Fencing at the Diavik Diamond Mine

Report of Workshops
Sponsored by the Environmental Monitoring Advisory Board
September 8-9, 2004
& September 30-October 2, 2004

Prepared on October 12, 2004
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CARIBOU FENCING

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Environmental Monitoring Advisory Board (EMAB) facilitated a collective and constructive response to 1) concerns regarding caribou welfare at the Diavik mine site, and, 2) issues regarding the implementation of the Canadian Environmental Assessment Act (CEAA) Diavik Comprehensive Study (CSR) fencing recommendations. EMAB's caribou fence advisory group (Group) crafted caribou fencing recommendations using Traditional and Scientific knowledge and in a consensual decision making process recommended that:

1) The protection of Caribou from the Process Kimberlite Containment Area (PKC) is the highest priority.
2) Temporary fencing is required in two areas, as illustrated on Figure 1, on page 6.
3) Diavik will collaboratively develop protocols and on-site management criteria for the installation, management, and removal of the temporary fence.
4) The temporary fence shall be designed to avoid the entanglement of caribou antlers. A material similar to that used in snow fences is preferred.
5) The design of the temporary fence will enable its timely installation and removal.
6) The temporary fence and PKC area shall be monitored 24-hour a day with remote surveillance cameras during the fall migration.
7) The test fencing should be ready for installation by July 2005.
8) The Group will assist in the detailed site selection of the temporary fence.
9) The Group will have the opportunity to inspect the completed temporary fence, preferably during the fall migration.
10) In the event of thousands of caribou moving onto the East Island, the temporary fence will be appropriately integrated into Diavik's worst case contingency plan.
11) EMAB and Diavik shall share the results of the Group's efforts with BHP Billiton's Ekati Diamond Mine.
12) Diavik will prepare a composite map showing the cumulative distribution and numbers of caribou and other wildlife observed on the East Island.
13) That the Diavik site visit participants listed below participate in follow-up fencing field visits and meetings to ensure consistency and continuity.

The Group also provided EMAB with the process and critical success factors regarding for the design and location of future fencing and/or deflection installations respecting that:

1) Not all fencing is the same. There is boulder/rock fencing, willow fencing, chain link fencing, deflectors (inukshuk, canvass, etc).

2) Where fencing is located is very important. "One cannot just build a fence and say the problem is solved. We need to understand what motivates the caribou and how they think. For example, some caribou want to get away from flies;

others are attracted to the salt in the tailings. With this in mind, there may be 3-4 different fencing solutions needed."

3) There may be a need for testing different options before full scale implementation. All this work must involve Elders and people from the communities.

4) Great care must be taken to keep caribou away from places that might hurt them, and recognize that poor fencing decisions could also hurt the caribou. The fencing decisions must be made carefully and tired on a smaller scale to make sure things work best.

EMAB is responsible for helping to achieve an integrated and co-operative approach to environmental management of the Diavik Diamonds Mine. It also is responsible for recommending how Aboriginal peoples and affected communities participate in training and monitoring programs, traditional knowledge and other studies. The two caribou fencing workshops are tangible examples of EMAB's mandate in action and the constructive results achievable.

1 Introduction

This document summarizes the results of two caribou fencing workshops, the first in Yellowknife, the other at the Diavik minesite. The outcome of the Diavik minesite workshop is presented first in Section 2 as it is the culmination of several months work regarding fencing at the Diavik mine site. It provides clear direction about what areas need to be fenced, the preferred type of fencing, and the appropriate fence management and monitoring.

The outcome of the fencing workshop held in Yellowknife is presented in Section 3. It provides a selection of fence and deflection alternatives and best management principles and practices for the selection of fence and deflection installations.

2 September 30 to October 2, 2004 Diavik Site Visit Workshop Results

Diavik Diamond Mines (Diavik) and EMAB have worked collaboratively to determine an appropriate fencing solution for caribou at the mine site. In early September 2004 EMAB sponsored a fencing workshop. The workshop was attended by a Caribou fence advisory group (Group). Appendix 2 provides the names of the Group members. The Group advised EMAB that a site visit to the Diavik mine site was necessary before providing any final recommendations regarding fencing.

EMAB and Diavik sponsored a site visit on September 30 to October 2 2004 that was attended by a majority of the Group. The Group departed Yellowknife the morning of September 30 from the G&G Expediting office at the airport. Upon arrival at the Diavik mine site the Group viewed orientation and safety video's and prepared a working agenda for the two-day site visit.

On October 1, 2004, the Group viewed the three areas it noted greatest concern with, namely, the temporary lake water sedimentation containment area, the Processed Kimberlite Containment Area (PKC), and areas at the north end of the island where caribou used to access the island in the past. The Group first went to the Airport and along the airstrip to examine the terrain and caribou crossings. It then went to the lake water sedimentation area and viewed the storage of the course and fine processed kimberlite. The Group then viewed the ammonia nitrate storage area.

