AREVA Resources Canada Inc.

KIGGAVIK PROJECT, NUNAVUT

WILDLIFE MITIGATION AND MONITORING PLAN

May 2008 – Version 2, Revision 1

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HISTORY OF REVISIONS

Version	Date	Details of Revision
01	March 2007	Original submission
02	January 2008	Updated to reflect changes in field activities/capabilities and areas of continual improvement
02 R1	May 2008	Updated to reflect program changes initiated by new consulting biologist and to integrated comments received by Nunavut and NWT biologists

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1 INTRODUCTION

This document provides the Wildlife Mitigation and Monitoring Plan (Plan) for the Kiggavik Project (Project), including activities related to baseline data collection for the preparation of an Environmental Impact Statement (EIS). The Plan addresses lessons learned during the 2007 field season, previous recommendations and questions regarding AREVA's application for a Land Use Permit by Durey (2007), the Government of Nunavut (GN), Department of Environment (GNDOE 2007), Environment Canada (EC 2007), and the Beverly Qamanirjuaq Caribou Management Board (BQCMB 2007). Mitigation and monitoring plans are also based on the experience and knowledge obtained from baseline studies and wildlife effects monitoring programs at the BHP Billiton Ekati Diamond Mine, Diavik Diamond Mine, and the De Beers Snap Lake Project in the Northwest Territories (NWT), and the Jericho Diamond Mine and Doris North Gold Mine Project in Nunavut. The Plan may be adjusted based on site specific data collection and results. The Plan was designed to increase the current understanding of wildlife interactions with human development, and the effectiveness of mitigation measures. The Plan is conducted under a team of professional biologists, led by Goodings Environmental Inc. and Gebauer & Associates Ltd.

1.1 General

Pre-feasibility work in 2007 was focussed on diamond drilling, ore and waste rock sampling in the Kiggavik and Sissons areas in order to improve the understanding of the known mineral deposits. It also included some geotechnical logging and some ground temperature measurements.

Exploration geological work in 2007 was focussed on preparation for the 2008 diamond drilling program. It included three weeks in the field in order to evaluate previous drilling on the Bong and Granite grids, as well as some regional outcrop visits. In addition to core relogging and outcrop visits, sampling for clay species using spectrometry methods was undertaken.

The aim of the geophysics work was to better highlight gravity anomalies on the property using an airborne gravity gradiometry (AGG) survey. An initial test in the south of the property concluded that the data was indeed high-quality and the survey continued. As a result of significant delays due to weather, caribou mitigation and fuel shortages, the survey was not completed in 2007, and will be continued in 2008.

Environmental baseline work in 2007 was focussed on aquatic, terrestrial, wildlife and hydrological assessments.

All operations and personnel were conducted out of the Kiggavik camp and were supported by helicopter services. In 2007, the camp accommodated up to 32 persons. Main project contributors were as follows:

Activity	Contributors
• Management	Areva
• Drilling	Bradley Bros
• Geological logging and probing	Areva
• Ore and waste rock sampling	Areva
• Geotechnical logging	SRK
• Thermistors installations	SRK
• Environmental Baseline Work	Golder
• Wildlife Monitoring	Areva & Community
• Helicopter	Forest Helicopters
• Environment, Health and Safety	Areva & Senes
• Occupational First Aid & Catering	1984 Enterprises
• Camp renovation	SK Construction, NPS & BLCS/Baker Lake
• Fuel Transportation	Peter's Expediting

1.2 Scope of Work For 2008

The 2008 field program is relatively similar to the activities conducted during the 2007 program; consisting of diamond drilling and environmental baseline studies to improve the understanding of the Project site and the known mineral deposits. The intent of the Project is to gather information required to determine whether these deposits can be safely and economically extracted and processed, while protecting the environment. A program of prospecting, geological mapping and geophysical surveys will also be carried out throughout the lease areas to identify the potential for additional mineral deposits and to further evaluate known potential areas.

The 2008 program is tentatively scheduled to begin in April or May when new building and construction material will be moved to the Kiggavik camp from Baker Lake. It is expected that the drill and environment crews will be mobilized to the site during May and June. The program is expected to be shut down and prepared for the winter season by the end of September or beginning of October. All operations and personnel will be conducted out of the Kiggavik camp and will be supported by helicopter services. The maximum number of people at the camp will be approximately 50 in 2008.

