent devices to prevent migratory birds from moving into certain areas. Use of these at planned construction sites for a period of time may deter birds from nesting in the area.

In the High Lake area no habitat has been listed as either key or critical and there is an abundance of suitable habitat outside and close by the proposed construction sites. Therefore deterrence may be acceptable; Environment Canada should be consulted in specific cases.

A number of deterrent devices are commercially available. These range from visual to acoustic devices. The exact choice of deterrent should be determined in consultation with Environment Canada prior to the arrival of migratory birds on the High Lake Project study area.

Deterrent methods should only be applied for a short time starting prior to the predicted arrival of the species most likely to nest in the type of habitat at the construction site. The deterrent season can be tailored to the species most likely to use the habitat or it could be a maximum period of mid May to late June.

If the construction is already underway prior to arrival of migratory birds, human activity in the area may be the only deterrent needed.

Airport Safety

In the event that migratory birds become a safety risk to aircraft using the Sand Lake airstrip the company may apply to Environment Canada for an airport permit. Section **28.** (1) of the regulations states, "The Minister may issue a permit to kill on the airport migratory birds that are considered by such manager, commanding officer or nominee to be a danger to aircraft operating at such airport." Application for an airport permit should be a last resort.

RECORDING & REPORTING:

- Bird sightings are to be recorded in the Wildlife Sighting log.
- Any nests are to be reported to Environmental Department via direct supervisor.
- All spills are to be reported as per the Spill Prevention, Countermeasures and Control Plan.

TRAINING:

- Induction Program for all employees, contractors, and visitors will include information on reporting and avoiding active nest sights.
- Job specific training will be provided to airport staff and WRT members.
- Spill response team members will be instructed in the proper disposal and storage procedures for contaminated soils and snow.

RESPONSIBILITIES:

All Employees must:

- Record bird sightings in the Wildlife Sighting log.
- Report the finding of nests to supervisor.
- Avoid active nests.

The Environmental Manager must:

- Ensure that all employees are aware of migratory bird concerns.
- Ensure that Wildlife Response Team members receive deterrent procedure training.
- Ensure that the Spill Response Team members are aware of and receive training in migratory bird mitigation techniques to be used to keep birds out of contaminated water.

Airport Manager:

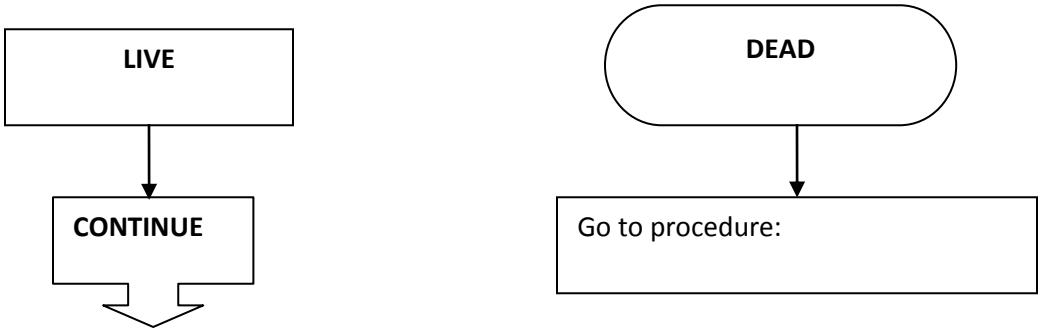
- In consultation with the Environmental Manager and Environment Canada select the most appropriate deterrent action for preventing bird / aircraft collisions.
- Ensure that staff is trained in the techniques selected.

DEFINITIONS:

REFERENCES AND RELATED POLICIES:

- Migratory Bird Act ad Regulations
- Wildlife mitigation and contingency procedures report
- Wildlife Mitigation / Contingency Measures Summary (See Appendix I)
- Spill Prevention, Countermeasures & Control Plan

7. CONTINGENCY PROCEDURE: WILDLIFE ENCOUNTERS



PURPOSE

To ensure that all personnel at the High Lake Project are provided guidance on how to respond in a manner that is safe to both humans and wildlife should they encounter wildlife on or around the site. Remember wildlife has the right-of-way.

SCOPE

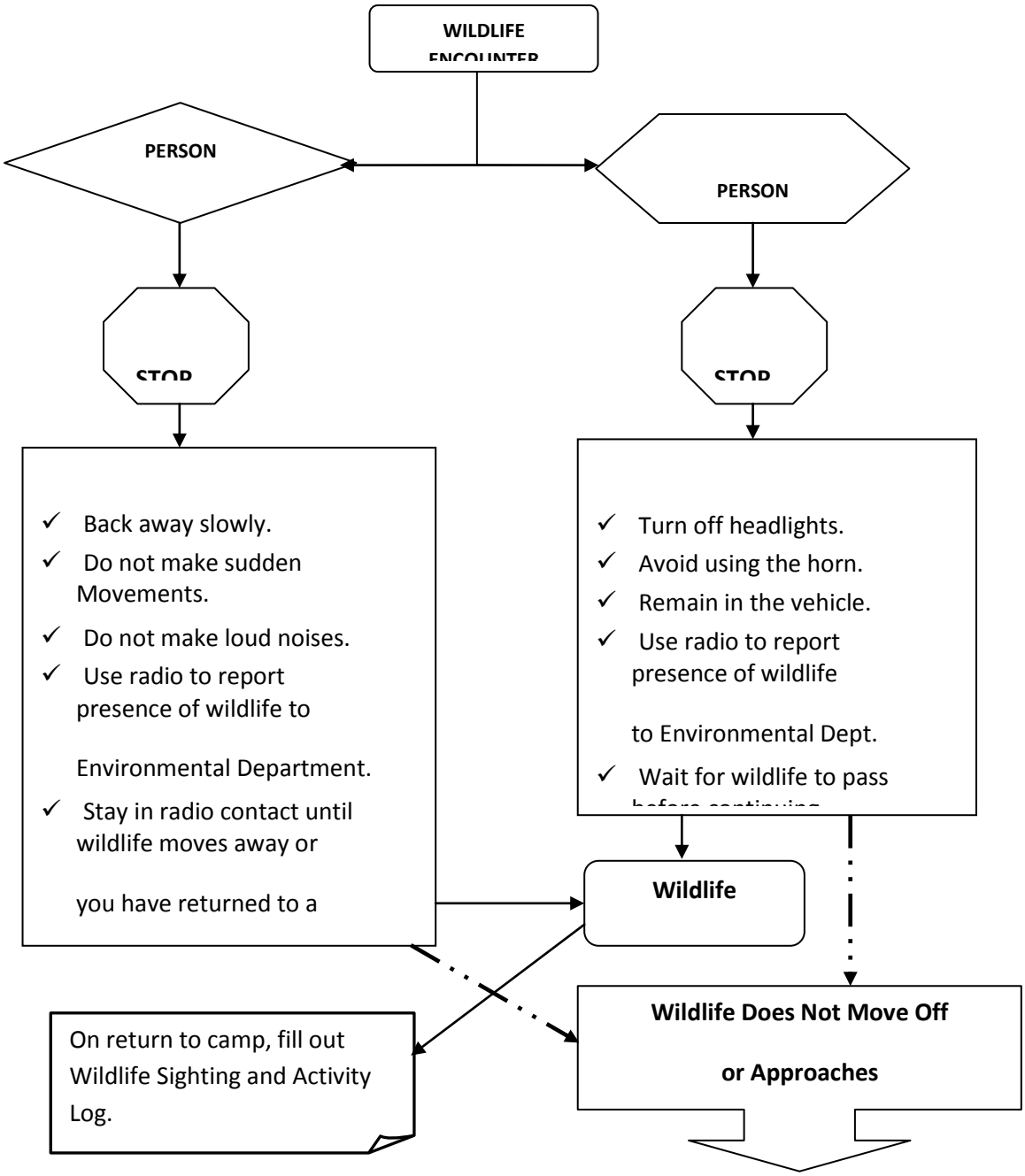
This Operation Procedure applies to all personnel at the High Lake Project, including exploration crews, who encounter wildlife on or around the site.

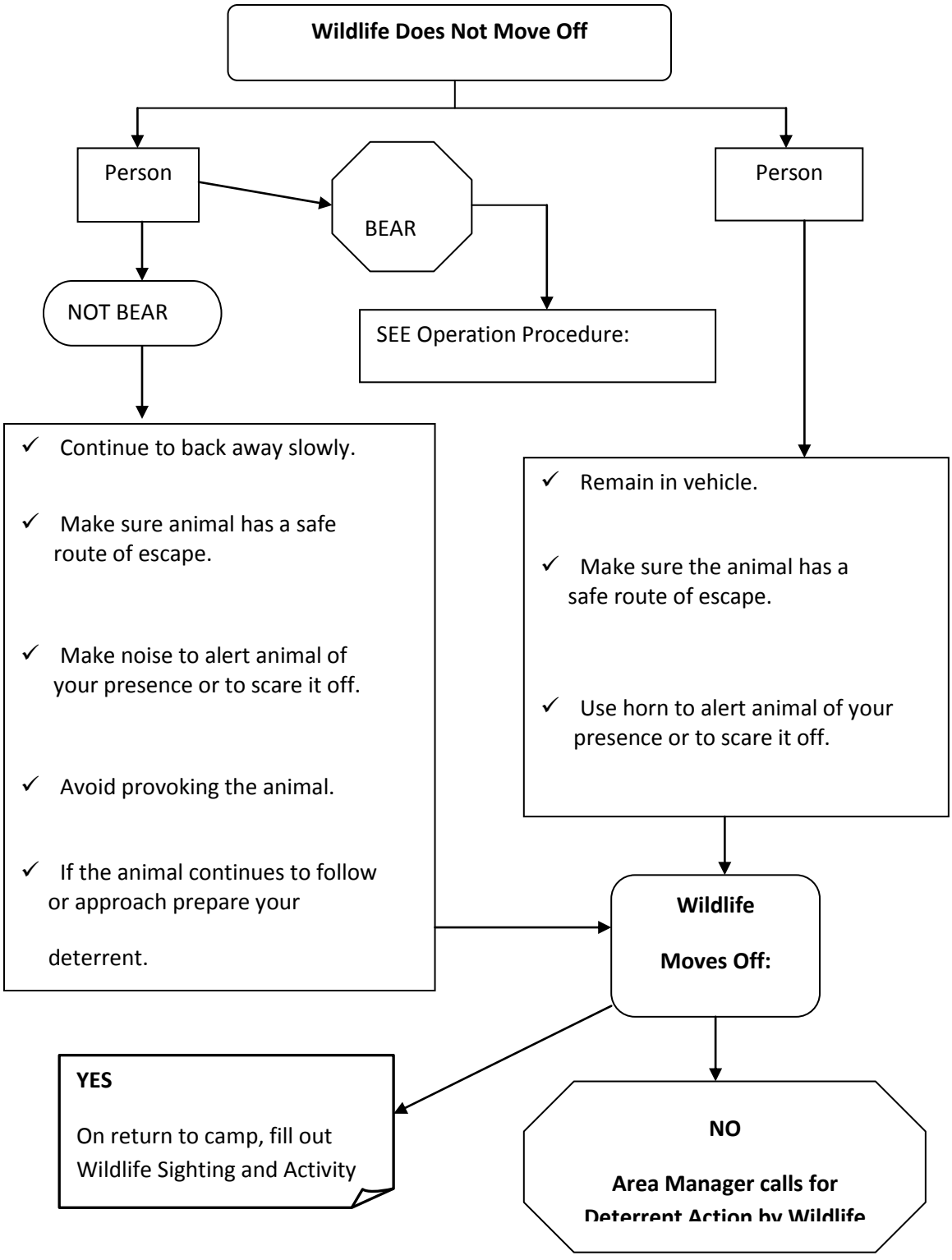
OVERVIEW

The High Lake Project area provides both year-round and seasonal habitat for wildlife species. It is important that human activity at the High Lake site does not result in wildlife encounters that put people or wildlife at risk. All personnel on site have a role to play in ensuring human safety, conservation of wildlife, and the documentation of wildlife activities in the area.

