

BEVERLY AND QAMANIRJUAQ CARIBOU MANAGEMENT BOARD

24 March 2007

Leslie Payette
Manager Environmental Administration
Nunavut Impact Review Board
P.O.Box 1360
Cambridge Bay, Nunavut
X0B 0C0

Dear Ms. Payette:

NIRB File No. 07EN011 – Cameco’s Aberdeen-Turgavik Project Amendment

On behalf of the Beverly and Qamanirjuaq Caribou Management Board (BQCMB), I am submitting comments on the proposal from Cameco Corporation (Cameco) for mineral exploration on their Aberdeen and Turgavik properties west of Baker Lake. This is in accordance with the mandate of the BQCMB, which is to advise governments and caribou range communities on ways to protect the Beverly and Qamanirjuaq caribou herds and their ranges.

The BQCMB is concerned about these proposed activities because they will occur on range of the Beverly and Ahiak caribou herds during periods when caribou may be using those areas. As a result, there is potential for Cameco’s proposed activities to impact caribou.

As we have indicated in recent submissions commenting on other similar proposals, the potential effects of a project such as this one on barren-ground caribou should be given serious consideration. Adequate deliberation on this issue is of great importance at this particular time, given the documented declines in five NWT caribou herds, a lack of information about Beverly and Ahiak herds, and the uncertain but likely declining population status of these herds.

Following is a description of the BQCMB’s major concerns with this proposed project amendment, and recommendations to address them. This information is intended to help NIRB to identify the potential impact of the proposed project activities on caribou as well as actions that should be taken to avoid or minimize these impacts.

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Issues and Concerns

1. General Comments on the Application

In the application materials submitted by Cameco to NIRB, they state that they have been conducting mineral exploration in the area between Baker Lake and the Thelon Wildlife Sanctuary since 1993 (PSIR p. 2). They acknowledge that the Aberdeen-Turqavik project lies near the traditional calving grounds of the Beverly caribou herd (p. 8), and that caribou migrate through the project area (p. 9). Despite this, there are many elements regarding caribou that are missing from their application, including:

- no caribou mitigation and monitoring plan
- no discussion of actions they will take to conform to the Caribou Protection Measures as they have committed to do via NPC's conformity determination
- no description of potential impacts from their activities on caribou
- extremely limited description of mitigation efforts for caribou
- no discussion of cumulative effects in terms of caribou (or wildlife in general)
- maps don't identify the calving ground or the Thelon Wildlife Sanctuary

This is surprisingly inadequate for such a large corporation that has been operating in this area for such a long time.

This appears to indicate that Cameco does not recognize the importance of the area in which they will be operating to barren-ground caribou, or the likelihood that they will disturb caribou during their operations. The application for this permit amendment should describe specific actions that will be taken to ensure that caribou will not be negatively impacted by the proposed additional project activities; however, it is totally lacking in this respect.

Has Cameco filed any records of wildlife monitoring activities with NIRB or INAC during their operations in the region? Note that AREVA, who is operating adjacent to Cameco, has prepared a Wildlife Mitigation and Monitoring Plan that includes a Caribou Monitoring Plan. They plan to keep a logbook of wildlife observations and to submit their records to the Government of Nunavut – Cameco should be required to do the same.

2. Importance of the Area to Caribou

a) Seasonal use of the project area by caribou

Data from past government caribou surveys conducted between 1948 and 1990 indicate that the area has been used by Beverly caribou during the following periods:

- Spring migration (mid-March to late May)
- Post-calving (late June to end of July)
- Late summer (early August to mid-September)

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The survey data were compiled by the BQCMB in a map atlas which is available on the BQCMB website (www.arctic-caribou.com/parttwo/mapatlas.html).

According to recent information on locations of satellite-collared caribou, the area has been used by:

- Ahiak caribou between late July and early November (i.e., primarily late summer and fall migration/rut periods); in 2006 alone, collared Ahiak caribou were located in the area on many dates between 30 July and 24 October.
(Note that this is based on more complete information on collared caribou locations than was available during review of AREVA's Kiggavik-Sissons project proposal earlier this month.)
- Lorillard caribou between mid-September and December, but primarily in November/December (early winter).
- Wager Bay caribou in November/December.

Locations of satellite-collared caribou from the Ahiak and Beverly herds (to February 2007) were provided to the BQCMB by the Department of Environment and Natural Resources, Government of the Northwest Territories. The locations of satellite-collared caribou from the Lorillard, Wager Bay and Qamanirjuaq herds (to June 2006) were compiled and published by the Government of Nunavut, and are also available on the BQCMB website (www.arctic-caribou.com/journey/).

Based on this information, it appears that the project area can provide important habitat to caribou from various herds throughout most of the year, including spring migration, post-calving, late summer, fall migration and rut, and early winter.

b) Implications of limited knowledge

Unfortunately very little recent information is available about seasonal range use of this area by caribou, especially Beverly caribou. Very few Beverly caribou cows have been tracked using satellite collars, most only since March 2006.

