

Concerns arising from the Snap Lake mine visit 29 May – 3 June 2008

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The 2007 Wildlife Management Plan notes that Article VI, Section 6.3f in the Environmental Agreement states that the Wildlife Management Plan shall include caribou protection. Section 4.1 of the 2007 Wildlife Management Plan (p.16) is headed Caribou Protection. It states that the aim is to deter the caribou from hazardous situations so that the risk of injury is decreased. However, the section only refers to deterring caribou from the airstrip or roads. During the site visit in late May 2008, I noticed three possible problems which should be addressed in a revised Wildlife Management Plan for caribou (two concerns) or a revision to air quality monitoring.

1. Processed kimberlite: The increased volume of water added to the slimes (processed kimberlite) and thus the greater volume of water being pumped to the North Pile has created a potential and previously unpredicted hazard for wildlife especially caribou. A urgent priority is a contingency plan to address this hazard.

The unpredicted hazard for wildlife is from the deceptive appearance - even although the surface looks like 'mud flats, those surfaces are more like a quick sand and will not bear any weight.

A second problem is that to enhance the filtering capability of the dykes containing the processed kimberlite, De Beers is placing the 'grits' portion of the processed kimberlite on the sides of the dykes. The material is similar consistency to coarse sand and would impede an animal trying to climb out of the processed kimberlite containment cell.

De Beers staff refer to how few caribou they have seen on site. However, examination of the aerial survey data reveals that the number of caribou is highly variable and too variable to determine if there is a statistical trend for fewer caribou. Based on experience at the other two diamond mines, the caribou may be avoiding the mines¹. During spring migration the number of caribou estimated in the survey area² (1999-2006) has varied from 4 to 15,200 (2000). During postcalving, the estimated caribou numbers range from 7 to 43,700 (2005). Thus the risk of caribou encountering the mine site and the processed kimberlite has to be considered.

There are three possible reasons why caribou may encounter the processed kimberlite cell and thus the risk of entrapment in the highly liquid 'slimes' fraction.. In late winter, caribou especially cows are attracted to sodium or calcium-rich materials and processed kimberlite is high in those elements³. In summer, caribou may be attracted

¹ Boulanger, J., K. Poole, B. Fournier, J. Wierzchowski, T. Gaines, and A. Gunn. 2004. Assessment of Bathurst caribou movements and distribution in the Slave Geological Province. Northwest Territories Department of Resources, Wildlife and Economic Development, Manuscript Report 158, 108 pp.

² De Beers Canada Inc. 2006. Snap Lake Project Wildlife Effects Monitoring Program. 2006 Annual Report. Prepared for De Beers Canada Inc. by Golder Associates Ltd., Yellowknife, NT. 72 pp.

³ This is based on Ekati until I can find the Snap Lake data

to the unvegetated surface of the processed kimberlite for relief from mosquitoes and warble flies. Thirdly, the possibility that caribou are being herded from the airstrip or roads (as specified in the 2007 Wildlife Management Plan) could inadvertently end up running into the processed kimberlite containment cell.

Recommendation: a) De Beers immediately in cooperation with SLEMA and ENR-GNWT agree on contingency measures in the unlikely but potentially serious entrapment of wildlife especially caribou in the processed kimberlite containment cells. In the meantime, De Beers should have on site, sufficient snow fencing, to create temporary diversion fences to ensure that caribou do not enter the North Pile. The contingency measures have to include humane dispatch of entrapped caribou and appropriate (respectful) disposal of any wildlife carcasses.

b) De Beers take every possible precaution including diversionary temporary fencing to ensure that any herding of caribou relative to safety issues for the airstrip and roads does not result in caribou entering the North Pile.

2. Road side and slopes: Section 4.1 of the 2007 Wildlife Management Plan (p.16) stated that "Roads are covered with finish grade crush, but there is *occasionally* exposed subgrade rock at the road shoulders, containing large, angular rock"[my italics]. However, my unquantitative observations are that except for the roads around the accommodation complex and the processing plant, the roads to the airport and north pile had mostly large angular rock along the sides. There were no 'ramps' of smaller more rounded material to encourage the caribou to use 'safer passages'. The elders have consistently identified the nature of road surfaces and slopes as a concern.

Section 4.1 of the 2007 Wildlife Management Plan (p.16) stated "The risk of injury from the large subgrade rocks is negligible, and less severe than the natural boulder fields on and around the Project site." The comparison is unconvincing as boulder fields tend to have more rounded (weathered) rocks and mostly the caribou can take their time picking their way through them. The problem on the site, is that if caribou are frightened, then the risk of injury is greater. The comment that De Beers has not recorded any injuries is difficult to evaluate without some idea of how many caribou were observed under what conditions.

Recommendation: It would be relatively quick and easy to determine what proportion of the road slopes is large angular material that could be a hazard to caribou. This information could be included in the Wildlife management Plan as part of the section on Caribou Protection to substantiate the otherwise vague statements such as 'occasional'. The second step would be to work with elders to select areas to be dressed as ramps for caribou.

3. Dust: Even although the roads were being watered on a regular basis, I was surprised how dusty the roads were especially as it was only late May. During the recent visit, De Beers acknowledged that the road around the processing plant was

especially dusty from processed kimberlite and that a chemical approach to dust control is being planned.

Recommendation: a) The Wildlife Management Plan should more fully describe the need for and problems of dust control – such as criteria when chemical or water should be used.

b) The need for watering exposed processed kimberlite storage area (tailings) was acknowledged in the environmental assessment and as the processed kimberlite slimes fraction dries, watering will likely become necessary but this needs to be more clearly addressed.

c) The monitoring for air quality should be amended to address the frequently expressed concern of the elders about the effect of dust on caribou forage plants. The emphasis on monitoring air quality is not addressing the elder's concerns nor building on findings from the other mines. The current methods of collecting dust even by size fractions and fugitive dust do not address the dust on vegetation concerns. The experience at both Diavik and Ekati mines is that the chemical composition of the lichens changed within 3 years of the mines operating as the result of air quality changes.

The standard approach (most efficient and cost-effective) method is moss or lichen mesh bags (the amount of dust is easily collected and measured). This is the approach used for example along the roads of the Cominco's Red Dog mine on the ranges of the Western Arctic herd in Alaska. The moss or lichen bags should be used in a careful design to measure dustfall on forage plants at varying distances from the mine site as the fine particles can travel 10s of km.