PROCEDURE

See following pages.


WILDLIFE
PERSON
PERSON
STOP
STOP
✓ Back away slowly.
✓ Do not make sudden Movements.
✓ Do not make loud noises.
✓ Use radio to report presence of wildlife to
Environmental Department.
✓ Stay in radio contact until wildlife moves away or
you have returned to a
✓ Turn off headlights.
✓ Avoid using the horn.
✓ Remain in the vehicle.
✓ Use radio to report presence of wildlife
to Environmental Dept.
✓ Wait for wildlife to pass
Wildlife
Wildlife Does Not Move Off
or Approaches
On return to camp, fill out Wildlife Sighting and Activity Log.


Wildlife Does Not Move Off
Person
BEAR
Person
NOT BEAR
SEE Operation Procedure:
✓ Continue to back away slowly.
✓ Make sure animal has a safe route of escape.
✓ Make noise to alert animal of your presence or to scare it off.
✓ Avoid provoking the animal.
✓ If the animal continues to follow or approach prepare your deterrent.
✓ Remain in vehicle.
✓ Make sure the animal has a safe route of escape.
✓ Use horn to alert animal of your presence or to scare it off.
Wildlife
Moves Off:
YES
On return to camp, fill out Wildlife Sighting and Activity
NO
Area Manager calls for
Deterrent Action by Wildlife

RESPONSIBILITY

Every individual is responsible for:

- Recording the sighting on the Wildlife Sighting and Activity Log.
- Reporting the sighting/encounter to the Environmental Department.

The Environmental Department is responsible for:

- Completing Wildlife encounter / Deterrent Report
- Reporting the sighting/ encounter to NDE.
- Calling for Wildlife Response Team action.

DEFINITIONS

NDE: Government of Nunavut Department of Environment

REFERENCES AND RELATED POLICIES

High Lake Project General Site Rules

Operational Procedure: Wildlife Sighting and Activity Log (See Section 4.)

Operational Procedure: Bear Encounters (See Section 9.)

Operational Procedure: Wildlife Response team – Bear response (See Section 10.)

Operational Procedure: Reporting Bear Sightings and Encounters (See Section 8.)

Operational Procedure: Encountering Wildlife Carcasses (See Section 15.)

8. CONTINGENCY PROCEDURE: REPORTING BEAR SIGHTINGS AND ENCOUNTERS

PURPOSE

To ensure that all personnel at the Projects are aware of the procedure for reporting the sighting of bears and bear/human encounters.

SCOPE

This applies to all personnel who see a bear in the Project areas, including all exploration crews.

OVERVIEW

Grizzly Bears are active in the Project areas from April to November. There is potential risk to human safety from all bears attracted to camp or encountered at close range. It is important that all sightings or encounters with bears be reported immediately. Early detection of bears allows camp personnel time to take actions to prevent the presence of a bear from becoming a risk to human safety or property. For the purposes of determining a Wildlife Response Team (WRT) response, the following definitions will be used:

Sighting: A Bear greater than 1 Kilometre from camp perimeter, and greater than 100 meters from area of human activity.

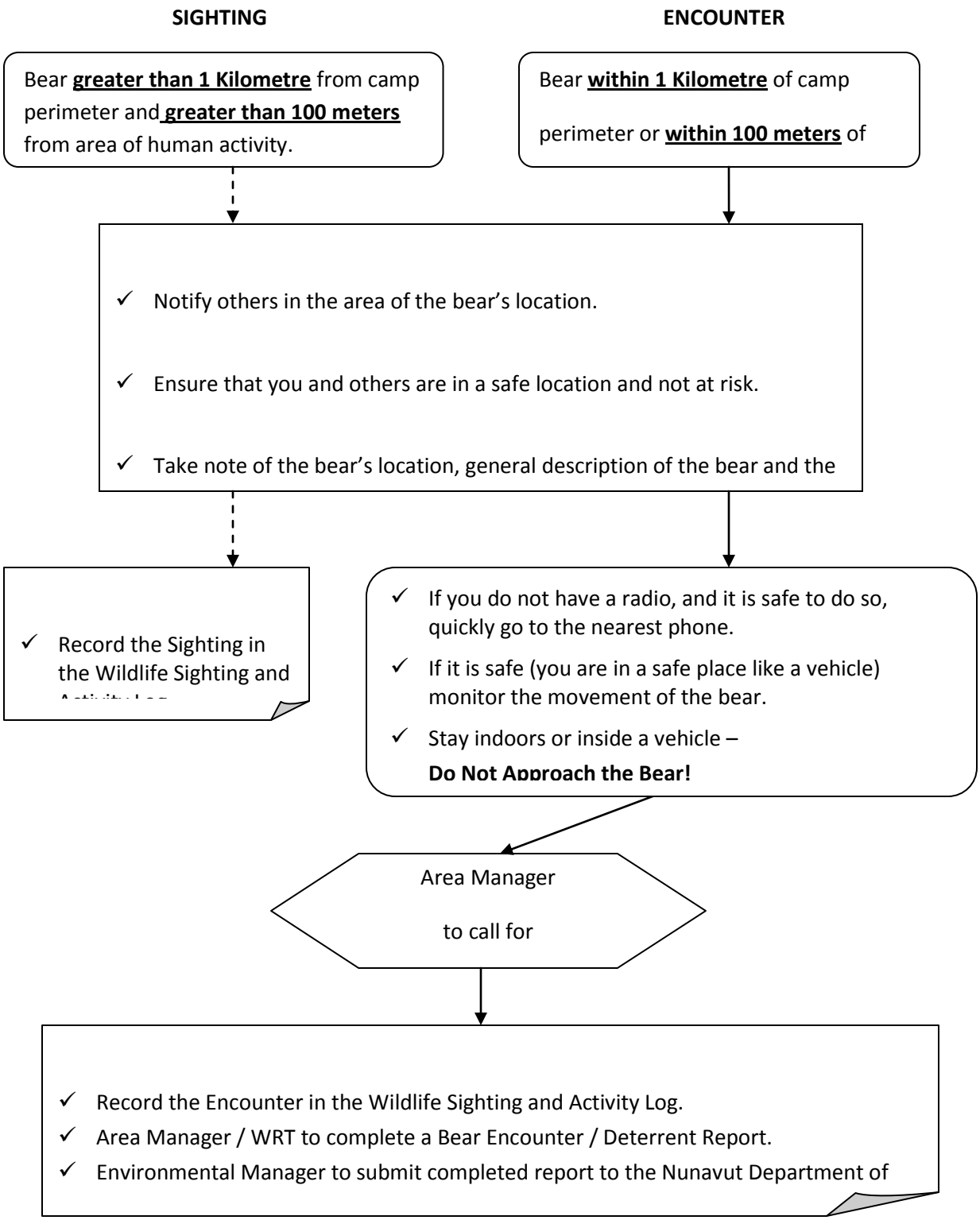
Encounter: A Bear within 1 Kilometre of camp perimeter or within 100 meters of area of human activity.

PROCEDURE

See procedure decision tree on the following page.

PROCEDURE

If you see a bear the following procedures apply:



TRAINING

- Site safety training is required.
- Bear safety awareness.

RESPONSIBILITY

Every individual is responsible for:

- Recording wildlife sightings in the Wildlife Sighting and Activity Log.
- Reporting the wildlife encounter to the Area Manager.

The Area Manager is responsible for:

- Alerting WRT
- Providing the resources and assistance required by the WRT to respond appropriately.
- Reporting the bear encounter to the Nunavut Department of Environment.

DEFINITIONS

Sighting: Bear greater than 1 kilometre of camp perimeter and greater than 100 meters from area of human activity.

Encounter: Bear within 1 Kilometre of camp perimeter or within 100 Meters of area with human activity.

WRT: Wildlife Response Team.

REFERENCES AND RELATED POLICIES / PROCEDURES

Operational Procedure: Wildlife Response Team – Bear Response (See Section 10.)

Operational Procedure: Bear Encounter (See Section 9.)

Operational Procedure: Wildlife Encounter/ Deterrent Report (See Appendix II)

Operational Procedure: Wildlife Sighting & Activity Log Procedures (See Section 4)

9. CONTINGENCY PROCEDURE: BEAR ENCOUNTERS

PURPOSE

To ensure that personnel understand the steps to take if they inadvertently encounter a bear.

This does not replace appropriate levels of bear safety training.

SCOPE

This applies to bear encounters for all personnel working at the High Lake Project site including exploration crews.

OVERVIEW

The Projects are located within know range of the barren-ground grizzly bear. Grizzly bears are active in the area from April to November. Grizzly bears sightings in the High Lake area are a yearly occurrence. Most bears avoid encounters with humans if they detect them in time. However if cornered, threatened or surprised, a bear can be aggressive.

PROCEDURE

Prevention:

- Be alert at all times.
- Respect all bears – they can be dangerous.
- Never approach a bear for any reason.
- Never feed bears or other wildlife.
- Make sure someone knows where you are going and when you plan to return.
- Always carry a portable radio or other communication device to contact the main site.

Encounter:

There is always a possibility you may surprise a bear at close range, or encounter a bear unafraid of people. Though there is no guaranteed formula for reacting to a bear encounter, each one being unique, the following tips may help.

- Stop, stand still and stay calm.
- Assess the situation.
- Slowly back away keeping your eye on the bear. Do not run.
- If the bear is aware of you help the bear identify you as human by talking in a low voice and slowly waving your arms. Moving upwind will help the bear get your scent.
- Go to a safe location i.e. inside a building or vehicle.
- Use your radio to alert Environmental Department of your situation.

TRAINING

- Site safety training is required.

- Bear safety awareness.

RESPONSIBILITY

Every individual is responsible for:

- Reporting the Encounter to the Environmental Department.
- Recording the Encounter in The Wildlife Sighting and Activity Log

The Environmental Department is responsible for:

- Completing the Wildlife Encounter Report
- Reporting the Encounter to NDE, Kugluktuk.
- Dispatching vehicle or helicopter to remove persons to a safe location.
- Dispatching Wildlife Response Team if required.