It would be wrong to conclude that the area is not important to Beverly caribou based on this limited amount of information from a few satellite-collared animals. We don't know if the lack of data on collared Beverly caribou in Cameco's project area over the past year indicates that:

- (i) the area is generally not used by adult female Beverly caribou,
- (ii) the area was not used in 2006 by adult female Beverly caribou, but is often used in other years (i.e., 2006 was an abnormal year), or
- (iii) the area was not used in 2006 by the portion of the population that these few collared caribou represent, but was used by other adult female Beverly caribou.

We also don't know if the area was used in 2006 or other recent years by other segments of the Beverly herd, such as bulls.

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c) Water crossings

Caribou water crossings have been identified on the Thelon River and Aberdeen Lake on and adjacent to Cameco's properties, including immediately north of the campsite and airstrip. This indicates that the area has been used by caribou moving to and from different seasonal habitats.

3. Potential Disturbance to Caribou

Cameco's 2007 program is scheduled to begin in April, with work continuing through the spring and summer and operations shutting down in August. Drilling is expected to occur from April to June. A similar timeline is planned for 2008. It is therefore likely that caribou using the project area during the period from spring migration to late summer (April to August) will be subjected to some disturbance from project activities.

Disturbance to caribou can result in obvious behavioural changes, such as running away from aircraft or vehicles. However, disturbance can also cause stress to caribou when behavioural changes are less obvious (e.g., walking), or when they are not apparent to an observer (e.g., when feeding stops but the animal's head remains lowered). It is generally difficult for people to recognize that caribou are undergoing stress if observations are made primarily from aircraft (at elevations above 300m in altitude), unless the animals are running away.

Disturbance during the most vulnerable parts of the caribou life cycle are of greatest concern. This would include disturbance during **spring migration, calving and post-calving periods**. Project activities such as drilling and geophysical surveys could occur near caribou while they are particularly sensitive to disturbance (e.g., while caring for young calves). They may also occur while caribou are attempting to cross water bodies, during which time they are extremely vulnerable to disturbance.

Frequent interruption of caribou feeding during **spring migration through to late summer** can have a significant negative effect on the condition of individual animals. Caribou need to feed continuously through the summer (to end of August) to ensure that they are in good condition during the fall migration and rutting period and have reserves for winter. Insufficient feeding can lead to increased calf mortality rates, reduced pregnancy rates, and lower calf production the following year, and may result in a decrease in herd size.

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Concerns:

- The BQCMB does not agree with permitting exploration activities on calving and post-calving areas. The Board has recommended establishing long-term legislated protection for calving and post-calving areas¹.
- Caribou may arrive in the project area during Cameco's operations. If this occurs, drilling and survey activities will cause disturbance to caribou during vulnerable periods.
- Caribou may cross water bodies on and adjacent to Cameco's properties during the period when Cameco is operating, and may be disturbed by low level flights to and from the airstrip or during surveys. Disturbance may divert caribou from crossing or increase their vulnerability while crossing.

4. Mitigation of Impacts on Caribou

Cameco has committed to comply with NPC's conformity requirements, including those dealing with low level flights and caribou protection measures. However, their application does not address concerns about exploration impacts on caribou, and it does not describe actions that will be taken to ensure NPC's requirements are followed. There should be an explicit indication in the application that Cameco will take these requirements seriously. At a minimum, they should be prepared to suspend operations if caribou move into the project area, and to hire an independent wildlife monitor (preferably from Baker Lake) who would identify when caribou approach the project area.

Cameco states in its application to NIRB (PSIR p. 8) that "concerns regarding caribou and muskox were addressed" during a meeting with the Baker Lake HTO in April (2006?), but does not provide details concerning what the concerns were or how they would be addressed.

In its application to NIRB, Cameco points out that "The dominant environmental impact listed is noise of operation." (PSIR p. 10). In Table 1 it indicates that noise levels associated with several activities, including helicopter transport of crews, shallow RC drilling, and diamond drilling are "negative and non-mitigatable". We have two comments on these ratings:

- Other uranium companies that have applied for permits to conduct diamond drilling in the NWT and Nunavut (e.g., Ur-Energy, AREVA) plan to use mufflers to reduce noise levels associated with drilling. So it appears that this activity is mitigatable, and that Cameco should be required to use mufflers as part of its wildlife mitigation plan.

¹ Protecting Calving Grounds, Post-Calving Areas and Other Important Habitats for Beverly and Qamanirjuaq Caribou: A Position Paper (BQCMB 2004)

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- Under mitigation in its application to NIRB (PSIR p. 10), Cameco states that “Helicopter noise that adversely interferes with wildlife **can easily be mitigated** by avoiding areas of known wildlife occupation/population.” (emphasis added). This is inconsistent with the rating provided in Table 1 (i.e., negative and non-mitigatable). More importantly, however, it is not clear how “areas of known wildlife occupation” will be identified, as no wildlife monitoring plan has been described.