1.3 Lessons Learned in 2007

Caribou Monitoring Results

As part of the monitoring program, independent wildlife monitors completed aerial and ground-based caribou surveys to determine the presence of caribou near exploration activities for the Project. Daily and weekly aerial surveys were completed within the Project area from July to September, 2007. Daily high-level (>300 m) reconnaissance surveys were completed in June and July to determine the presence of wildlife within 3.5 km of drilling activities. For the remainder of the field season, daily reconnaissance surveys were conducted during regular air transport of field personnel.

Weekly aerial surveys were flown by helicopter to determine the number, distribution, and group composition of caribou and muskoxen within the Project area. Surveys were completed within two survey blocks (20 km x 20 km) centered on the Kiggavik Lease and Sissons Lease. To limit the disturbance from aircraft on caribou, surveys were only completed in the block containing drilling operations (i.e., only one block was ever surveyed at one time). From July to September, a total of eight surveys were completed, which were typically flown at 150 m above ground level. Five of these surveys were flown in a north-south direction following a predetermined flight path using Global Positioning System (GPS) co-ordinates (i.e., systematic survey). Three surveys were flown in a circular pattern within the survey block (i.e., non-systematic survey).

All caribou and muskoxen within 600 m of either side of the helicopter were counted and the GPS location of groups, group size, group composition, dominant behaviour of the group, and habitat type were recorded. The composition of the groups was classified as nursery (groups with calves) or non-nursery (groups without calves). Dominant behaviour of the group was classified as feeding, bedded, standing, walking, trotting, or running.

Weekly aerial survey results for the five systematic surveys are presented in Table 1.3-1. Nineteen groups of caribou were observed during the surveys. Group size ranged from one to nine, and 95% did not contain calves (i.e., non-nursing). The majority of the caribou observed were either standing, feeding or bedded (67%), while 33% were moving (i.e., walking, trotting or running). Ten groups of muskoxen were also documented during the surveys. Group size ranged from 1 to 28 individuals, and 25% contained calves. A large proportion of muskoxen groups were feeding, bedded, or standing (90%).

Table 1.3-1
Weekly Aerial Survey Results for Caribou and Muskoxen

Survey Date	Surface Lease	Species	Number	Group Composition	Dominant Behaviour
10-Aug-07	Kiggavik	Muskoxen	1	non-nursing	walking
10-Aug-07	Kiggavik	Muskoxen	2	non-nursing	feeding
10-Aug-07	Kiggavik	Muskoxen	14	nursing	feeding
10-Aug-07	Kiggavik	Muskoxen	2	non-nursing	feeding
19-Aug-07	Kiggavik	Muskoxen	1	non-nursing	standing
19-Aug-07	Kiggavik	Caribou	1	non-nursing	running
28-Aug-07	Kiggavik	Caribou	1	non-nursing	standing
28-Aug-07	Kiggavik	Muskoxen	28	nursing	feeding
28-Aug-07	Kiggavik	Caribou	2	non-nursing	standing
28-Aug-07	Kiggavik	Caribou	3	non-nursing	feeding
28-Aug-07	Kiggavik	Muskoxen	1	non-nursing	standing
05-Sep-07	Sissons	Muskoxen	1	non-nursing	standing
05-Sep-07	Sissons	Muskoxen	1	non-nursing	standing
05-Sep-07	Sissons	Muskoxen	3	non-nursing	bedded
05-Sep-07	Sissons	Caribou	3	non-nursing	standing
05-Sep-07	Sissons	Caribou	1	non-nursing	walking
21-Sep-07	Sissons	Caribou	9	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	5	nursing	not recorded
21-Sep-07	Sissons	Caribou	1	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	5	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	5	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	1	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	4	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	1	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	9	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	2	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	9	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	2	non-nursing	not recorded
21-Sep-07	Sissons	Caribou	2	non-nursing	not recorded

Because weekly surveys completed on July 21, July 27, September 9, 2007 were completed in a non-systematic manner (i.e., circular pattern), the results are considered as incidental observations. Incidental observations included all wildlife and groups of caribou off-transect or outside the survey block for both systematic and non-systematic aerial surveys (Table 1.3-2). During the surveys, grizzly bears were documented on two separate occasions, in addition to an inactive den located approximately 8.5 km south of the camp. Three groups of caribou comprising a total of 8 individuals were observed off-

transect. No calves were present within these groups. Six separate observations of muskoxen were recorded off-transect, with 50% of these groups containing calves.