Wildlife Response Team is responsible for:

- Providing deterrent action if encounter within the mine footprint.

DEFINITIONS

NDE: Government of Nunavut Department of Environment

REFERENCES AND RELATED POLICIES / PROCEDURES

Operational Procedure: Reporting Bear Sightings and Encounters (See Section 8.)

Operational procedure: Wildlife Sighting and activity Log (See Section 4.)

10. CONTINGENCY PROCEDURE: WILDLIFE RESPONSE TEAM - BEAR RESPONSE

PURPOSE

To ensure that all on-site personnel assigned responsibility for responding to bear sightings, encounters, and bears in camp understand the appropriate procedures for dealing with these situations.

SCOPE

This procedure applies to Project Wildlife Response Teams (WRT) members and designated individuals, who are responsible for dealing with bear encounters or a bear in the camp. The number of people on-site and the levels of activity will fluctuate during the construction, operation and decommissioning phases of the project and there will not always be a Wildlife Response Team available; alternatives must be assigned that role by the Environmental Manager.

OVERVIEW

There are a number of reasons why bears and people might encounter each other. The bear may be attracted to the facilities, food or garbage odours, or it may be curious. Whatever the reason for the encounter, it is important to deal with the situation quickly and efficiently to ensure the safety of people and bears.

For the purposes of this procedure any time a bear approaches within 100 m of an area of human activity, a WRT response will be initiated. "Area of Human Activity" - means any area within the project footprint where people are active. The size of this area will increase and decrease based on the level and location of activity on site. For example when there are only a few people in camp and no one is working outside of the camp area, there will be no need to deter a bear on or near the runway. However there will also be areas of the project where bears will not be allowed regardless of the level of activity on site. These areas include:

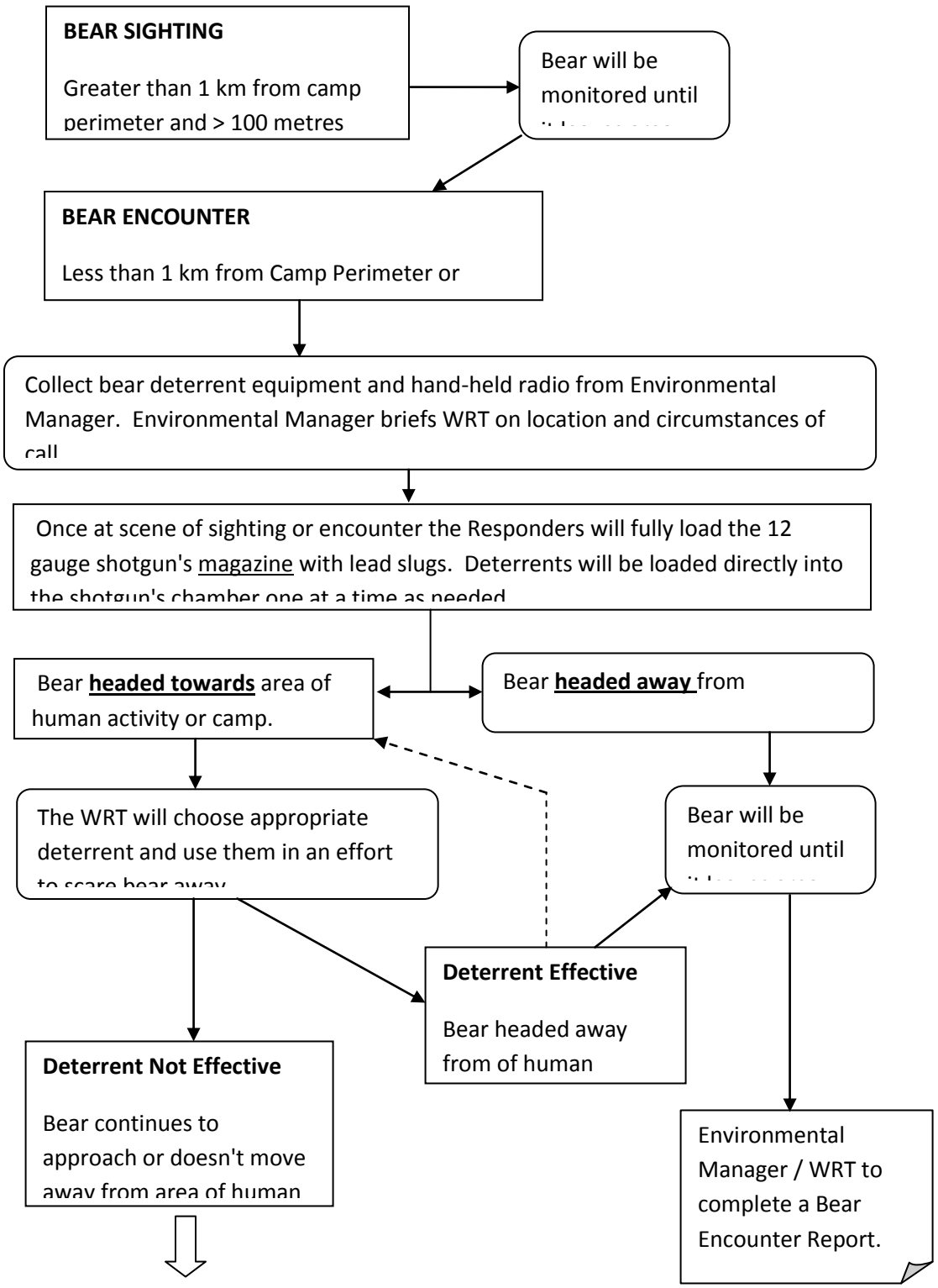
- the accommodation complex including the dorms, kitchen, office, dry, first aid, toilets, and incinerator.
- the infrastructure, including shop, tank farm, laydown areas, airstrip, roadways and other areas that could present a risk to the bear.

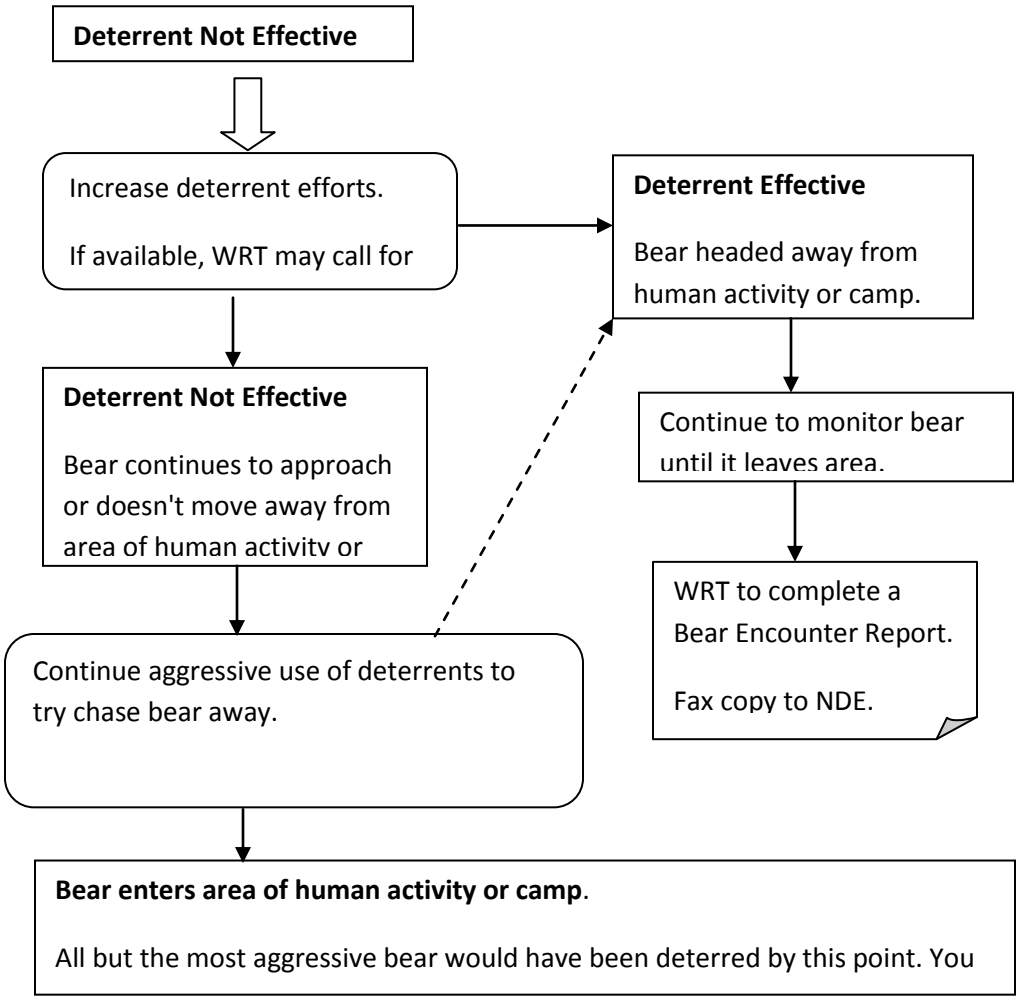
The intent is to:

- prevent risk of injury to humans.
- prevent bears from becoming habituated to the site and its infrastructure.
- prevent bears from seeking refuge around buildings or in equipment storage or laydown areas.
- prevent bears from gaining access to areas or substances that could be harmful to the bear, i.e. fuel and chemical storage.

PROCEDURE FOR BEAR ENCOUNTER

WARNING: When responding to a bear encounter or a bear in camp there should be a minimum of two responders.