Low level flights - NPC’s Conformity Determination states that “the project proposal does involve absolutely necessary low level flights” and that “Reasonable comment on low level flight for surveys” was provided. Therefore it was determined that the proposal conforms to requirements 2.15.3 and 5.4.

No definition of “absolutely necessary low level flights” is provided, and no background information explains why these flights will be necessary or why the comments are considered reasonable.

Concerns:

- Cameco indicates on its application to NIRB that it may conduct helicopter supported EM-Resistivity air surveys at an altitude below 300 m. The assumption is that these are “absolutely necessary low level flights”, although no explanation is provided as to why they can’t be flown above 300m.
- Fixed wing aircraft and helicopters will produce disturbance to caribou in the area, including disturbance when flying at low levels (below 300 m) while taking off and landing. This disturbance could be particularly stressful if the flight path of aircraft crosses over large groups of pregnant female caribou during spring migration, cow/calf groups during post-calving and late summer, or caribou crossing water bodies. This is of particular concern given the location of the airstrip near caribou water crossings.

5. Cumulative Effects of Continued Exploration across Caribou Ranges

The BQCMB is concerned with the amount of mineral exploration underway and proposed across the range of the Beverly and Qamanirjuaq caribou herds. This includes exploration activities in the Kivalliq region of Nunavut, where mineral tenure and land use permits are being issued frequently. Two maps available on the BQCMB website (www.arctic-caribou.com/mining.html) show land uses permitted across the caribou ranges (as of November 2006) and mineral rights on the calving grounds (as of September 2006) for these two herds.

Three exploration proposals are currently under review by NIRB on the calving, post-calving and summer range of the Beverly and Ahik caribou herds between Baker Lake

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and the Thelon Wildlife Sanctuary (AREVA, Western Uranium, and Cameco). In addition, several other companies have mineral interests and are conducting preliminary exploration in this area. Mineral companies are also operating on the south side of the Sanctuary in the upper Thelon watershed, which is part of the spring migration route for Beverly and Ahiak caribou. Past and present exploration and development on the winter range of Beverly and Ahiak caribou in northern Saskatchewan also contributes to the cumulative effects experienced by these herds.

Concern: The potential cumulative effects of mineral exploration and development on caribou that use Cameco's project area is an issue at several spatial scales, including:

- (i) within Cameco's project area,
- (ii) within the larger area of exploration by numerous companies west of Baker Lake,
- (iii) across the Thelon geological basin, including the upper Thelon watershed, and
- (iv) across the caribou ranges.

Potential cumulative effects at spatial scales larger than the project area must be considered by NIRB for caribou, because caribou accumulate impacts as they move from one seasonal range to another, year after year.

Cameco fails to address the issue of cumulative effects of mineral exploration on caribou at any scale, and does not even acknowledge the issue for caribou in their application to NIRB (PSIR p. 11).

Recommendations

1. No exploration or development activities should be allowed on post-calving areas of the Beverly caribou herd. NIRB should prohibit further exploration and development in post-calving areas identified through surveys and from locations of satellite-collared caribou.
2. NIRB should require the proponent to provide a wildlife mitigation and monitoring plan for the Aberdeen-Turqavik project. This plan should include specific measures for caribou mitigation, a caribou monitoring plan, and use of mufflers to reduce noise levels associated with drilling. The proponent should be required to record observations of caribou and other wildlife daily, and to provide wildlife observation records to regulators and territorial wildlife managers..

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3. If NIRB approves the proposed project amendment:
- a) Project activities must be prohibited between May 15th and July 15th if caribou are in the project area, as per NPC's conformity requirements regarding the caribou protection measures (2.6 and 2.15.7).
 - b) All activities must be suspended if caribou approach the area during spring migration prior to May 15th.
 - c) Activities should be allowed to resume after July 15th only if post-calving caribou are not in the area.
 - d) An independent caribou monitor should be hired (preferably from Baker Lake) to determine when caribou are moving toward the project area. The monitoring system should ensure that at least one day's advance notification is received for shutting down project activities (including drilling and geophysical surveys) if caribou are approaching. This will be necessary to ensure that potential disturbance is discontinued before caribou reach the project area, as it may take up to a day to remove drill rigs and personnel from the area.
 - e) Aircraft pilots should be instructed:
 - to fly above 610 m AGL at all times except during take-offs and landings or when weather conditions do not permit
 - not to fly over the Beverly calving ground (northwest of the project area)
 - not to fly over caribou water crossings north of the airstrip and adjacent to the project area if caribou are present.
 - f) NIRB should ensure that regular inspection of project operations is conducted, and that NIRB's permit terms and conditions and NPC's conformity requirements are enforced.

Please let me know if you require further information or have any questions about these comments from the BQCMB.

Sincerely,

[original signed by]

Leslie Wakelyn
BQCMB Biologist

cc: Jerome Denechezhe, BQCMB Chairperson
Baker Lake HTO

Secretariat Address: P.O. Box 629 Stonewall MB R0C 2Z0
Tel: (204) 467-2438 e-mail: rossthompson@mts.net
website: www.arctic-caribou.com