Table 1.3-2
Incidental Observations Recorded During Weekly Aerial Surveys

Survey Date	Surface Lease	Species	Number	Group Composition	Behaviour/Comments
21-Jul-07	Kiggavik	Muskoxen	1	non-nursing	feeding
21-Jul-07	Kiggavik	Arctic Fox	1	n/a	running
27-Jul-07	Kiggavik	Muskoxen	17	nursing	walking
27-Jul-07	Kiggavik	Muskoxen	1	non-nursing	bedded
27-Jul-07	Kiggavik	Caribou	2	non-nursing	running
19-Aug-07	Kiggavik	Muskoxen	22	nursing	bedded
28-Aug-07	Kiggavik	Muskoxen	16	nursing	standing
28-Aug-07	Kiggavik	Grizzly Bear	1	n/a	inactive den
05-Sep-07	Kiggavik	Grizzly Bear	1	n/a	walking
05-Sep-07	Kiggavik	Muskoxen	1	non-nursing	standing
05-Sep-07	Kiggavik	Grizzly Bear	1	n/a	walking
09-Sep-07	Sissions	Caribou	1	non-nursing	walking
09-Sep-07	Sissions	Caribou	5	non-nursing	not recorded
09-Sep-07	Sissions	Bald Eagle	1	n/a	flying

Ground-based monitoring completed by the independent wildlife monitors recorded the presence of caribou and muskoxen (and other wildlife) in the vicinity of the camp and drilling operations from June through September. These incidental observations included information on group size, group composition, and dominant behaviour. For caribou, 81 groups were observed, ranging in size from 1 to 19 individuals. Most of the groups (84%) did not contain calves, and 56% of the groups were feeding, bedded, or standing at the time of observation. Nineteen groups of muskoxen were observed, and ranged in size from 1 to 20 individuals. Groups with calves comprised 58% of the observations, and 58% of the groups were feeding, bedded, or standing at the time of observation. Other observations included four separate records of grizzly bears, and a single wolverine sighting. Incidents are defined as any wildlife interaction that requires a response by Project personnel, and may include simple deterrent measures, to the injury or death of an individual. In 2007, there were no wildlife incidents associated with the Project.

AREVA is proposing to discontinue the daily high-level (>300 m) aerial reconnaissance surveys used in June and July, 2007. During the 2008 drilling program, AREVA proposes to monitor approaching caribou with the use of satellite collar information provided by government caribou biologists Deborah Johnson (Resources, Wildlife and

Economic Development, Government of Northwest Territories) and Mitch Campbell (Department of Environment, Government of Nunavut), in conjunction with regular ground-based monitoring surveys for caribou cows and calves and other wildlife, and observations during transport of contractors and site staff (see Section 3.1 and 5.1.1). If caribou, muskoxen or other large mammals are observed with these monitoring methods, then applicable mitigation measures will be implemented.

In 2008, weekly aerial surveys to monitor caribou within the Project area (mineral leases) will not be conducted. Instead, aerial surveys for caribou, muskoxen and other large mammals will be conducted on a monthly basis in a Regional Study Area (RSA) and Local Study Area (LSA), and will focus on collecting baseline data to fulfill the expected requirements for an environmental impact assessment (see Section 5.1.2).

2 WILDLIFE MITIGATION AND MONITORING PLAN

During the 2007 field season, AREVA implemented a Wildlife Mitigation and Monitoring Plan for caribou, and other wildlife that are seasonal or annual residents of the Project area. The Plan was based on information gathering and discussions between regulators and community concerns.