After viewing the three key concern areas the Group reconvened and reassessed its September 8-9 workshop recommendations, and developed a draft set of fencing implementation recommendations. With a draft set of recommendations completed the Group revisited the three areas of concern, as well the A154 open pit, and the water treatment plant. The Group reconvened after viewing the mine site and the surrounding East Island in the context of its draft fencing recommendations. Following a facilitated discussion the Group affirmed that caribou trails onto the East Island from the northern shores of Lac de Gras were well documented and that caribou migration research conducted by Penner and Associates provides information regarding the path and intensity of use by the East Island by caribou prior to Diavik's development. The Group also noted that small groups of caribou are known to frequent the mine site during the fall migration. After having visited the Diavik Diamond Mine and inspected the caribou migratory routes from the northern shores of Lac de Gras onto the West Island onto the East Island the Group all consensually agreed that:

1) The protection of Caribou from the Process Kimberlite Containment Area (PKC) is the highest priority.
2) Temporary fencing is required in two areas, as illustrated on Figure 1, on page 6.
3) Diavik will collaboratively develop protocols and on-site management criteria for the installation, management, and removal of the temporary fence.
4) The temporary fence shall be designed to avoid the entanglement of caribou antlers. A material similar to that used in snow fences is preferred.
5) The design of the temporary fence will enable its timely installation and removal.
6) The temporary fence and PKC area shall be monitored 24-hour a day with remote surveillance cameras during the fall migration.
7) The test fencing should be ready for installation by July 2005.
8) The Group will assist in the detailed site selection of the temporary fence.
9) The Group will have the opportunity to inspect the completed temporary fence, preferably during the fall migration.
10) In the event of thousands of caribou moving onto the East Island, the temporary fence will be appropriately integrated into Diavik's worst case contingency plan.
11) EMAB and Diavik shall share the results of the Group's efforts with BHP Billiton's Ekati Diamond Mine.
12) Diavik will prepare a composite map showing the cumulative distribution and numbers of caribou and other wildlife observed on the East Island.

13) That the Diavik site visit participants listed below participate in follow-up fencing field visits and meetings to ensure consistency and continuity.

Diavik Site Visit Participants:
Alfred Baillargeon, Yellowknives Dene First Nation
Lawrence Goulet, Yellowknives Dene First Nation\
August Enzoe, Lutsel K'e Dene First Nation
George Mandeville, North Slave Métis Alliance
Fred Turner, North Slave Métis Alliance
Joe Migwi, Dogrib Treaty 11 Council
Joseph Niptanatlak, Kitikmeot Inuit Association
Tommy Pigalak, Kitikmeot Inuit Association
Erik Madsen, Diavik Diamond Mine
Anne Gunn, Government of the Northwest Territories
James Rabesca, Dogrib Treaty 11 Council Dogrib Translator
John Komak, Kitikmeot Inuit Innuinaqtun translator
Michele Letourneau, Diavik Environmental Monitoring Advisory Board
Louie Azzolini, Principal Terra Firma Consultants, Facilitator

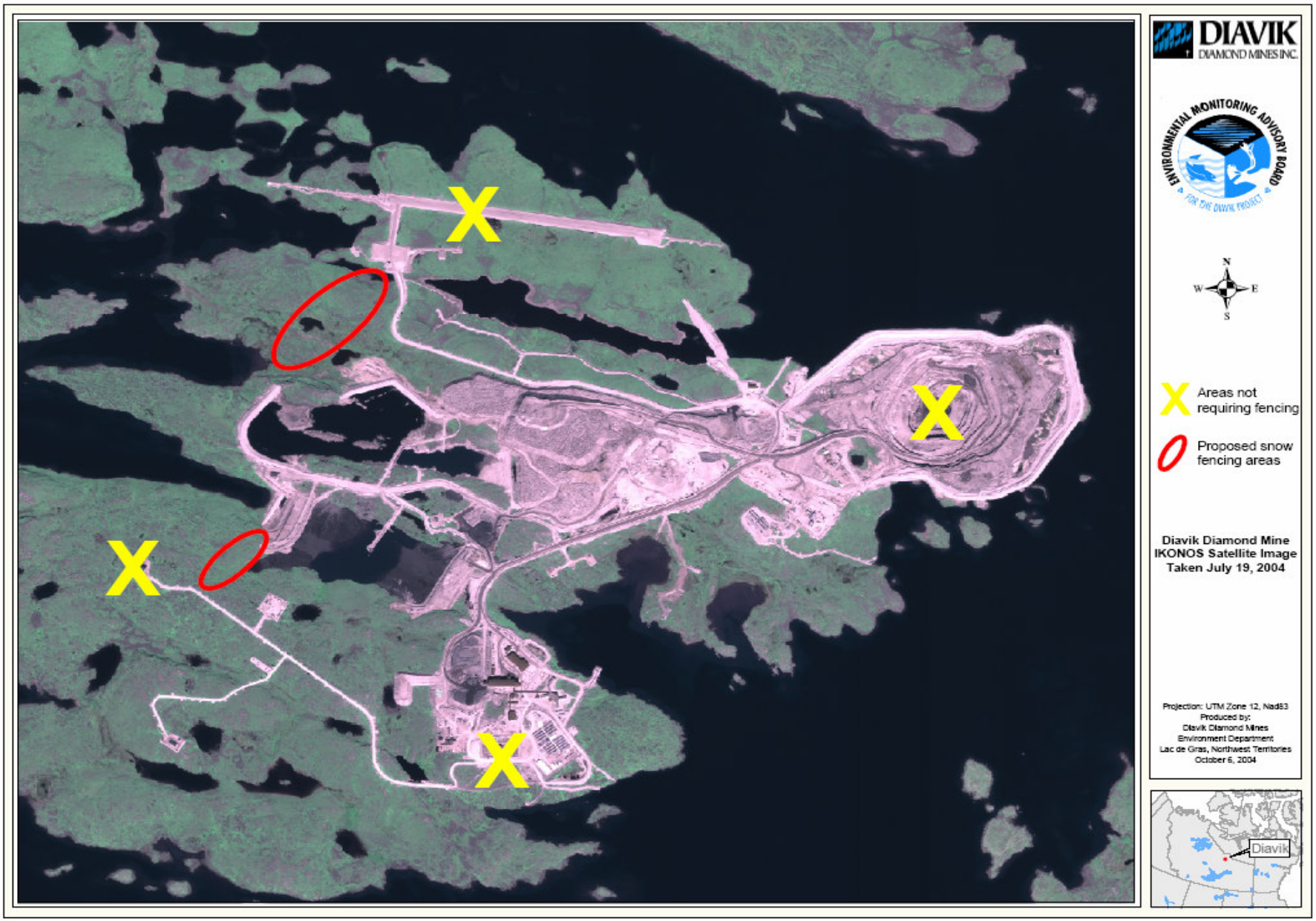

Figure 1: Recommended Temporary Fencing Locations. Figure courtesy of Diavik Diamond Mines.