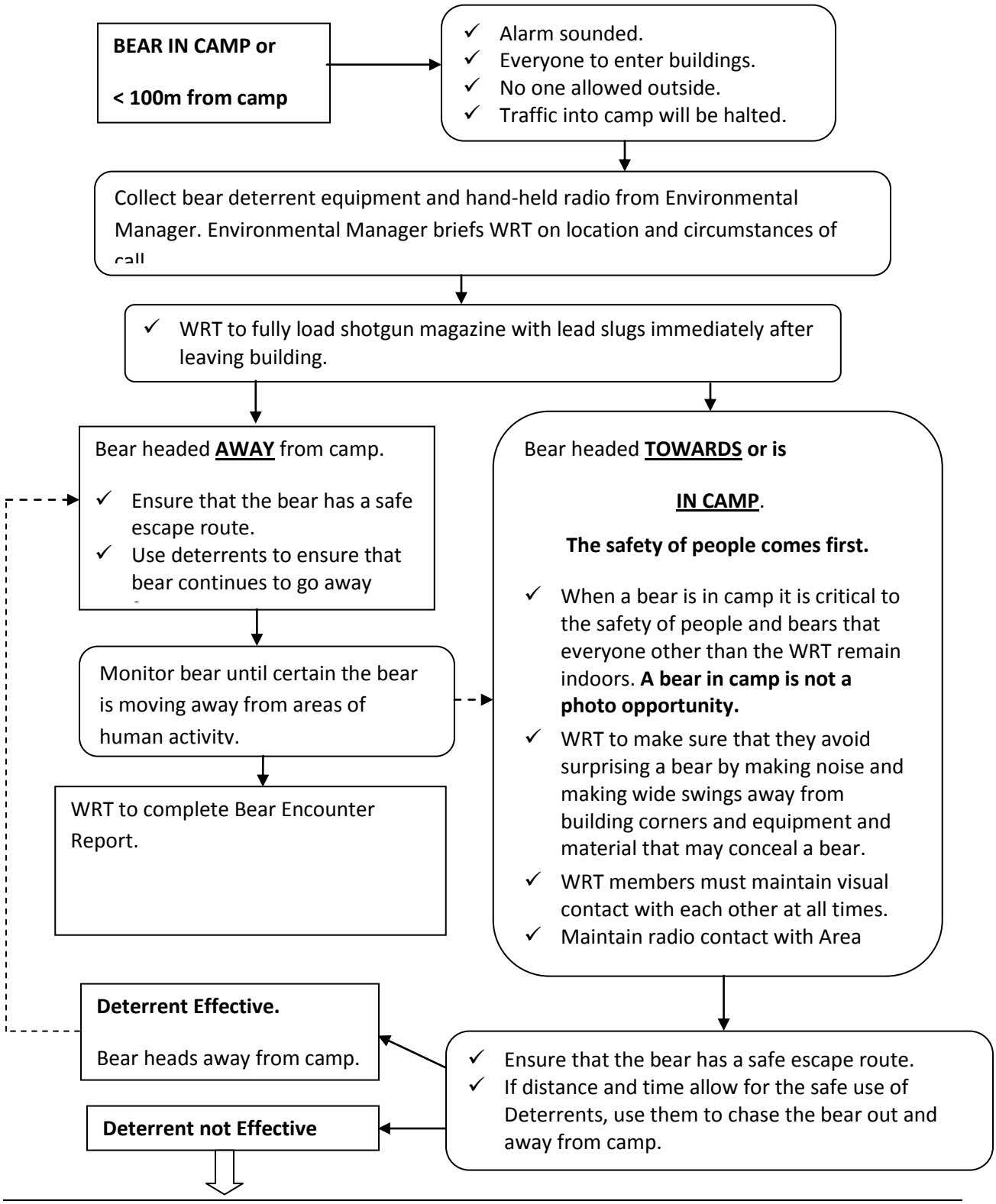


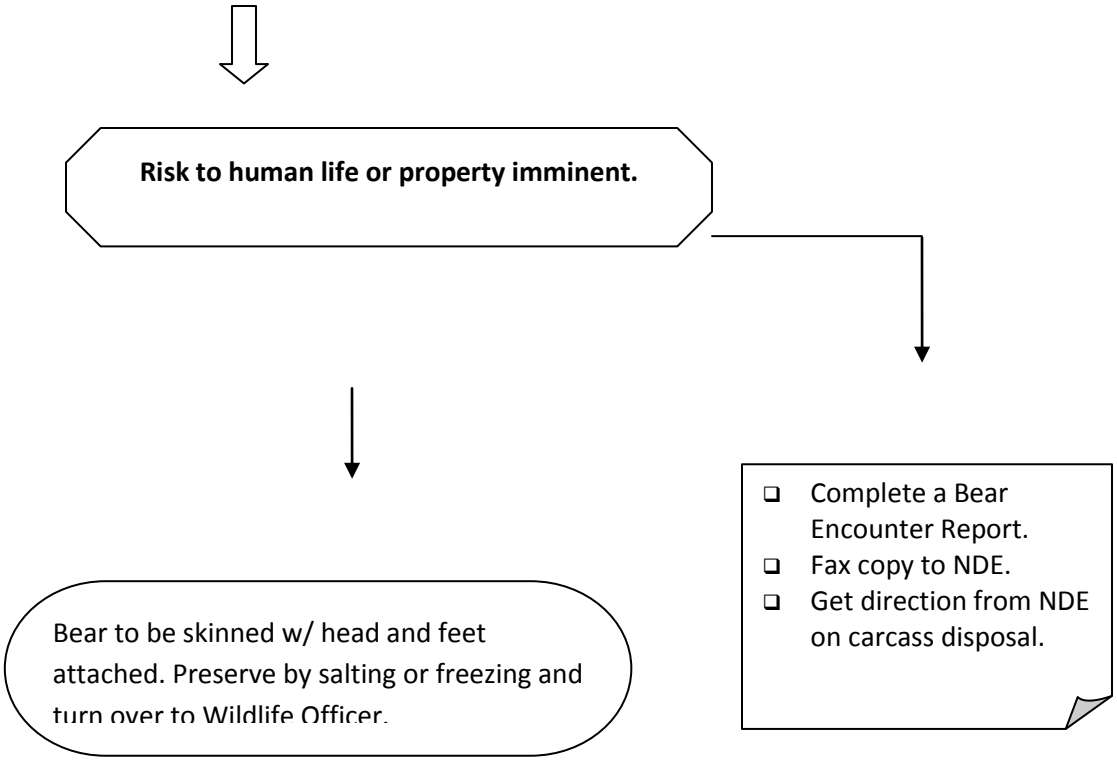
Any time a bear approaches or enters areas of human activity, do a site investigation to try determine why the bear was attracted to the site.

Record findings in bear encounter report.

PROCEDURE FOR BEAR IN OR NEAR CAMP

WARNING: When responding to a bear encounter or a bear in camp, there should be a minimum of two responders.



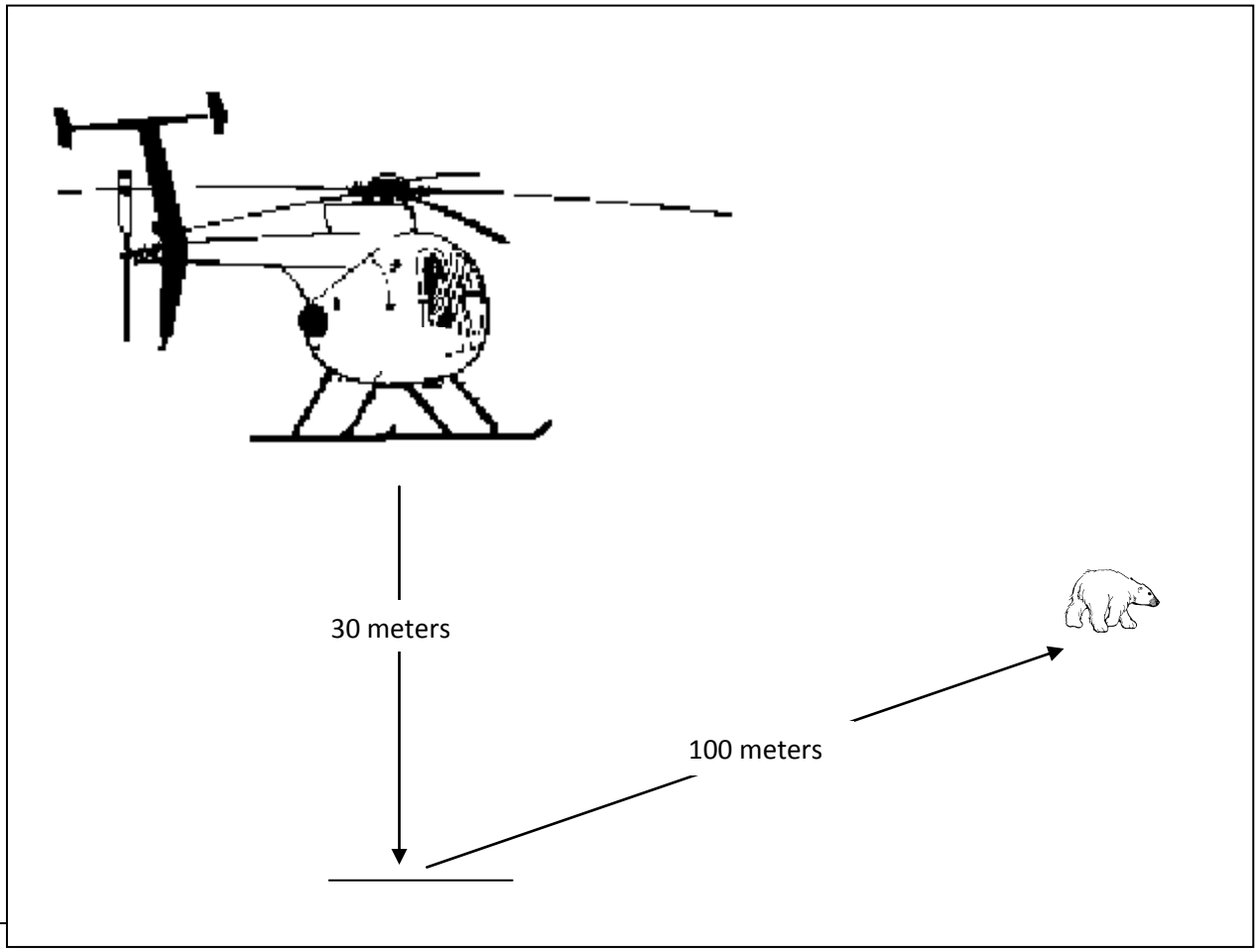


Any time a bear approaches or enters areas of human activity do a site investigation to determine why the bear was attracted to the site. Record findings in bear encounter report.

Using a Helicopter to Deter a Bear – if / when available

It is illegal to harass wildlife with aircraft. However occasionally, and only for reasons of human safety, it may be necessary to "push" a bear using a helicopter. When using a helicopter to deter a bear from the Project site, the following procedures must be followed:

- At least one member of the WRT must be on board the helicopter. They will be responsible for the safety of the bear and will provide instructions to the pilot. The pilot is responsible for his aircraft and the safety of the people on board; he has final say.
- The pilot must maintain radio contact with WRT members on the ground.
- To stress the bear as little as possible, the pilot must keep the helicopter well back from the bear. The minimum distance between the helicopter and the bear is 100 meters back and 30 meters up.
- The pilot should only get close enough to get the bear to move, not fly over it. A bear moving at a fast walk can cover a lot of ground quickly and efficiently. There is no need to have the bear running; a running bear may become overheated and injure itself.
- The pilot must keep the bear in visual contact. However the pilot is to take the helicopter to a higher altitude rather than get closer than the minimum distances.
- The pilot must keep the helicopter between the bear and the site to prevent pushing the bear into camp.



Helicopter minimum chase distance

DO NOT push a bear for more than 10 minutes or ~3 km (~2 miles).

- Once the WRT member is satisfied that the bear is moving away, he will direct the pilot to stop pursuing the bear even if they are within the 10 minute / 3 km zone. He will direct the pilot to take the helicopter up to an altitude where they can continue to monitor the bear to ensure that it is not returning.
- Once satisfied that the bear presents no further risk, the helicopter will return to camp.

Destroying a Problem Bear

Deciding exactly when to shoot a bear is a difficult decision to make and is wholly dependent on the prior experience and training of the WRT. For this reason there is no set distance at which to pull the trigger.