Updates and changes to continually improve the Plan are made and directed for site-specific activities and actions. All worksites need to be made aware of the proper procedures required to help enforce the Plan. Current worksites for the 2008 field season include:

- Camp Activities
- Drilling Operations
- Airborne Geophysics
- Ground Geophysics and Exploration Activities
- Environmental Background Work

For site-specific work operation procedures, see APPENDIX III - 2008 Worksite Specific Wildlife Mitigation and Monitoring Program

2.1 Caribou Mitigation

Based on information from the BQCMB (2006), the calving grounds for the Beverly and Qamanirjuak herds are approximately 70 km and 200 km from the proposed exploration areas, respectively. The distance between the Kiggavik camp and the nearest caribou water crossings is 25 km. During previous exploration activities, AREVA staff and contractors have observed several caribou per day traveling through the Judge Sissons Lake area. AREVA recognizes that there is a high probability that caribou will occur within the Project area during the northern and post-calving migration periods (i.e., April through September).

The following outlines caribou protection measures required or suggested during specific periods of the year and AREVA's follow-up action.

May 15 to July 15:

- No activity to be conducted within Caribou Protection Areas without approval

- AREVA is not currently conducting any activities within Caribou Protection Areas

April through September:

- Caribou have the "right-of-way", and will not be blocked or deterred from moving through the Project area.
  - AREVA enforces this as a site rule.
- In response to AREVA's 2007 permit applications the following recommendations were made:
  - EC (EC 2007) recommends that aircraft fly at a minimum altitude of 610 m; and
  - GN (GNDOE 2007) recommends a minimum flying altitude of 300 m.
    - AREVA proposed a flight procedure in the 2007 version of the Plan and it was accepted.

May and August:

- GN (GNDOE 2007) requested that AREVA employ a fully independent wildlife monitor at the Project.
  - AREVA has employed independent wildlife monitors from Baker Lake (Martin Kreelak and Elijah Amarook).
- GN requested AREVA to suspend all operations or activities if calves and cows are present within 10 km of the exploration activities.
  - To reduce the 10 km radius to a 500 m radius, AREVA presented rational and developed a progressive approach to mitigate exploration activities and protect caribou.(a 1km radius was ultimately agreed upon)
  - To avoid injuries to caribou and humans, if 50 or more caribou approach within 1 km of drilling operations and other Project activities, then activities were suspended until caribou left the area and opportunistic ground-based behavioural observations were conducted.
- GN (GNDOE 2007) requested that AREVA will commit to not drilling within 5 km of designated caribou crossings, and not construct a camp, cache fuel, or operate ground, air, or water transportation equipment within 10 km of designated caribou crossings.
  - AREVA is committed to this request.

June and July:

- GN recommended that AREVA conduct daily high altitude (>300 m) aerial reconnaissance surveys for caribou within a 20 km radius of exploration activities. If caribou are detected within 10 km of exploration activities, then activities are to be suspended (GNDOE 2007).

    - Daily aerial reconnaissance surveys were conducted during the 2007 field season.

3 MITIGATION FOR 2008 EXPLORATION PROGRAM

The major activities for the 2008 field season include ground geophysical and geological programs, airborne geophysical programs, drilling programs, and camp operations. All of these activities have primary impacts that may include the following:

- helicopter noise during flights, drop offs and pick ups;
- ground encounters;
- equipment noise (i.e., snowmobiles, ATV's, drills, generators); and
- low-level flying.

3.1 Mitigation Procedures for Caribou

During the months of operations, AREVA employs fully independent monitors from the community of Baker Lake to conduct ground-based caribou surveys (see Section 5), and to determine the presence of cows and calves near exploration activities. The wildlife monitors interacts daily with the Facility Supervisor to plan activities, and can report back to the community and regulators on the effectiveness of mitigation and monitoring.