3 September 8 & 9, 2004 Fencing Workshop Held in Yellowknife

EMAB[1] sponsored a two-day fencing workshop for Diavik managers, Aboriginal participants, Elders, and Federal and Territorial governments on September 8 & 9, 2004. The purpose of the workshop was to provide advice to EMAB regarding the type and location of wildlife fencing at the Diavik Diamond Mine.

The two-day workshop agenda presented in Appendix 1 was modified on day two, and provided additional time for discussions regarding best management practices for the development and subsequent monitoring of caribou fence and deflector installations.

The outcome of the workshop was a better understanding of current Diavik caribou management issues, a repertoire of fence and deflection alternatives, and the articulation of best management principles and practices for the selection of fence and deflection installations.

4 September 8 & 9 Fencing Workshop Outcomes

The fencing workshop helped to articulate the process and critical success factors necessary for the design and location of future fencing and/or deflection installations. Diavik provided its current caribou managed plan and acknowledged the need for a contingency plan to address the possibility of having tens of thousands of caribou on site. Government and the Aboriginal parties shared their Colomac fencing and management experience and their respective successes and challenges. Government and Diavik cautioned that fencing and/or deflection are not perfect solutions, and that they will inevitably cause impacts on wildlife. The Aboriginal parties want to carefully consider the best on-site caribou management alternatives, test them, and based on their performance, incrementally augment them to achieve the desired levels of caribou management.

Everyone agreed that cooperation, site visit(s), collaboration, and testing before full-scale implementation were critical to the success of any future fencing and/or deflection initiatives. Everyone also agreed that:

5) Not all fencing is the same. There is boulder/rock fencing, willow fencing, chain link fencing, deflectors (inukshuk, canvass, etc).

6) Where fencing is located is very important. “One cannot just build a fence and say the problem is solved. We need to understand what motivates the caribou and how they think. For example, some caribou want to get away from flies; others are attracted to the salt in the tailings. With this in mind, there may be 3-4 different fencing solutions needed.”

7) There may be a need for testing different options before full scale implementation. All this work must involve Elders and people from the communities.

[1] http://www.emab.ca/

8) Great care must be taken to keep caribou away from places that might hurt them, and recognize that poor fencing decisions could also hurt the caribou. The fencing decisions must be made carefully and tired on a smaller scale to make sure things work best.

5 September 8 & 9 Fencing Workshop Recommendations

The workshop participants collectively support the following recommendations for EMAB's consideration and Diavik's implementation.

1) To undertake a site visit (or several visits) before the snowfall to examine the terrain, open water, and the movement of caribou near the site (if possible).
2) The site visit(s) must occur before snow remains and accumulates at the site.
3) To ensure current workshop participants, Anne Gunn, Octavio Melo (or someone with similar experience), a fence expert, and youth representatives from the Aboriginal parties, participate in the site visit.
4) To tour the mine operations and meeting(s) with Diavik management to establish partnerships and share information.
5) To ensure no fencing decisions/recommendations occur until after the site visit.
6) Fencing decisions should be done in partnership (government, Diavik, Elders, communities, and experts (scientist, fencing experts, etc) based on the timely sharing of information.
7) To give careful consideration about the purpose of fencing (exclusionary vs diversionary fencing), the permanency of fencing (relocatable, partial fencing, fully enclosed steel fencing); and the fencing design (willow fencing, steel and chain link fencing, flagging, snow fencing, etc) after the site tour.
8) To undertake some form of test fencing and monitoring before a final decision /recommendation is made.
9) To carefully consider the hazards of temporary fencing and provide some direction regarding the duration "temporary" fencing.
10) Temporary fencing could be tested and if it does not work, a more permanent solution could be used.
11) To initially consider the following areas for fencing: 1) the waste water/rock area; 2) areas at the north end of the island where caribou used to access the island in the past; and 3) the Processed Kimberlite Containment (PKC) area.
12) To consider the use of deflection in combination with noise, smells and flagging with more permanent fencing.
13) To encourage Diavik to use the fencing initiative to help develop its contingency plan.

5.1 September 8 & 9 Fencing Workshop Background

EMAB sponsored the workshop with the understanding that Diavik was required to prepare follow-up program(s) as specified in the environmental agreement or land lease; and at a minimum, fence the open-pits, fuel and explosive storage areas and the processed kimberlite containment area. These requirements are included in the Diavik Comprehensive Study Review (CSR) completed in June 1999 and prepared in accordance with the Canadian Environmental Assessment Act (CEAA). EMAB recognizes that the type of fencing remains to be determined, and that ultimately, fencing and diversion must be adaptive.

The CSR notes that should monitoring determine that deflection is required, deflection methods will be tested. It also requires the mapping of caribou trails using aerial photographs to help choose possible deflection sites; and that Diavik develop and update its plans for managing and monitoring likely worst-case scenarios.

An Elders Workshop was held as part of the process of preparing the CSR on March 8 & 9, 1999. The workshop focused on issues related to caribou near the mine site, and how Diavik should manage caribou-mine interactions. The workshop recommended that:

1) At a minimum, some areas must be fenced off including the open pits, fuel and explosive storage areas and the processed kimberlite containment area. The type of fencing would be determined later.
2) Aboriginal and other governments must be included in development and implementation of fencing and monitoring plans including site visits and the monitoring of on and offshore migrations.
3) Plans for management and monitoring must be adaptive, flexible and consider worst-case scenarios. Fencing and diversion would be progressive.
4) A mechanism be put into place to support an adaptive flexible plan that includes Aboriginal and other governments, discusses progress and problems encounters, recommends solutions, adaptations and monitors progress.