The bear must be shot when personnel are in immediate danger of attack, or if the bear cannot be deterred without endangering human life.

It is very difficult to kill a charging bear. The first shot is intended to stop or knock down the bear not kill it.

If the bear is standing sideways – shoot at the large shoulder and into the chest area.

When the bear is facing head on, shoot into the neck and top of the shoulders. Once the bear is stopped or down, use the remaining lead slugs to kill the bear. A minimum of two shots must be made into the vital areas.

Do not approach the bear until you have reloaded the shotgun and you are sure it is dead.

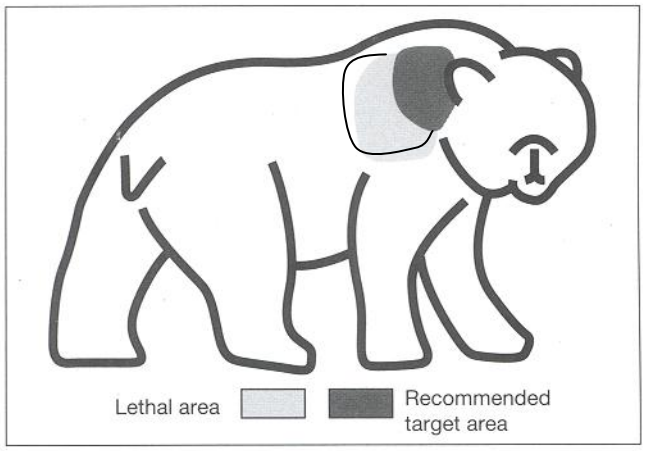
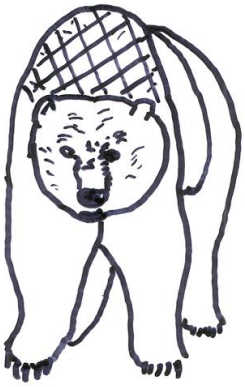


Figure 5. Area of instant kill or disabling shot.



Knock down

Before You Shoot

Always consider what is beyond the bear as the slug may pass through the bear or you

The hide must be removed, with the claws and the head attached, and kept from spoiling by salting or freezing. The hide and skull must be turned over to a NDE Wildlife Officer ASAP.

The carcass will be disposed of under the direction of NDE.

If a bear is shot, return to camp and report to the Environmental Manager. The WRT and Environmental Manager will complete Bear Encounter Report. The Environmental Manager will report the incident to NDE immediately.

NDE Contacts:

Allen Niptanatiak, Conservation Officer II, or

Colin Adjun, Conservation Officer I

Jerry Atatahak, Conservation Officer Trainee

Nunavut Department of Environment, Kugluktuk 867-982-7450

Kitikmeot Regional Office – 867- 982-7440

All cases of the WRT driving a bear off or which involve shooting a bear must be reported immediately.

TRAINING

- Wildlife Response Team members and designated individuals will be required to hold a valid Canadian Possession-Acquisition Firearms Licence.
- Advanced Bear Safety Training is required. This training will include sessions on bear biology, bear behaviour, and bear human encounters, what to do in an encounter, prevention, detection and deterrents. Training will also include sessions on the proper use of deterrents, bear response planning and reporting procedures.

RESPONSIBILITY

The Wildlife Response Team is responsible for:

- Recording the sighting on the Wildlife Sighting and Activity Log.
- Recording encounters and kills on Wildlife Encounter Report.
- Skinning and preserving bear hide complete with claws and skull.

The Environment Manager is responsible for:

- Reporting the bear encounter or kill to NDE.
- Forwarding all Wildlife Encounter Reports to NDE via Fax.
- Contacting NDE for direction on carcass disposal.
- Ensuring that the carcass is handled properly, and the skin and head are delivered to NDE in a timely manner.

DEFINITIONS

NDE: Nunavut Department of Environment

Area of Human Activity: Includes any area within the project footprint where human activities are taking place.

REFERENCES AND RELATED POLICIES

Operational Procedure – Bear Encounters (See Section 9.)

Operational Procedure – Reporting Bear Sightings & Encounters (See Section 8.)

Operational Procedure – Encountering Wildlife Carcasses (See Section 15.)

Encounter/Deterrent Report (See Appendix II)

Wildlife Safety Training Plan (See Section 3)

11. MITIGATION / CONTINGENCY PROCEDURE: WILDLIFE DETERRENT PLAN

GOAL:

Respond to wildlife situations in ways that keep both humans and wildlife safe using humane wildlife control methods.

OBJECTIVES:

1. To provide direction to the Wildlife Response Team (WRT) members on techniques and procedures to be used to deter wildlife where wildlife may pose a threat to itself, people or property.
2. To provide background information on the various deterrent devices that may be applicable for deterring wildlife that is likely to be encountered at the High Lake Project.
3. To promote cooperative efforts that help industry, public agencies, and governments share and integrate information related to wildlife deterrent efforts.

GUIDING PRINCIPLES:

1. As a first priority WRT members will take mitigation actions.
2. All deterrent actions taken will start with the least intrusive methods, and then increase in intensity up to the point that wildlife may be relocated or destroyed.
3. Contingency measures will be taken to remove wildlife from:
    - Service roads during a medical or environmental emergency.
    - Airstrip prior to landings and take-offs.
    - Inside exclusion fencing.
    - Potentially hazardous sites and activities.
4. The Wildlife Deterrent Plan actions are set out from methods that are least intrusive to those that are most intrusive. Animal behaviour and level of threat to humans or wildlife will guide Wildlife Response Team personnel in selecting the initial deterrent action.

These are guidelines; not rules to be followed blindly.

1. When Contingency measures are necessary, actions will be taken to analyze and report the problem and find a solution.
2. Deterrent actions taken should minimize interruption to construction, mining and other operational activities while still ensuring human and wildlife safety.

DETERRENT ACTION:

Mitigation activities are taken to lessen the likelihood that wildlife will:

- Become habituated to the site and its infrastructure.
- Obtain a food reward.
- Find shelter around buildings or in equipment storage or lay-down areas.
- Gain access to areas or substances that could be harmful to it i.e. fuel and chemical storage.
- Be injured i.e. collision with vehicle.
- Damage mine property.

Contingency measures are taken to remove wildlife from roads, airstrip, inside exclusion fencing and potentially hazardous sites and activities. Sites and activities potentially hazardous to wildlife include:

- Anywhere on the gravel pad on which the camp complex and mill facilities are located
- Remote sites i.e. Explosive Magazine
- Open pit
- Fuel or chemical storage areas
- Container storage and lay-down areas
- Land Fill
- Land Farm
- Quarries and the "Safe Zone" of any surface blasting.

The only goal of deterrent actions is to ensure the safety of both humans and wildlife. Each deterrent action will stop as soon as the animal moves away from the potentially hazardous site or activity. The intensity of the contingency measure should increase only if the animal is not doing what it is intended to do.

Before taking any deterrent action, the Wildlife Response Team must first:

- Ensure that a safe avenue of escape is obvious and available to the animal.
- Establish and maintain radio contact with the appropriate managers to ensure that:

    - Traffic and other activities do not put the wildlife at additional risk.
    - Safe escape routes for the animal are protected or created.
    - People working in the area are warned of the planned deterrent action and told what to do, i.e., enter buildings or remain indoors.

Wildlife should be relocated or killed only as a last resort. Relocation of wildlife is to be done by the Government of Nunavut's Department of Environment (NDE). If the wildlife is not an immediate threat to human safety, the decision to kill the animal must be made only in consultation with NDE.

Additional deterrent guidance specific to situations and certain species follows in:

- Wildlife Response Team Response to a Bear on Site
- Deterring Wolverine, Wolf and Foxes
- Herding Caribou

TRAINING:

Knowledgeable, trained personnel will select deterrent actions based on each wildlife situation. Wildlife control personnel must:

- Consistently increase skills,
- Evaluate the use of various deterrent techniques in specific situations, and
- Persist with actions to deter wildlife.

All Wildlife Response Team members and designated individuals will be required to hold a valid Canadian Possession-Acquisition Firearms Licence.

All Wildlife Response Team members will be required to take Advanced Bear Safety and Wildlife Deterrent Training specific to caribou, muskox, wolverine, wolf and foxes. This training will include sessions on:

- Wildlife ecology and behaviour,
- Prevention of wildlife-human encounters,
- Contingencies for wildlife human encounters,
- Proper use of deterrents,
- Recording and reporting procedures.

INVESTIGATION:

Following every deterrent action the Wildlife Response Team will try to determine why the animal was there or how it got inside a hazard area. Steps will be taken immediately to ensure practical corrective measures are implemented.

RECORDING & REPORTING:

Every deterrent action is to be recorded on a Wildlife Deterrent Report and submitted to the Environmental Manager for forwarding to NDE.

RESPONSIBILITY

The Environment Manager is responsible for:

- Appointing a Wildlife Response Team and ensuring that the WRT members receive appropriate training.
- Reporting the bear encounter or kill to NDE.
- Forwarding all Wildlife Deterrent Reports to NDE via Fax.
- Contacting NDE for direction on carcass disposal.
- Ensuring that the carcass is handled properly, and the skin and head are delivered to NDE in a timely manner.

The Wildlife Response Team is responsible for:

- Deterring Wildlife that is either endangering itself, humans or property.
- Recording the sighting on the Wildlife Sighting and Activity Log.
- Recording encounters and kills on Wildlife Deterrent Report.
- Skinning and preserving bear hide complete with claws and skull.

DEFINITIONS

REFERENCES AND RELATED POLICIES

Operational Procedure – Bear Encounters (See Section 9.)

Operational Procedure – Reporting Bear Sightings & Encounters (See Section 8.)

Operational Procedure – Wildlife Response Team - Bear Response (See Section 10.)

Operational Procedure – Encountering Wildlife Carcasses (See Section 15.)

Encounter / Deterrent Report (See Appendix II)

Wildlife Safety Training Plan (See Section 3)

12. MITIGATION/CONTINGENCY PROCEDURE: CARIBOU HERDING PROCEDURES

INTRODUCTION

The Projects are located within the winter range of the Dolphin, Union and Bathurst caribou herds. Plans need to be in place to reduce the risk of injury to caribou that come into contact with the project site and its infrastructure. Additionally plans need to be in place for dealing with large numbers of caribou encountering the Project site and associated activities. Group sizes of more than several hundred caribou (rarely if ever encountered) could be difficult to effectively herd away from roads or the airstrip. In these cases, the safest option would be to allow the caribou to move through the area.

Select a level of action appropriate to the situation and least intrusive to the caribou. Deterrent actions taken to herd caribou should be based on the number of caribou, the potential for risk to wildlife or human safety, and the potential for interruption to construction, mining and operational activities. For general guidance, see Deterrent Actions in the introduction section of the Deterrent Plan. This section guides actions to be taken for caribou at specific locations or hazards.