- Caribou have the "right-of-way" and are not blocked or deterred from moving through the Project area
- For long-range transportation flights and when travelling over large concentrations of caribou (50 or more individuals in close proximity to one another), the normal practice is to fly all aircraft at a minimum of 610 m above ground level. Exceptions may exist during take off and landing, low-level ceiling conditions, high winds, or other risks to flight safety.
- For relatively shorter transportation flights (e.g., movement of staff and equipment between camp and ore bodies within the Kiggavik lease), the normal practice is to fly all aircraft at a minimum of 300 m above ground level. Exceptions may exist during take off and landing, low-level ceiling conditions, high winds, or other risks to flight safety.
- Taking-off or landing of aircraft does not occur if 50 or more caribou are in close proximity to one another and within 1 km of the aircraft.
- Track logs of helicopter flights are maintained.
- During the months of operations, AREVA employs a fully independent monitor (from the community of Baker Lake) to conduct opportunistic aerial and ground-based caribou surveys, and to determine the presence of cows and calves near exploration activities. The wildlife monitor interacts daily with the Facility Supervisor to plan

activities, and can report back to the community and regulators on the effectiveness of mitigation and monitoring.

- AREVA is committed to not drilling within 5 km of designated caribou crossings and not to construct a camp, cache fuel, or operate ground, air and water transportation equipment within 10 km of designated caribou crossings.

Rather than continuing with the daily aerial reconnaissance (>300m) surveys that were conducted during the 2007 season, AREVA is proposing the following:

- Monitoring the area for approaching caribou with the use of satellite collar information provided by caribou biologists with the Governments of Nunavut and the Northwest Territories, in conjunction with daily ground surveillance for caribou cows and calves, and observations during transport of contractors and site staff (following the flight altitudes for transportation described above).
- If a collared caribou is identified as being on the lease property or within 4 km, then verification will occur through an aerial reconnaissance survey (>300 m).
- AREVA agrees to suspend all operations in accordance with Technical Procedure – Mitigation Measures for Caribou within 1 km of Drilling Operations (drilling, operation of ATVs, snowmobiles and water craft) if calves and cows are present within 1 km of exploration activities (50 or more individuals in close proximity to one another).
- Ground-based surveys will include an independent wildlife monitor.
- Adherence to all mitigation and protection measures described for “Other Wildlife” by all site employees, contractors, and visitors.

Required activities and their applicable frequencies and flying altitudes are presented in the following table:

Activity	Frequency	Flying Altitude
Regular Long Distance Flights		>610 meters
Short Distance Flights		>300 meters – if achievable during duration of flight
Aerial Reconnaissance Surveys*	When required	>300 meters
Aerial Surveys (collecting scientific baseline data) **		150 meters
Ground Behavior Observations	Daily	NA
Wildlife Log-Book	On event of viewing wildlife	NA
Aerial Geophysical Surveys – Reconnaissance	Prior to conducting survey	>300 meters
Aerial Geophysical Surveys	As required	120 meters

*** If required, as per collared satellite data**

**** Discussed in Section 5 Caribou Monitoring and Baseline Data Collection**

3.2 Mitigation Procedures for Raptors and Other Migratory Birds

AREVA has implemented the following operating procedures to mitigate potential impacts to raptors and other migratory birds.

- Any land clearing activities (if necessary) will be conducted during late winter (April) outside of the nesting season (May through August) for migratory birds.
- Avoid disturbance to the nest sites of raptors and other migratory birds (i.e., songbirds and shorebirds). If a raptor nest is located incidentally within 1.5 km of exploration activities, then AREVA staff and contractors will be instructed to specifically avoid the nest site during late May through mid-July, and maintain a distance of at least 100 m from the nest during mid to late August (as recommended by the GN [GNDOE 2007]).
- An attempt will be made to prevent birds from nesting on man-made structures.
- If a nest site is established on a man-made structure and eggs are present, the nest will be avoided as much as possible and monitored for nest success.
- Adhere to all mitigation and protection measures described for “Other Wildlife”.

3.3 Mitigation Procedures for Other Wildlife (Includes All Wildlife)

AREVA will implement the following operating procedures to mitigate potential impacts to all wildlife.

- Perform exploration activities (camp layout, drilling) in a manner that limits the size of the Project footprint.
- For longer range flights within the Project area (e.g., between the Kiggavik and Sissons leases), the normal practice is to fly all aircraft at a minimum of 610 m above ground level, except during take off and landing, and when ceiling conditions do not permit.
- For relatively shorter flights (e.g., between camp and ore bodies on Kiggavik lease), normal practice is to fly all aircraft at a minimum of 300 m above ground level, except during take off and landing, and when ceiling conditions do not permit.
- The use of firearms is strictly controlled. The only allowable use of firearms is the use of bear deterrence measures (e.g. shotguns, cracker shells and rubber bullets) as recommended by the GN (GNDOE 2007), and for safety kills to protect human life should a situation arise when other measures have failed.
- Prohibit hunting and trapping by AREVA employees and contractors.
- All wildlife has the “right-of-way”.