Diavik concurred with the recommendations and communicated to the Grand Chief of the Dogrib Treaty 11 Council on April 8, 1999 that the main recommendation from the two-day workshop was that “plans for fencing and other management plans need to be adaptive, flexible, and that community representative should be involved in any future decisions.

The EMAB sponsored workshop is the third significant workshop regarding fencing at the Diavik mine site; the Diavik CSR fencing workshop and the EMAB traditional knowledge panel proceeded.

6 September 8 & 9 Fencing Workshop Summary

The following is a content summary of the workshop. Appendix 2 provides a detailed summary of the proceedings.

6.1 Types of Fencing

There are two general types of wildlife fencing. One to steer caribou away (divert), and one to keep caribou out (exclusion). Fencing can be temporary or permanent (long-term). However, using one does not preclude using the other. There is also the option of using a temporary fence to determine its effectiveness; and if necessary, to replace it with a permanent fence.

Chain link fencing is almost exclusively used at mine sites in the NWT and Nunavut. The spacing of the links in the fence must to be small enough to avoid caribou antlers getting caught in them. The Colomac mine chain link fence has a 1" wire mesh size. The posts are steel and there is no gap at the bottom. This prevents small or young animals from being separated from their mothers. Deep holes are drilled and the posts anchored with concrete. The Colomac fence is 8' high, and on bedrock, the posts are anchored 3-4' into the rock and on softer ground the posts are anchored 8-10'down. There is also a 5-10 meters wide clearing for the fence. This will not be an issue at the Diavik mine site.

Fenced areas should have several (many) smaller gates around the perimeter to enable the easy removal of any small animals that do get caught inside the fence. The Elders and Anne Gunn provided advice on the Colomac project about where to put these.

A chain link fence is the preferred material for more permanent fences as it appears to cause the least problems for the caribou. The fence at Colomac cost $1 million. Materials cost about $250,000 and the rest was labour. That works about to about $100,000 per km of fencing.

An alternative to chain link is to anchor pipes into the ground and to clamp other pipes at two foot intervals on the horizontal. Similar to what they use on farms. By developing a clamp system the fence could be easily dismantled.

Fencing is used in other countries but the explanation as to why it is used, or how it was chosen is lacking; and the fences are poorly monitored. The people in northern Europe have considerable fencing experience. They use temporary fencing that is very coarse to hold reindeer. They also use dogs and snow machines. In Russia, they have a 50km fence to divert caribou from a railway and pipeline. It worked to divert caribou, but there is no information available on how the fence was constructed. In Russia, the caribou over-used the terrain they were diverted to, and the fence caused as many problems as it solved. Little is know about what happened, as there was poor monitoring. The key lesson is that "you need to know where you are diverting the caribou to" – and also it is very important to monitor.

Flagging is a traditional Dogrib practice. The results show that if caribou are easy-going, the flagging diverts them. If they were very motivated, they will move straight through it. The flagging only diverts the caribou that want to be diverted. It does not prevent them from entering an area. Flagging uses bits of cloth on a string to attract the attention of the caribou. It has been tested at Colomac. It was used at Ekati but not monitored. It was also used tested at the Lupin mine. Flagging is a good way to encourage caribou in a certain direction. It is not a barrier as some will go through anyway. It does not protect them from the toxic substances.

There is an electric fence at Ekati and some flagging to divert caribou from the airport. The fence at Ekati caused as many problems as it solved. Caribou got tangled in it. Openings in fence were too large and antlers were getting caught. Also, the wire was

slack and wolves learned to push the caribou against the fence, so it gave the wolves an advantage.

Fencing has to be designed specifically for the caribou and the site. Things to consider are the availability of salt, as caribou are attracted to it. At Lupin the issue is not salt, but that the area is it is cleared and open, and free of mosquitoes. It is important to consider what attracts the caribou to a place and then design fencing adaptability. What worked for Colomac may not work in another area, or another mine.

The need for fencing also needs to be carefully considered, and once a decision to build a fence is made, it is critical to ensure the fence is highly adapted to the needs of the caribou. Being adaptive may also mean that fencing is not the best solution.

There are alternatives to fences, and researchers have looked into howling wolf sounds and the use of wolf urine. These do not work consistently. There is also work being done to investigate the effects of sounds, smells, mirrors, lights, etc. but nothing is conclusive. There is considerable experience with fencing in Africa but it is important to realize there is no one solution. For example, the longest fence is in Australia was built to keep dingos out. It ended up killing other animals. Unfortunately, most international experience tells us what not to do, not what works best.

In Nunavut inukshuks are used to steer caribou in the direction of the hunter – not during the hot summer, but in the fall. Canvass is also used to spook caribou away from certain areas. However, these types of fencing do not work during the very hot summer days when the caribou are running to get away from the mosquitoes. When the bugs bother them they are not even afraid of people. In cool weather, they are easily spooked.

Noise does not scare them that much because at Ekati they lay around right beside the buildings; even beside airstrip. However, to deflect caribou one can use noise in conjunction with something else. On its own, noise doesn't work, but combined with something else it might. Also, caribou are smart and learn fast. If they hear a noise and there's no bad consequence, they learn not to respond to it.

Dene used willows and willow branches to herd the caribou. The branches were woven into a type of fence. This might be an opportunity for jobs to have young people gather willows to weave a fence. Similarly the Inuit have a unique herding method with inukshuks and willows. The Dogrib also applied this method of fencing using little trees.