Before taking any herding action the Wildlife Response team must first:

- Ensure that a safe avenue of escape is obvious and available to the caribou.
- Establish and maintain radio contact with the appropriate site managers and Environmental Manager to ensure that:
    - Traffic and other site activities do not put the caribou at any further risk.
    - Safe escape routes for the caribou are protected or created.
    - People working in the area are warned of the planned herding action.

Large Numbers of Caribou (>500)

If it were absolutely necessary to take herding action with a large number of caribou, the Wildlife Response Team would need to recruit other site personnel to assist. The number of available personnel will dictate what action can be taken.

Caribou herding actions for large numbers of animals are intended to:

- Encourage the caribou to continue moving and decrease the time of exposure to potential risk, or
- Attempt to deflect the caribou around a hazard.

Recording and Reporting

Every herding action is to be recorded on a Wildlife Deterrent Report and submitted to the Environmental Manager who will send a copy of the report to NDE.

ROADS

In general:

- Caribou and other wildlife have the “right of way”.
- Caribou will not be blocked from crossing roads. If caribou are crossing or attempting to cross any roads, traffic will stop and wait for them to finish crossing.
- Caribou within 100 meters of any roads will be monitored. A herding action will only be taken if an immediate risk to wildlife or human safety exists.

WRT members will take a herding action on or adjacent to roads when:

- Caribou crossing the roads stall and appear to be ready to bed down or remain on the road surface.
- Caribou are on the road at the time of a medical emergency or toxic spill response that requires the use of the road.

Procedures for Caribou Herding

All herding actions begin with those that cause the least disturbance to the caribou. Each action starts at the lowest appropriate level and moves to the next level only if absolutely necessary. The aim is to deter the caribou from hazardous situations so that the risk of injury is decreased. Deterrent actions should not cause unnecessary stress to the animal.

Level 1.

- With the vehicle headlights on, approach the caribou slowly (<5 km/hr.) When the caribou start to move, stop and allow them to move off on their own.
- If the caribou stop moving, once again make a slow approach.
- Avoid using the horn.
- Avoid causing the caribou to run. While climbing or descending road embankments, an injury could occur.
- When the caribou leave the road, continue to monitor them until they have moved off to approximately 100 meters from the road.

Level 2.

- Slowly approach caribou on foot only to a distance close enough to get the caribou to move. Once they start to move, stop your approach.
- If the caribou stop moving, continue your approach.
- When the caribou leave the road, continue to monitor them until they have moved off to approximately 100 meters from the road.

Level 3.

- If caribou are not responding to close approaches by people on foot, it may be necessary to increase the disturbance to the animal(s). Continue to approach but make noise by clapping hands or shouting.
- If clapping and shouting do not cause the caribou to move off, use an air horn.
- Use noise making explosive type deterrents, only as a last resort.
- Only do what is necessary to get the caribou to move.

- Continue to monitor the caribou until they have moved off to approximately 100 meters from the road.

AIRSTRIP

In general:

Caribou will not be blocked from crossing the airstrip. If caribou begin to cross the airstrip, incoming aircraft will be notified to either enter a holding pattern until the caribou have completed their crossing, or divert to an alternate airstrip if necessary. In these situations herding action may be necessary to ensure that the caribou continue to cross and move away from the airstrip.

Wildlife Response Team members will take action to herd caribou in the vicinity of the airstrip when:

1. Any number of caribou are within 100 meters of the airstrip 20 minutes prior to aircraft arrivals or departures.
2. Any number of caribou are bedding on or using the airstrip for insect relief 20 minutes prior to aircraft arrivals or departures.
3. Caribou crossing the airstrip stall and appear to be ready to bed down or remain on the airstrip.

Procedures for Caribou Herding

Twenty minutes prior to aircraft landing, and immediately prior to aircraft takeoff, airport /security staff will slowly drive the entire length of the airstrip to search the airstrip and its immediate vicinity for caribou. If caribou are spotted on or within 100 meters of the airstrip, the airport staff should start a "Level 1" herding action.

Caution:

During landings and takeoffs caribou should not be closer than 100 meters from the edge of the airstrip. Caribou within this zone could become panicked by the noise of landing or departing aircraft. This panic could cause them to run onto the airstrip or injure themselves as they try to escape.

Level 1.

- With the vehicle headlights on approach the caribou slowly (<5 km/hr.) When the caribou start to move, stop and allow them to move off on their own.
- If the caribou stop moving, once again make a slow approach.
- Avoid using the horn.
- Avoid causing the caribou to run; they may injure themselves.
- When the caribou leave the airstrip, continue to monitor them until they have moved off to approximately 100 meters from the airstrip.

- If caribou do not move off the runaway, or remain within 100 meters of the airstrip, airport/security staff will contact the Wildlife Response Team to request further herding actions.

The airport staff will transport the Wildlife Response Team to where the caribou are located. This limits the number of vehicles on the airstrip but allows the Wildlife Response Team to remain at the site during a landing or takeoff. Further actions may be necessary to prevent the caribou from attempting to get onto, or across, the runway.

The Wildlife Response Team will proceed with a "Level 2" herding action.

Level 2.

- Members of the Wildlife Response Team slowly approach caribou on foot only to a distance close enough to get the caribou to move. Once caribou start to move, stop the approach.
- If the caribou stop moving, continue the approach.
- Continue to monitor caribou until they have moved off to approximately 100 meters from the edge of the airstrip.
- If the caribou stop within the 100 meter zone, continue the approach. Keep the caribou moving until they are greater than 100 meters from the edge of the airstrip.
- If the caribou are reluctant to move off, or appear that they might try to return to the airstrip, the Wildlife Response team will remain on site positioned between the caribou and the airstrip until the aircraft has safely landed or taken off.

Level 3.

- If caribou are not responding to close approaches by people on foot, then it may be necessary to start making noise. Continue to approach but make noise by clapping hands or shouting.
- If clapping and shouting does not cause the caribou to move off, use an air horn. Only do what is necessary to get the caribou to move.
- If the caribou stop moving, continue your approach.
- If the caribou stop within the 100 meter zone, continue your approach. Keep the caribou moving until they are more than 100 meters from the edge of the airstrip.
- The herders should remain positioned between the caribou and the runway to prevent the caribou from returning prior to the safe landing or take-off of aircraft.
- Use noise making explosive type deterrents only as a last resort.

INSIDE EXCLUSION FENCING

Although exclusion fencing is designed to keep caribou and other wildlife out of areas where a hazard might exist, there is a potential that wildlife may get inside a fence and become trapped. The most likely cause will be from people not closing gates. Any number of caribou within an exclusion fence requires a herding action.

Procedures for Caribou Herding

Extreme care must be taken when dealing with caribou trapped within exclusion fencing. In order to free the caribou a person may have to come very close to open a gate or provide an escape route for the caribou. A panicked caribou might injure itself on the fencing or enter the hazard the fence was intended to surround.

In each case the WRT member will perform the following actions beginning at the lowest possible level appropriate to the situation. The aim is to get wildlife out of the hazardous situation without causing unnecessary stress or injury to the animal(s).

Level 1.

- Use binoculars to assess the situation from a safe distance and minimize any further stress to the caribou.
- One member of the WRT will approach the fence and open all gates starting with the one that provides the caribou with the shortest and safest escape route.
- Once all gates are open the WRT member will retreat to join the rest of the team.
- The WRT will monitor the caribou giving it enough time to find an opening and escape.
- If the caribou is unable to find the opening, or its movements inside the fence put it at any risk, the WRT will proceed to “Level 2”.

Level 2.

- The WRT will approach the fence slowly from the direction that will cause the caribou to move towards the opening in the fence, but without driving it into the potential hazard. The WRT will

remain on the outside of the fence and only approach close enough to get the caribou to move in the right direction.

- Once the caribou is outside the fence, the WRT will ensure that all gates are closed.

Level 3.

- If the caribou is unable to spot the opening, or is reluctant to go through the opening, make the opening larger if possible. Cut the chain link fasteners and peel back one or two sections of the fencing. *(If during construction, the fencing fabric is marked with fluorescent orange paint at joints or overlaps, this process will be quicker.)*
- Once a larger opening is made, move away from the fence so that the caribou can find the opening itself.
- If the animal still does not exit the fence, once again try to herd the caribou from the outside of the fence by making noise in an appropriate location.

Level 4.

- If the WRT is not able to direct the caribou from the outside of the fence, enter the fence at the opening that is furthest from the opening that the caribou should go out.
- Slowly approach the caribou to herd the animal(s) towards the nearest safe escape route.
- Use burlap and wooden stakes to construct a wing fence that will help direct the caribou to, and through, the fence opening.
- If necessary recruit other people to assist with the herding action.

POTENTIALLY HAZARDOUS SITE OR ACTIVITY

Potential hazardous sites or activity include:

- Anywhere on the gravel pad on which the camp complex is located.
- Fuel or chemical storage areas.
- Laydown areas.
- Airstrips or roadways

If any number of caribou attempt to gain access to, or are found within, any potential hazard site or activity, herding action must be taken.

Procedures for Caribou Herding

Most potential hazardous sites are located in the areas of highest activity. For this reason it is critical to:

- Establish and maintain radio contact with the appropriate site supervisors and Environmental Manager. This ensures that:

- Traffic and other site activities do not put the caribou at any further risk.
- Safe escape routes for the caribou are protected or created.
- People working in the area are warned of the planned herding action.

In each case the WRT member will perform the following actions beginning at the lowest possible level appropriate to the situation. The aim is to get wildlife out of the hazardous situation without causing unnecessary stress to the animal(s).

Level 1.

- Use binoculars to assess the situation from a safe distance and minimize any further stress to the caribou.
- Use a detailed site map to identify other risks in the area and the safest escape route for the caribou.
- Communicate what actions are required of Environmental Managers and managers to help facilitate the safe movement of the caribou away from the hazard.

Level 2.

- Once a safe escape route has been created and secured, slowly approach caribou on foot. The WRT only approaches close enough to get the caribou to move away from the hazard. Stay close enough to maintain visual contact.

Caution:

Avoid surprising caribou by alerting caribou to your presence by making noise i.e. talking, clapping hands etc. from as far away as possible.

- If the caribou stop moving, continue the approach.
- Continue to monitor the caribou until they have moved at least 100 meters from the edge of the hazardous site or activity i.e. outside of a surface blast “safe zone”.
- If the caribou stop within the 100 meter zone, continue your approach. Keep the caribou moving until they are more than 100 meters from the edge of the hazard.

Level 3.

- If caribou are not responding to close approaches by people on foot then it will be necessary to start making noise. Continue approach making noise by clapping hands or shouting.
- If clapping and shouting does not cause the caribou to move off, use quick short bursts from an air horn. Again only do what is necessary to get the caribou to move.
- If the caribou stop within the 100 meter zone, continue your approach. Make noise and wave your arms. Keep the caribou moving until they are greater than 100 meters from the edge of the hazard.
- Use noise making explosive type deterrents only as a last resort and only when the caribou are beyond the maximum range of the previously selected noise maker.

- If the caribou are reluctant to move off, or appear that they might try to return to the hazard site, remain on site to monitor the caribou and take any further herding action that may be required.