- AREVA educates and enforces to site staff “no feeding or harassment of wildlife”, and the appropriate response to animal encounters (especially carnivores and muskoxen). Staff will be required to follow the “Procedures in the “Safety in Bear Country Manual” as recommended by the GN (GNDOE 2007).
- Use of “good house keeping” practices to maintain a garbage-free camp and exploration area, should limit the attraction of animals to the Project. All combustible garbage is burned in an incinerator and ash residue is placed in metal containers and disposed of in Baker Lake (see Waste Management Plan). Non-combustible waste is stored in the camp area and shipped to Baker Lake for disposal.
- If an incident occurs between a grizzly bear, wolverine, wolf, or fox and the exploration program, then the details of the incident will be described in a “Wildlife Incident Form” and AREVA will contact the local wildlife officer with the GN for appropriate protocols and actions. An incident is defined as wildlife-caused damage to camp facilities, continued persistence of a carnivore(s) within the camp or drill rig area, and interactions between humans and wildlife that lead to injury or death.
- All fuel burning equipment meet emission guidelines and are equipped with mufflers.
- All chemicals are stored in double-walled containers or in secondary containment. In addition, diesel fuel, gasoline, and aviation fuel is contained within arctic berms or double-walled storage tanks (see Spill Contingency Plan). In the event of a spill, the Spill Contingency Plan will be implemented immediately, and the spill reported to the appropriate authorities. Used chemicals are stored for transportation off site for proper handling.
- AREVA staff and contractors will record observations of caribou, other wildlife, and carnivore dens and raptor nest sites into a wildlife logbook
- All materials, chemicals, and equipment are removed from the drill sites and camp area at completion of the project as described in the Abandonment and Restoration Plan. The intent is to return the area as close as possible to the natural state.

4 AERIAL GEOPHYSICAL SURVEYS

This section provides a description of the Airborne Gravity Gradiometer (AGG) survey for the Project including flight requirements. This description is followed by a plan for conducting the AGG survey in relation to concerns expressed by the GN on low-level flights and disturbance to caribou.

4.1 Survey Rationale

Airborne techniques are used extensively in mining exploration. Airborne gravity gradiometry surveys are normally conducted once in a cycle of exploration activity. Airborne gravity gradiometry delivers detailed sub-surface density information relating to the underlying geology which can be used as a means of targeting when layered with other geophysical and geological information. However, different methods such as Electromagnetics (EM), Magnetics and Radiometrics may be conducted in other years if required. The proposed survey configuration will combine AGG, Gravity and Magnetic Gradiometry in one survey. Flying altitudes and line spacing's are the main factors that govern the resolution of the survey. To map the targets in the proposed flight plan both a tight line spacing (150 m) and an approximate altitude of 120 m are required.

Airborne gravity gradiometry surveys can gain access to remote areas quickly and reduce exploration time. In addition, where environmental issues may limit the amount of exploration possible with ground activities, airborne surveys, in this case AGG, offers a solution to these issues. If flying over caribou is avoided, then this technique is a non-invasive passive technology, an environmentally friendly alternative that will help to focus future ground-based activities while limiting or reducing impacts to the environment.

4.2 Survey Specifications

The current chosen method is to mount survey instrumentation in a Cessna Grand Caravan aircraft. Instrumentation includes the data acquisition system, which records full tensor gravity gradiometry, gravity, triaxial magnetic gradiometry, digital video, and a complete digital terrain model from an inertially referenced laser (Lidar) altimeter system. The specific requirements to complete this survey are:

- Platform: Cessna C208B Grand Caravan;
- Speed: 220 km/hr (62 m/sec);
- Endurance: 4.5 hrs (with reserve);
- Nominal Flying Height: 120 m;

- Flying Mode: Modified Drape;
- Line Spacing: 150 m;
- Tie Line Spacing: 750 m;
- Ground Cover Restriction: Results are much more precise without snow cover;
- Survey time: 20-50 days (depending on weather conditions and the presence of caribou within the survey area).