Diavik uses a rock barrier on the inside of the road ay of the dike to keep caribou out. The rock barrier is comprised of large boulders so vehicles do not go over it. Currently, Diavik has a chain link fence around the solid waste site. Diavik's caribou management is to enable them to freely move through the site and help them avoid the PKC (tailings) areas. Diavik herds the caribou going through, while protecting them. People are used to physically guide the caribou along. If there were a lot of caribou (which there hasn't been) Diavik would not have enough people to do this, and would need fencing.

Diavik's landfill is fenced with a 2.5" mesh fence. Problems with the fence include the use of barbed wire on top and access under the fence. The fence is electrically charged and animals may get tangled in the wires. Diavik believes little things like pipelines are the greatest hazard for caribou.

DIAND and the Tli Cho looked at other elements of the mine such as open pits and quarries. Fencing for these was discussed, but they decided not to fence them. Berms are being considered as a solution. A berm is in the mine safety act as a requirement. It is a rock wall around areas having steep embankments.

Diavik has a number of mitigation and monitoring methods to prevent injuries and risk to caribou. These include continuous on-site monitoring, aerial surveys, satellite collar information, traffic advisories, speed limits, ramps over above-ground pipelines, herding procedures, giving animals the right of way.

Diavik suggests that fences in southern Canada have worked in places such as Banff to prevent accidents between vehicles and animals. However, structures over or under fences were needed to permit migration.

Diavik also noted that a problem with fencing is that animals can push through and become trapped. They could also become tangled in the fence. At Ekati, caribou get their antlers caught in the fence around the airport. This causes stress to animals. With chain link fencing, snow can pile up against the fence, creating a ramp that animals can use. Fencing also requires a lot of maintenance. Fencing requires plans as to how animals can get out, which can be complicated. Fences can limit the number of animals going into an area, but no fence is 100% effective.

6.2 Location of Fencing

There are two problems. Where do you put the fence; and is Diavik's current caribou management plan able to handle 24,000 caribou? (In 1997 there were 24,000 caribou on the East and West Islands). Currently, Diavik's caribou mitigation techniques cannot be relied on, especially if the original caribou numbers return. It is critical that mitigation be scaled to the volume of caribou. Diavik has argued that their measures are scaled to deal with numbers. The GNWT does not think herding works when there are thousands of caribou on the site and that herding is not good for the caribou. Dealing with the unlikely, yet possible, event of many caribou requires some re-thinking. It may mean coming up with criteria of what needs to happen and at what point. Diavik may need to consider contingencies like temporary fencing while the caribou are moving through the site (whether willows, snow fencing, etc).

Diavik does not have a formal approved contingency plan that everyone has agreed to. The Aboriginal and government parties thought there were contingencies for worse case scenarios, such as a large herd of caribou on the north shore trying to cross over. It was discussed during the CSR and therefore there is concern why there is no formal plan.

One suggestion is to have a fence run north of the PKC area along the country rock area out towards the airport down to the water and discharge area and not to fence the dike itself. The key concern is seeing caribou injured or going through the area with the muck.

Put a fence just north of the airstrip and north of the waste water disposal. It is not necessary to have a fence around the whole site. During the springtime heading north, maybe the recommendation to Diavik is that they bring Elders to watch the migration so we could see for ourselves how the caribou are moving.

Another suggestion is to fence the whole work area because there is no sense to fence only some parts. It is better to keep caribou out of entire area.

The Elders would like to visually inspect the site and then determine the areas to be fenced. The consensus is that the group needs to visit the site to establish the location and type of fencing needed. Once they are onsite and see the terrain the Elders can consider the fencing alternatives, and meet with the management to share their ideas and suggestions about fencing and deflection ideas.

There is considerable information about how caribou move onto the East Island from the mainland and the specific crossings used. The GNWT concurs with the Elders and notes that in the Colomac experience there was not just one site visit but several visits because when you first go to a place you cannot take everything in. The Elders emphasized the need to meet with management and to get a sense of what the final developed mine will look like as the movement of the caribou needs to be discussed in the full perspective.

Caribou used to come down from the north and onto the island through the North Country rock area. They will probably come the same way if they come back. Diavik probably does not have to fence the whole of the tailings area, because if all of it is fenced, then a plan to get the caribou out if they get inside is necessary. A temporary fence or diversionary fence along the North Country rock area and tailings area could suffice. Diavik should have the materials on site and ready if the caribou do show up. It could be temporary until the group is sure the fence doesn't actually cause problems itself. A fence is only needed when the caribou are running. The real concern is in the summer.

Diavik currently only fences the solid waste site. Generally, buildings do not need fencing because animals would just run past them. The airport is large and Diavik could be averse to fencing it, in which case a diversion would be better there.

The Aboriginal parties recommended having someone like Octavio Mello and Anne Gunn from INAC and the GNWT during the site visits so that they could use their knowledge and experience. All agree that the key fencing areas are the1) PKC; 2) Waste Water; and 3) diversion as needed.

6.3 Monitoring the Fence

There is a weekly fence inspection and a standardized report at Colomac. The fence has been in place for a year and few caribou visited at the mine to date. Therefore, there has not been a good test of the fence. Also, a moose jumped over the fence. The moose jumped in but then tried to get out underneath the fence by pulling at the restraining wire. The placement of the wire prevented the moose from getting out. This might be a consideration. If the restraining wire was higher, the moose might have been able to get out.

Fencing is not a permanent solution to separate the caribou from poisonous areas. The long term solution is to walk away and leave any remaining tailings in a way that is safe for the animals and the people. The Elders have helped us identify the rock surface which is appropriate. Re-vegetation will not work because the plants may absorb the contamination. The fence is the temporary solution and the rock cover is the ultimate solution.