When the caribou are clear of the hazard site the WRT will notify the Environmental Manager and have the "All-Clear" message broadcast.

TRAINING

- Wildlife Response Team members and designated individuals will be required to hold a valid Canadian Possession-Acquisition Firearms Licence.
- Advanced Bear Safety Training is required. This training will include sessions on bear biology, bear behaviour, and bear human encounters, what to do in an encounter, prevention, detection and deterrents. Training will also include sessions on the proper use of deterrents, bear response planning and reporting procedures.

RESPONSIBILITY

The Wildlife Response Team is responsible for:

- Recording the sighting on the Wildlife Sighting and Activity Log.
- Recording encounters and kills on Wildlife Encounter Report.

The Environment Manager is responsible for:

- Reporting the encounter to NDE.
- Forwarding all Wildlife Encounter Reports to NDE via Fax.
- Contacting NDE for direction on carcass disposal.

DEFINITIONS

NDE: Government of Nunavut Department of Environment

REFERENCES AND RELATED POLICIES

Operational Procedure – Bear Encounters (See Section 9.)

Operational Procedure – Reporting Bear Sightings & Encounters (See Section 8.)

Operational Procedure – Encountering Wildlife Carcasses (See Section 15.)

Encounter / Deterrent Report (See Appendix II)

Wildlife Safety Training Plan (See Section 3)

13. MITIGATION / CONTINGENCY PROCEDURE: CARNIVORE DETERRENT PROCEDURES

INTRODUCTION

Wolverine, wolf and fox are relatively small and well camouflaged. This makes them difficult to spot. Signs such as tracks, scat, or diggings will often be the first indication that these animals are in the immediate area. A quick response to these early warning signs is critical in order to prevent negative wildlife/human encounters, property damage, or injury to the animal.

Whenever animal sign is spotted near areas of human activity or potential hazardous sites or activities, every attempt should be made to track or back track the animal to see what it is doing in the area. If the animal has gained access to shelter, a potential hazard, or food source, steps must be taken immediately to ensure that the animal is not able to gain access to these again. If the animal has found food, it will be back. The Wildlife Response Team must be prepared to deter every animal as soon as it is spotted.

Additional Deterrent Guidance:

For general guidance, see Deterrent Actions earlier in this Wildlife Deterrent Plan.

This section guides actions to be taken by the WRT to deter wolverine, wolf or fox at specific locations or potential hazards.

Caution:

Given the potential risk of injury to humans, the Wildlife Response Team must have a shotgun with them and be ready to use it any time a deterrent action is taken for wolverine, wolf or fox.

When approaching any fox keep a look out for signs of rabies.

If an animal is showing clear signs of being rabid and it is safe to do so kill it by shooting it in the body, not the head (the brain is required for lab testing). Following the procedures contained in the Wildlife and Diseases and Parasites Manual obtain the required sample, cleanup the kill site and dispose of the carcass as instructed by NDE.

ROADS & AIRSTRIP

In general:

- Wildlife have the “right of way”.
- Wildlife will not be blocked from crossing roads. If wildlife is crossing or attempting to cross the winter road or site roads, traffic will stop and wait for them to finish crossing.

WRT members will take a deterrent action on or adjacent to roads and airstrips when a wolf, wolverine or fox is:

1. resting on the road surface or airstrip. If wolverine, wolf or fox are allowed to remain undisturbed, the risk of vehicle/wildlife collisions is increased. In these vicinities often a food reward may habituate them to the site.
2. on the road or airstrip at the time of a medical emergency or toxic spill response that requires these facilities.
3. loitering within 100 meters of the main haul roads or within 100 meters of the airstrip 20 minutes prior to aircraft landing or takeoff.

In each case the WRT member will perform the following actions beginning at the lowest possible level appropriate to the situation. The aim is to get wildlife to move away from hazardous situations without causing unnecessary stress or possible injury to the animal.

Level 1.

- With the vehicle headlights on approach the animal slowly (< 5 km/hr.). When the animal starts to move, stop and allow it to move off on its own.
- If the animal stops moving, once again make a slow approach.
- Use the vehicles horn to try scare the animal off.
- When the animal leaves the road/airstrip continue to monitor it until it has moved off approximately 100 meters from the road.

Level 2.

- If the wolverine, wolf or fox did not respond to the vehicle, slowly approach the animal on foot all the while maintaining a safe distance. Do only what is necessary to get the animal to move.
- Approach no closer than 50 meters. If the animal starts to move off, stop the approach.
- If the animal stops moving, continue the approach.
- If wolverine, wolf or fox do not respond to these approaches by people on foot, it is necessary to increase the disturbance to the animal. Continue to approach making noise by clapping hands or shouting.
- If clapping and shouting do not cause the animal to move off, use an air horn.
- When the wolverine, wolf or fox leaves the road/airstrip, continue to monitor them until they have moved off and are approximately 100 meters from the road or airstrip.

Level 3.

- If the WRT approaches to approximately 50 meters from the animal and it still has not moved off, the team will stop its approach.
- Use noise making explosive type deterrents to try to scare the animal off. During winter or night deterrent actions, use a noise maker that also emits light. This helps to illuminate the animal and provides another level of deterrence.
- If the animal is not responding to noise making deterrents at a distance, move to less than 50 meters and use the appropriate deterrent for the distance between the shooter and the animal. (See Deterrent Range Chart)
- When the animal begins to move away, stop your deterrent action.
- If the animal stops moving, resume the deterrent action.
- If the animal moves off, continue to monitor it until it has moved approximately 100 meters from the road or airstrip.

Level 4:

- If the animal does not respond to the close approach of people and deterrents, the animal may have become habituated to people and/or obtained food from them. As well the animal could be sick.
- If the animal does not respond to noise making deterrents, use non-lethal projectiles. Select the type of non-lethal projectile based on the species and the distance from the animal (See Deterrent Range Chart). Wherever possible use a non-lethal projectile round with marker dye so that the animal can be monitored and the effectiveness of the deterrent action evaluated.
- When the animal starts to move away, stop your deterrent action.
- If the animal stops moving, resume the deterrent action using non-lethal projectiles or noise makers.
- If the animal moves off, continue to monitor it until it is approximately 100 meters from the road or airstrip.
- If the animal refuses to move or becomes aggressive, it may be necessary to shoot the animal for safety reasons.

INSIDE EXCLUSION FENCING

Exclusion fencing is used to keep wildlife out of areas where a hazard might exist. However there is a potential that wildlife may get inside a fence and become trapped. This is likely to occur if people do not close gates.

Extreme care must be taken if wildlife is trapped within exclusion fencing. In order to free the animal, a person may have to come in very close to open a gate or provide an escape route for the animal. Close approach may panic the animal and cause it to become aggressive. The agitated animal may injure itself on the fencing or enter the hazard that the fence surrounds. In each case the WRT member will perform the following actions beginning at the lowest possible level appropriate to the situation. The aim is to get wildlife to move away from hazardous situations without causing unnecessary stress or possible injury to the animal.

Level 1.

- Use binoculars to assess the situation from a safe distance. This will minimize any further stress to the animal.
- Have one member of the WRT team approach the fence and open all gates. Start with the one that provides the wildlife with the shortest and safest escape route. Once all gates are open, retreat to join the rest of the team.
- Monitor the animal. Give it enough time to find an opening and escape.
- If the wildlife does not find the opening or its movements inside the fence put it at risk, proceed to “Level 2”.

Level 2.

- Proceed slowly towards the fence from the direction that will cause the animal to move towards the opening in the fence, but not drive it into the potential hazard. Remain on the outside of the fence and only approach close enough to get the animal to move in the right direction.
- Once the animal is outside the fence, ensure that all gates are closed.

Level 3.

- If the animal is unable to spot the opening or is reluctant to go through the opening, make the opening larger if possible. Cut the chain link fasteners and peel back one or two sections of the fencing. *(If during construction the fencing fabric is marked with fluorescent orange paint at joins or overlaps, this process will be quicker.)*
- Once a larger opening is made, move away from the fence so that the animal has the chance to find the opening itself.
- If the animal still does not exit the fence, once again try to direct the animal from outside of the fence by making noise in the appropriate location.

Level 4.

- If the animal still has not moved out by way of the opening, and the exclosure is large enough to manoeuvre the animal safely from within the exclosure, enter the fence at the opening furthest from the point that the animal's intended exit point.
- Proceed slowly on foot and attempt to direct the animal towards the nearest safe escape route.
- Recruit other people as necessary to assist with the herding action.

POTENTIAL HAZARDOUS SITES or ACTIVITIES

Potential hazardous sites or activities include:

- Anywhere on the gravel pad on which the camp complex and mill facilities are located.
- Remote sites i.e. Dock and Explosives Magazine.
- Mine access roads.
- Fuel or chemical storage areas.
- Container storage and lay-down areas.
- Land Fill.
- Land Farm.
- Tailings Discharge area
- Quarries and the "Safe Zone" of any surface blasting

In each case the WRT member will perform the following actions beginning at the lowest possible level appropriate to the situation. The aim is to get wildlife to move away from hazardous situations without

causing unnecessary stress to the animal or possible injury. Do only what is necessary to get the animal to move.

NOTE: The Wildlife Response Team member needs to be as mobile as the animal they are trying to deter. As well the WRT member must maintain visual contact with the animal until it leaves the area. Therefore use of a vehicle is limited in deterring wildlife from potential hazardous sites. In those situations where the use of a vehicle is practical, refer to Level 1 response for Roads & Airstrip.

Caution:

- Before approaching wildlife make sure the animal is aware of your presence. From as far away as possible let the animal know where you are by making noise i.e. talking, clapping hands etc.
- When following wildlife be sure to make wide swings around corners and other visual obstructions to prevent sudden encounters with the animal.

Level 1.

- Slowly approach the animal on foot to no closer than 50 meters if possible. Get closer if necessary to establish or maintain visual contact with the animal.
- If the animal starts to move off, stop the approach but do not let the animal get out of sight.
- If the animal stops moving, continue your approach.
- If the wolverine, wolf or fox do not respond to earlier approaches by people on foot, increase the disturbance to the animal. Continue to approach but make noise by clapping hands or shouting.
- If clapping and shouting do not cause the animal to move off, use an air horn. The air horn is well suited for working in confined or congested areas where the WRT must closely approach the animal.
- When the wolverine, wolf or fox leaves the hazard area, continue to monitor the animal until it is approximately 100 meters from the hazardous site or activity.
- If the animal has not begun to move off if approached to about 50 meters, stop the approach.

Level 2.

- At about 50 meters, use noise making explosive type deterrents to try to scare the animal off. During winter or night deterrent actions, use a noise maker that also emits light. This helps to illuminate the animal and provides another level of deterrence.

Caution:

Explosive type deterrents present a fire risk and should never be used in areas where a fire hazard exists i.e. the fuel storage areas.