As a result of inclement weather the survey proposed to be completed in the 2007 field season was not completed in its entirety, therefore it is AREVA's intention to complete the survey during the 2008 field season.

The following protection measures are suggested for conducting aerial geophysical surveys.

- AREVA will only conduct AGG when caribou will not be disturbed by the survey.
- To meet requirements made by EC and GN, prior to initiating the survey program for the day, a reconnaissance flight is flown at an altitude of 300 meters over the initial line of the proposed route to determine the presence of caribou. If the ceiling is lower than the 300 meters but at an altitude that permits safe flying, the reconnaissance flight will be flown at the maximum altitude possible.
- If a large population of caribou (50 or more individuals in close proximity to one another) are present within the area, then the aircraft will relocate to another part of the block and repeat the reconnaissance flight or will be postponed until the animals are a distance of 2 km from the survey area.
- If no caribou are observed within the survey route, then the survey proceeds at an altitude of 120 m.
- A continuous watch is kept for caribou during the survey.
- If caribou are observed in the study area during the survey, then the survey is aborted.

The proposed window for these surveys is in June, after the northern migration when the cows are on the calving grounds and outside of the study area. The included Figure titled Airborne Survey Boundary and Caribou Sensitive Areas indicates the location of calving grounds in relation to the proposed AGG survey boundaries. The survey could also be completed in mid- to late-August if the cows and calves have moved away from the study area, but weather at that time of year may preclude aerial surveys.

Caribou monitoring data were collected during 2007 and will be included in annual reports submitted to the regulatory agencies. The results of this monitoring will help plan the AGG surveys in 2008.

5 WILDLIFE BASELINE DATA COLLECTION

5.1 Caribou Monitoring Surveys

In Nunavut and the NWT, there is currently limited quantitative data on the distribution, probability of occurrence, or behavioral responses of barren-ground caribou to mineral exploration activities. Although previous government surveys and the movement of satellite-collared animals provide some information for the Beverly, Qamanirjuaq, Ahiak, Lorillard and Wager Bay herds, additional data on caribou distribution, group size, and group composition would be helpful for assessing and predicting effects from the Project to caribou.

In 2007, with agreement and permission from the GN and Kivalliq Inuit Association, AREVA implemented caribou monitoring procedures from June to September. Data collected during this period was used to obtain estimates for the following variables:

- group size, number, frequency of occurrence, distribution, and composition of caribou groups (i.e., groups with calves and groups without calves) in the Project area during the post-calving migration period;
- caribou behaviour (e.g., time spent foraging, resting, walking) within the Project area; and
- group size, group composition, number, and distribution of muskoxen in the Project area.

5.1.1 Daily Aerial Surveys

In 2007, daily surveys were conducted in accordance with Technical Procedure – Daily Aerial Reconnaissance Surveys for Caribou and Muskoxen to determine the presence of wildlife within 3.5 km of drilling activities on a daily basis during June and July (Section 2.2). As per the request made by the GN, independent wildlife monitors and AREVA personnel conducted daily high-altitude reconnaissance surveys (>300 m) in June and July, if activities were on-going.

In 2008, AREVA is proposing to monitor the location of caribou with the use of satellite collar information in conjunction with daily ground surveillance for caribou cows and calves, and observations during the transport of contractors and site staff. Pilots and passengers will be instructed to watch for wildlife during regular transport. Observations during daily transportation of field staff at altitudes greater than 300 m (see Section 3.1) will provide similar information as the daily reconnaissance surveys conducted in 2007.

If a collared caribou is identified as being on the lease property or within 4 km, verification will occur through an aerial reconnaissance survey (>300 m). Upon

verification of a group of caribou (50 or more individuals in close proximity to one another) within 1 km of Project activities, mitigation measures will be implemented (Section 3.1).