The Elders suggest that the prime users of the land should be the ones monitoring and that this might create some jobs for hunters or Elders from various organizations.

The group agreed that there should be a test run of any fencing strategy, and that although it sounded costly, they we are not asking for a huge area, just some fencing. There was the very real sense that something needed to be done before the problems got too big.

6.4 Critical Success Factors

The most important factor that contributed to Colomac's fencing success was the partnership with the Tli Cho people. Decisions were made together and there was trust and openness. This was extremely important. "At Colomac we worked on it together". Elders were interviewed and there was much discussion, it was about involving people from the outset. It is important to develop the sense of trust and partnership.

Assembling the right expertise is another critical success factor. There were people with a scientific background, traditional knowledge, and those with expertise in building foundations on muskeg, etc. All of this was part of the success. Also, having a champion in a senior bureaucratic position was important.

The critical first step is determining if a fence is needed, and if so, where it should it be located, with what kind of design? A caribou risk assessment is critical to find out if fencing will help or hurt the caribou because fencing is only a partial solution and can create as many problems as it solves. Wolves will learn to hunt against it. Caribou could die because of it. It is critical to carefully scrutinize why a fence is needed and what type of fencing is best.

DIAND organized a meeting and brought together the key stakeholders. That included Aboriginal Elders and governments, scientists and engineers. DIAND acknowledged there was a great deal of public perception surrounding the need for a fence. The driver for the fence was not just scientific or calculated risk, but also public perception. DIAND considered all these issues before taking action.

DIAND met regularly with the Tli Cho leadership and the Elders and organized tours of the site for Elders to see how work was progressing, and used the project as a means for employment and training for our aboriginal partners.

Another success factor was the training of youth and involvement of the Elders side-by-side during fence construction. It is important to have two champions – one bureaucratic and one Elder.

Identifying the areas most dangerous for caribou is critical. At Colomac Elders were worried about where the tailings because caribou like to eat mud, and if the tailings look like mud, they might eat it – especially if they've eaten there before. These areas are high priority fencing areas because they are dangerous for caribou.

DIAND encouraged visitors to provide advice about where the fence should go so it would be most effective at diverting caribou. This openness and free access to the site was one key to a successful project. DIAND also prepared a physical model which showed the outline in 3 dimensions. There were also aerial photos.

It is very important to recognize and accept that some of the decisions will be made by actually visiting the area to look at caribou tracks. The initial planning process using maps and models is good, but eventually people have to the site. In fact, there is no substitute for actually being there to determine the location of the fence. One of the successes of the Colomac fence was the openness of being invited to look at the site and exchange ideas on what needs to be fenced, and under what conditions.

Maybe before the snow flies we can watch the migration of the caribou coming through this area. We can watch where they are coming/going.

APPENDIX 1: AGENDA

Fencing at the Diavik Diamond Mine

A Workshop Sponsored by the Diavik Diamond Mine Environmental Monitoring and Advisory Board (EMAB)

September 8 & 9, 2004
At the Explorer Hotel

Date: September 8 & 9, 2004
Location: Explorer Hotel.

Purpose: To provide advice to EMAB regarding the type and location of wildlife fencing at the Diavik Diamond Mine.

Objectives:
1. To provide EMAB advice regarding the type of wildlife fencing.
2. To provide EMAB advice regarding the location of wildlife fencing.
3. To provide EMAB advice regarding the monitoring and management of wildlife fencing.

September 8, 2004
Fencing at the Diavik Diamond Mine

8:30-8:45 Opening Prayer
-Facilitator to ask attendee at outset of the workshop
-Opening Comments by John McCullum, Executive Director EMAB

8:45-9:00 Opening Comments and Review of Agenda – Facilitator
-Round of Introductions

9:00- 9:30 Successes, failures and lessons learned from fencing of Mines in the NWT and Nunavut. The BHP Billiton, Lupin Gold Mine and Colomac Experiences.
-Octavio Melo, INAC, Contaminants Division
-Anne Gunn, RWED, BHP and Colomac

9:30-10:00 Group Discussion

10:00-10:15 Refreshment Break

10:15-10:45 Current Wildlife / Caribou Management at the Diavik Diamond Mine Site
-Gord McDonald or Scott Wytrychowski

10:45-12:00 Group Discussion

12:00-1:00 Lunch

1:00-2:00 Fencing – Best Practices.
-Anne Gunn, RWED, BHP and Colomac
-Gord McDonald or Scott Wytrychowski
-Octavio Melo, INAC, Contaminants Division

2:00-3:00 Group Discussion

3:00-3:15 Refreshment Break

3:15-3:30 Summary of Issues and Agreements – Facilitator

3:30-4:00 Group Discussion

4:00-4:15 Daily Summary – Facilitator

September 9, 2004
Fencing at the Diavik Diamond Mine

8:45-9:00 Opening Comments and Review of Agenda for Day Two– Facilitator

9:00-9:45 Diavik Presentation on Fencing
-Gord McDonald or Scott Wytrychowski
-Anne Gunn, RWED, BHP and Colomac
-Octavio Melo, INAC, Contaminants Division

9:45-10:00 Group Discussion

10:00-10:15 Refreshment Break

10:15-10:45 GNWT and INAC Presentations – Where to Locate the Fencing
-Anne Gunn, RWED, BHP and Colomac
-Octavio Melo, INAC, Contaminants Division

10:45-12:00 Group Discussion

12:00-1:00 Lunch

1:00-2:00	Fencing – Diavik's Views -Gord McDonald or Scott Wytrychowski
2:00-3:00	Group Discussion
3:00-3:15	Refreshment
3:15-4:00	Fencing – Others Views
4:00-4:30	Workshop Summary and Advice for EMAB – Facilitator -Closing Comments by John McCullum, Executive Director EMAB
	Closing Prayer

APPENDIX 2: SEPTEMBER 8 & 9

FENCING WORKSHOP TRANSCRIPT

Fencing at the Diavik Diamond Mine

A Workshop Sponsored by the Diavik Diamond Mine Environmental Monitoring Advisory Board (EMAB)

September 8&9, 2004

PURPOSE:

- To provide advice to EMAB regarding the type and location of wildlife fencing at the Diavik Diamond mine.