- If the animal does not respond to noise making deterrents at a distance, move to less than 50 meters and use the appropriate deterrent for the distance between the shooter and the animal. (See Deterrent Range Chart)
- When the animal begins to move away, stop your deterrent action.
- If the animal stops moving, resume the deterrent action.
- If the animal moves off, continue to monitor it until it is approximately 100 meters from the hazardous site or activity.

Level 3.

- If the animal does not respond to the close approach of people and noise making deterrents, the animal may have become habituated to people and/or obtained food from them. The animal could also be sick.
- If the animal does not respond to noise making deterrents, use non-lethal projectiles. Select the type of non-lethal projectile based on the species and the distance from the animal (See Deterrent Range Chart). Wherever possible use a non-lethal projectile round with marker dye so that the animal can be monitored and the effectiveness of the deterrent action evaluated.
- When the animal starts to move away, stop the deterrent action.
- If the animal stops moving, resume the deterrent action using non-lethal projectiles or noise makers.
- If the animal moves off, continue to monitor it until it is approximately 100 meters away from the hazardous site or activity.
- If the animal refuses to move or becomes aggressive, it may be necessary to shoot the animal for safety reasons.

TRAINING

- Wildlife Response Team members and designated individuals will be required to hold a valid Canadian Possession-Acquisition Firearms Licence.
- Advanced Bear Safety Training is required. This training will include sessions on bear biology, bear behaviour, and bear human encounters, what to do in an encounter, prevention, detection and deterrents. Training will also include sessions on the proper use of deterrents, bear response planning and reporting procedures.

Deterrent Range Chart

Launcher Type	Deterrent	Approx. Range
Pencil Launcher	Banger	15–20 m / 50–65 ft
15 mm Pistol Type	Banger	23–27 m / 75–90 ft
	Screamer	76–91 m / 250–300 ft
9 mm Pistol Type	Banger	23–27 m / 75–90 ft
	Screamer	76–91 m / 250–300 ft
12 Gauge Shotgun	Shell Cracker	50–60 m / 164–200 ft
	Screamer / Whistle Cracker	60 m / 200 ft
	Rubber Bullet (Strike II)	40 m / 130 ft
	Bean Bag (Close Range)	3-15 m / 10-50 ft
	Bean Bag (Standard)	9-30 m / 30-100 ft

RESPONSIBILITY

The Wildlife Response Team is responsible for:

- Recording the sighting on the Wildlife Sighting and Activity Log.
- Recording encounters and kills in Wildlife Encounter Report.
- Skinning and preserving hide complete with claws and skull.

The Environment Manager is responsible for:

- Reporting the encounter or kill to NDE.
- Forwarding all Wildlife Encounter Reports to NDE via Fax.
- Contacting NDE for direction on carcass disposal.
- Ensuring that the carcass is handled properly, and the skin and head are delivered to NDE in a timely manner.

DEFINITIONS

NDE: Government of Nunavut Department of Environment

Area of Human Activity: Includes any area within the project footprint where people are active.

REFERENCES AND RELATED POLICIES

Operational Procedure – Bear Encounters (See Section 9.)

Operational Procedure – Reporting Bear Sightings & Encounters (See Section 8.)

Operational Procedure – Encountering Wildlife Carcasses (See Section 15.)

Encounter / Deterrent Report (See Appendix II)

Wildlife Safety Training Plan (See Section 3)

15. CONTINGENCY PROCEDURE: ENCOUNTERING WILDLIFE CARCASSES

PURPOSE

To ensure that personnel at the Projects are aware of proper procedures to be followed when encountering wildlife carcasses.

SCOPE

This applies to all personnel at the Projects who encounter an animal carcass.

OVERVIEW

There is a potential health risk to Project employees when handling wildlife found dead from unknown causes. Carcass from a bear kill could create further problems if not dealt with quickly and effectively. Staff handling dead wildlife will need to be educated about wildlife diseases and proper handling procedures.

The handling and disposing of wildlife carcasses must take into consideration the cultural beliefs of the aboriginal people in the land use area. Final disposal will be done under the direction of NDE.

PROCEDURE

Warning: Because of the possible risk to human health and safety from either disease or wildlife only environmental staff or appropriately trained individuals should investigate wildlife carcasses**.**

When to Report Dead Wildlife:

- Anytime that a bear is found dead.
- Anytime that a bird of prey (eagle, falcon, hawk, owl) is found dead.
- Anytime that two or more animals of the same species are found dead within half a kilometre of each other.
- Anytime that a bear, caribou, wolf, wolverine, fox or bird of prey is found dead within one kilometre of any human activity.
- Any time an animal dies as a result of a collision with a vehicle.

What Information Should Be Collected and Reported Upon Initial Observations:

- Take the following photographs:
  General area, showing where the animal is laying
  The carcasses; one from each side, the head and the tail.

- Record the following:
  - Note anything unusual.
  - Any obvious injuries or marks.
  - Record the following information:
  - Location of animal.
  - Time.
  - Date.

- Estimate of how long it has been dead.
- Any other animals of any species seen in the general area.

Disposal of Carcasses

To prevent attraction of animals to the site, carcasses will be disposed off under the direction of NDE. The Environmental Manager will contact DSD personnel to receive permission, and direction, to dispose of the carcass.

Who to Contact:

Allen Niptanatiak, Conservation Officer II, or

Colin Adjun, Conservation Officer I

Jerry Atatahak, Conservation Officer Trainee

Nunavut Department of Sustainable Environment, Kugluktuk (867) 982-7450

Kitikmeot Regional Office – (867) 982-7440

ENCOUNTERING GRIZZLY BEAR KILLED CARIBOU CARCASSES:

General: Whenever approaching or working around a recent bear killed caribou there must be at least two people one of whom will be armed with a 12 gauge shotgun.

a) Carcass is <u>GREATER THAN 1 km</u> from areas of human activity:

- Grizzly bear killed caribou will not be removed. The bear will be allowed to feed on the carcass until it is finished. Removing the bear's kill may cause it to approach camp or other areas of human activity in search of its food.
- All employees will be alerted to the presence of the carcass and the area closed to human activity until the Environmental Manager has determined that the area is safe.

b) Carcass is <u>WITHIN 1km</u> of human activity or camp:

- Due to the danger posed by a grizzly bear on a carcass, any bear killed caribou found within 1 km of camp or human activity will be relocated.
- The carcass will relocated by dragging it at least 1 km away from areas of human activity. The purpose of dragging the carcass is to leave a scent trail so that the bear can easily relocate its kill. If the carcass is removed without leaving a scent trail the bear may approach camp or areas of human activity in search of its kill.

- ATV, snowmobiles or helicopter can be used to drag the carcass.
- The carcass should be left in an area where it can be easily seen from a distance, i.e. top of a hill or point jutting into a lake. This will allow for the safe monitoring of the carcass and any bear activity at the site.
- All employees will be alerted to the presence of the carcass and the area closed to human activity until the Environmental Manager has determined that the area is safe.

TRAINING

- Advanced Bear Safety Training
- Wildlife Disease Identification and Sampling Training

RESPONSIBILITY

Every individual is responsible for:

- Recording the sighting on the Wildlife Sighting and Activity Log.
- Reporting the sighting to the Environmental Manager.

Environmental staff with Wildlife Response Team is responsible for:

- Collecting the required information.
- Alerting everyone on site of the presence and location of grizzly killed carcasses.
- Disposing of the carcass.
- Monitoring the kill site or relocated carcass in order to determine if the area is safe.

Environmental Manager is responsible for:

- Closing the area where grizzly bear caribou kills are located.
- Ensuring that the photographs and information required by NDE are collected and forwarded to NDE.
- Receiving permission and direction from NDE personnel and carrying out the disposal of the carcass as directed.

DEFINITIONS

NDE: Government of Nunavut Department of Environment

Wildlife Disease Identification and Sampling Training: to be designed but will be based directly on the Disease and Parasites of the NWT Reference Manual for Wildlife Officers.

REFERENCES AND RELATED POLICIES / PROCEDURES

Diseases and Parasites of the Northwest Territories Wildlife Officers Reference Manual

Bear Encounters (See section 8.)

Appendix I. Wildlife Encounter / Deterrent Report

WILDLIFE ENCOUNTER / DETERRENT REPORT	**Deterrent #:**
SPECIES: _____ **# of Animals Involved:** _____	
SEX: ____ M ____ F ____ Unknown **ESTIMATED AGE:** ___ Calf/Cub/Kit/Pup ___ Sub-adult ___Adult ___ Unknown	**DATE:** _____ **&** **TIME:** _____ Hrs.
LOCATION :(i.e. mill, airstrip) _____	
WEATHER : _____	
TYPE OF ENCOUNTER: ____ Bear Approached People ____ People Approached Bear	
ANIMALS BEHAVIOUR: (i.e. curious, aggressive, crossing road, etc.) _____ _____	
PERSONS REACTION: _____ _____	

RESULT: _____

_____

DETERRENT ACTION Time Start: ~~Hrs~~ Time Finished: Hrs _____

TYPE: (Mark number used):	**SUCCESSFUL** **(Provide detail on back)**	**TYPE:** (Mark number used):	**SUCCESSFUL** **(Provide detail on back)**
____ Approach w/ Vehicle	____ Yes ____ No	____ 15 mm Screamers	____ Yes ____ No
____ Approach on Foot	____ Yes ____ No	____ Warning Shots	____ Yes ____ No
____ Shouting / Yelling	____ Yes ____ No	____ Scare Cartridges	____ Yes ____ No
____ Air Horn	____ Yes ____ No	____ Rubber Bullets	____ Yes ____ No
____ Pen Bangers	____ Yes ____ No	Other (Specify)	
____ 15 mm Bangers	____ Yes ____ No		

NOTE: If wildlife damaged property, injured a human, injured itself, was chased with a vehicle or had to be relocated or killed provide information on Report page 2

WILDLIFE DETERRENT REPORT - Page. 2	**Deterrent #:**
DAMAGE by WILDLIFE	**CHASED WITH VEHICLE:**

____ Equipment / Supplies: Damage $ _____	____ ATV ____ Skidoo ____ Truck
____ Human Injured	____ Helicopter
Other (specify) _____	Distance: _____

ASSISTANCE PROVIDED BY DNR: ____ Yes ____ No **Describe:**

_____

_____

_____

WILDLIFE RELOCATED	**DATE:** _____ **& TIME:** _____ Hrs

DNR CONTACT: _____ Contact No. _____	**HELICOPTER USED:** _____ No. of Hours ~~Rate~~ ~~Total~~ _____ **CREW:** Pilot _____ Biologist _____ Wildlife Officer _____ Wildlife Response Team _____
Company Authorization: _____ Contact No. _____	

HUMAN INJURY:

_____

_____

WILDLIFE KILLED	**_____ Emergency Kill _____ Kill Preauthorized by DNR** **DNR Contact:** _____ Contact No. _____
Date Hide & Skull Turned in to DNR: _____	**Carcass Disposal** _____
ADDITIONAL NARRATION IF NECESSARY TO BE ATTACHED	
RECORDED BY: _____ **DATE** _____ **TIME** _____	
REPORTED TO DNR: Contact _____ **DATE** _____ **TIME** _____	