5.1.2 Weekly Aerial Surveys

In 2007, weekly aerial surveys were conducted according to Technical Procedure – Weekly Aerial Surveys for Caribou and Muskoxen to provide data on the number, group size and composition, and distribution of caribou within the Project area (Section 2.2). This procedure was developed under guidance from a biologist and carried out by site personnel and the independent monitors.

In 2008, weekly aerial surveys to monitor caribou within the mineral leases (Project area) will not be conducted. Instead, monthly aerial surveys for caribou (and muskoxen) within a RSA and LSA will focus on collecting baseline data to fulfill the expected requirements for an environmental impact assessment (see Section 5.2).

5.1.3 Regular Ground Surveys

Ground-based monitoring surveys will be used to identify caribou and other wildlife species utilizing the immediate Project area, and to identify caribou aggregations or predator presence that may have implications for camp or mine operation. An effort will be made to select approximately 20 height-of-land locations within the Project area where surveys can be conducted. Surveys will be stationary and consist of an approximately 10 minute observation period where all wildlife presence is documented. Each station will be monitored a minimum of once per week with consideration will be given to increasing the frequency of surveys during periods of high wildlife activity. The methodology will allow suspension of some aerial surveys (Section 5.1.1 and 5.1.2), which are an unnecessary disturbance to wildlife, particularly caribou. Behavioural information will be collected during these surveys.

5.2 Wildlife Baseline Surveys

Following positive results from the exploration and feasibility programs, AREVA will likely submit an application to develop a uranium mine, and it is anticipated that this will require an Environmental Impact Statement (EIS). To meet regulatory guidelines for the EIS, physical and biological aquatic and terrestrial baseline data will be required. Appendix I explains the rationale and objectives for the selection of wildlife species (i.e., valued components), study area boundaries, and baseline study designs. Details for the study designs and methods are presented in Appendix II.

5.2.1 Regular Ground Surveys

The Height-of-Land surveys as described in Section 5.1.3 above, will also be used to collect long-term data on caribou and other wildlife distribution and abundance within the LSA. Pre-construction data can be compared to data collected during the construction and operation phases of the project to determine whether mine-related impacts have occurred.

5.2.1 Caribou Aerial Surveys

Data from satellite and GPS-collared female caribou provides information on the coarse scale movement and distribution of the Ahiak, Beverly and Qamanirjuaq herds during baseline studies. Data from collared animals generally represents the seasonal and annual movement and distribution of the herd; however, sole use of this data is not sufficient for determining environmental design features, or predicting and testing effects from the Project. Collar data does not provide estimates of the number, group composition, and distribution of caribou that may interact with the Project. To achieve quality data for predicting and monitoring the effects of the Project on caribou it is proposed to obtain the combination of course, medium, and fine-scale information from collared animals, aerial transect surveys, and ground observations of behavior (BHPB 2004; Boulanger et al. 2004; Golder 2005; Johnson et al. 2005). Further rationale and objectives for the baseline aerial surveys are provided in Appendix I.

Baseline and monitoring programs at several projects in Nunavut and the NWT have successfully used systematic aerial surveys to obtain robust estimates of group size, group composition, number, and distribution (probability of occurrence) of caribou and muskoxen (Golder 2005; BHPB 2007; DDMI 2007; De Beers 2007; Golder 2007; Miramar 2007). Surveys are flown along pre-determined transects at altitude of 150 m above ground level at speeds of 130 to 160 km/hour during the northern and post-calving migration periods (see Appendix II for details). The approach provides good visibility for detecting caribou groups and determining group composition, which is important for analyzing the effect of development on caribou distribution. Information from satellite-collared animals, commercial pilots, and site staff are used to help determine the timing of surveys.

5.3 Wildlife Log Book

In conjunction with the technical surveys conducted to collect scientific data, AREVA has provided a wildlife log book for all site personnel, contractors, and visitors to complete following the observation of any wildlife. Instructions regarding the log book are provided during orientation and/or arrival on site.

6 REPORTING

All wildlife activities will be reported and updated monthly to ensure quality of the Wildlife Mitigation and Monitoring Plan. Reports will be submitted by supervisors on site to the Project Manager or designate in the Saskatoon office, to regulatory agencies and to the consulting biologist. The monthly reports will be used to help construct a year end overview of the Kiggavik Project.

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