OBJECTIVES:

- To provide EMAB with advice regarding the type of wildlife fencing
- To provide EMAB with advice regarding the location of wildlife fencing
- To provide EMAB with advice regarding the monitoring and management of wildlife fencing

PARTICIPANTS:

Elder John B. Rabesca, Lutselke Wildlife Committee
Elder Joseph Nitanatuaq, Kugluktuk
Elder Aime Ahegona, Kugluktuk
Elder Joe Migwi, Rae
Elder Edward Camel, Rae
Elder Alfred Baillargeon, YK Dene
Elder Isidore T'setta, YK Dene
George Mandeville, North Slave Métis Alliance
Fred Turner, North Slave Métis Alliance
James Marlowe, Lutselke Wildlife Committee
Anne Gunn, RWED
Dean Cluff, RWED (Wednesday only)
Robert Mulders, RWED (Wednesday only)
Octavio Melo, INAC
Gord MacDonald, Diavik
John Virgil, Golder Associates (Wednesday only)
Scott Wytrychowski, Diavik (Thursday only)
Eric Madsen, Diavik (Thursday only)
John McCullum, EMAB
John Komak, Innuinaqtun translator
Bertha Catholique, Chipewyan Interpreter
James Rabesca, Dogrib Interpreter
Louie Azzolini, Terra Firma Consultants (Facilitator)
Lynn White, Whiteworks Consulting (Assistant Facilitator)

7 WEDNESDAY September 8, 2004

7.1 Opening Prayer

Elder Joe Migwi

7.2 Welcome

John McCullum, EMAB
(9:05-9:15am)

McCullum: Welcome everyone and thank you for coming. The issue of fencing is a complicated one and EMAB is trying to get advice from as many people as possible. This workshop is part of a process that EMAB started last year. When the mine's environmental assessment was done, a commitment was made to have fencing around the pits, explosives area, and solid waste areas. EMAB now wants to make sure it recommends the best possible fencing solution to Diavik, while carrying on the commitments in the comprehensive study report. This workshop is part of that process.

First we brought together Elders and community people for a traditional knowledge panel in March. They visited the mine. This traditional knowledge panel made detailed recommendations on the fencing they'd like to see. The second activity was a traditional knowledge camp at Diavik, near the mine site. People visited after the caribou migration. Recommendations were made. The third activity is this workshop, where technical people and people from the communities are brought together to discuss the best options for fencing.

EMAB is meeting Sept 21-23, 2004 to come up with recommendations to Diavik. The results of this workshop will contribute to this. A commitment has been made for some level of fencing. Now we need to determine the best fencing recommendations for the site and for the wildlife. By the end of the workshop, we hope to have some consensus about what type of fencing is best. There have been some very good recommendations so far and we hope there will be more today. A few of you have been at all of the activities. For others, this workshop is the only activity you will attend. The people who have been at all will have more understanding, and your patience is requested.

Mandeville: Do you have minutes from the past activities?

McCullum: Yes, but we need to sign-off on everything before it is made public. The minutes from the March meeting have not been signed-off, and the notes from the camp are still in draft.

Gunn: Do you have the report from the 1999 report from Dettah?

McCullum: Yes, and we can make copies.

7.3 Opening Comments and Review of Agenda

Facilitator
(9:15-9:25am)

Facilitator: In the NWT we are fortunate to have some experience with fencing and fencing at mines, than cannot be found elsewhere. The purpose of this workshop is to provide solid advice to EMAB from the collective knowledge of this group. We want to advise EMAB on what type of fencing works better, where does the fencing belong, and once the fencing is there, how we know if it is working.

The workshop has been designed around the experience that exists from the Colomac mine, and Octavio Melo is here from INAC, as well as Anne Gunn and others that have participated. There is also experience from the BHP mine site. This workshop's participants have more experience with fencing and northern mines than anyone. We brought those most knowledgeable to the table. In northern climates, there has not been much scientific work done on fencing and caribou. So we are learning from each other's experiences. We'd like to learn from your experiences.

While there may be differences of opinion about the need for fencing, a discussion of the best advice on how and where to fence, should it proceed, is needed. The first speakers will discuss what has worked well, not so well.

7.4 Colomac Mine Wildlife Fence: Successes, Failures, and Lessons Learned

Presentation (Octavio Melo, INAC) & Group Discussion
(9:25-11:00 am)

Melo: It is a pleasure to be here to share with you our experiences with Colomac. I work for INAC where I am project manager for the Colomac Mine Remediation Project. I've been with the project for 2.5 years. My presentation is about the fence built at Colomac. The engineering, scientific and traditional knowledge for designing, building and operating this fence has come from people other than me. A lot of traditional knowledge was used, and people like Anne Gunn have been instrumental.

This presentation is broken into various parts. 1. Why there was a need for a fence at Colomac; 2. Design and Construction; 3. Operating Experience; and 4. Outlook for the Future.

Colomac is an abandoned, open-pit gold mine. Wekweti is the closest community at 45 km to the east. Colomac is on the Tli Cho traditional land, a very important area to the Tli Cho people. The mine was opened in 1989. Royal Oak took over in 1994. DIAND took over in 1999 and has been operating it in "repair and maintenance" mode since then.

The remediation plan (including the fencing project) was done in partnership between the Tli Cho and DIAND - because of the importance of the land to the Tli Cho people and the objectives of DIAND for capacity building. We met regularly with the Tli Cho leadership and the Elders. We organized tours of the site for Elders to see how work was progressing. We also use the project as a means for employment and training for our aboriginal partners.

The fencing project began in early 2002. We needed to determine the issues - do we really need a fence, where do we put it, what kind of design. We organized a meeting in Feb 2002 bringing together some of the people in this room. The Elders made a passionate case for the importance of the land, caribou and traditional lifestyle. There was great concern about the tailings and the fact that caribou and other wildlife had direct exposure to the contaminants. We considered what we heard, and had scientists and engineers looking at this issue. We did some risk assessment, including who is imposing this risk; is the risk voluntary or imposed; is the risk known or foreign; is the risk shared equally by various groups. There is a great deal of public perception surrounding the need for a fence. The driver for the fence is not just scientific or calculated risk, but also public perception. We considered all these issues. We decided to use year end funding to purchase materials, but there was no money to actually build the fence that year. The materials sat at the mine site for over a year until we could move forward.

The next significant milestone was the creation of an overall remediation plan for the mine. This involved a land-use permit and water license application. This process involved the Tli Cho and DIAND. The Tli Cho wanted the tailings isolated and the animals protected. This was their number one concern and we had to address this first before developing a full remediation plan for the board.

We were facing some resistance within DIAND for the fence. It took the intervention of a "champion" senior manager at DIAND to proceed. In summary, this is the process we followed. It took a while and a number of factors went into the decision. We learned that a senior person needs to be on-board to make it happen.

Gunn: Octavio touched on a key point. Between us, we have many years of knowledge of how to divert and exclude caribou. There are two types of fencing. One to steer caribou away (divert), and one to keep caribou out (exclusion). Risk assessment is the key message for EMAB. Need to go through all the reasons for fencing. Fencing is only a partial solution and can create as many problems as it solves. Wolves will learn to hunt against it. Caribou could die because of it. We need to clearly scrutinize why a fence is needed and what type of fencing is best.

Marlowe: What type of stuff do they dump in the tailings lake?

Melo: The process for extracting the gold was to grind the ore, then add cyanide and low levels of metals (copper, zinc, etc). Cyanide is the main concern. It breaks down into ammonia and other things.

We wanted to enclose the tailings area with the fence. The location had to be a compromise taking into account many factors. We are currently treating the contaminated water in place, using natural processes (fertilizer and algae). This process works well but it takes time. So one of our requirements was to build a diversion of fresh water away from tailings area so there is enough time for the decontamination process to work.

Mandeville: Have there been tests done to see if there is seepage?

Melo: There is one damn that seeps water underneath. We have a system to collect this seepage and re-pump it into the tailings area. Vegetation sampling shows very little seepage.

Mandeville: Who does the sampling?

Melo: DIAND and some consultants. Anne Gunn has been involved.

Turner: You mentioned the effects of wildlife exposed to contaminants. What were they?

Melo: Very high levels of cyanide are lethal if enough is taken. However there are different levels of intake. If animals take in arsenic, some ends up in their tissue. People who consume caribou may end up eating arsenic stored in the tissue. We have tested for comparison to the general population of caribou. The levels are not all that different. From a scientific risk assessment, the risk is not that large if you look at the levels the caribou take in, where it accumulates in the body, and risks to humans.

Turner: Was there then no need for a fence then?

Gunn: There are two things to consider. Tailings have salt (sodium). The caribou we looked at did not have much contamination, but without the fence they might have eaten more. There are a few other sites where caribou are attracted to the salts, or they are

exposed to the dust that comes from the tailings. These things need to be considered. At Colomac, the caribou were not really affected, but the potential was there.

Facilitator: We are jumping into the question of whether we should fence or not fence.

Turner: No, I am just concerned about the effects on the animals from tailings.

Melo: There are a number of reports that deal with contamination and risk assessment and these are public. I can provide these as it is part of DIAND's remediation plan. When you do a risk assessment you always calculate an incremental amount of contaminants in caribou. The conclusions were that there were no health concerns to people who ate the caribou.

We were talking about factors that led to fence location. We needed to keep fresh water away so there would be time to do the natural decontamination process. The decision was to put the fence on the far side of the slow-down ditches. See Fence Alignment slide.

Question: What was the total perimeter?

Melo: 8.5km.

Elder Ahegona: How does this compare to the area around Diavik? If the herd came into direct contact with the fence, the first caribou would hit dead on and last caribou would push the rest ahead.

Melo: This was one of the concerns in Feb 2002. As a result we decided the fence needed to be tall and strong. We decided to make it wire with small enough openings that caribou antlers wouldn't be caught in it.

Elder Ahegona: Some of the young ones might get a horn through. The rear caribou might force the rest through. A think a fence is OK, but we need to consider flagging to divert them from the fence in the first place.

Mandeville: At Colomac, how many years would it take for this site to be contaminant-free after the natural decontamination process?

Melo: I will deal with this later. The water quality at Tailings Lake is improving rapidly. There is no cyanide. The estimate for final decontamination is 2007-2008.

Mandeville: Is it safe to say the lifespan of the fence is sufficient to cover the decontamination period?

Melo: Yes. We have enough storage capacity to 2009, even though discharge of water is scheduled for 2007-2008.

Turner: Does some of the plan include dismantling the fence?

Melo: Yes. It is a temporary measure. However, there will still be exposed tailings, even after the water is OK to discharge. We will put a rock cover over the exposed tailings in 2008. The fence will stay up another year or two to demonstrate to the Tli Cho that things are working.

Question: Do you have the drinking water near this area?

Melo: No, it is 5km away.

Question: Is the drinking water inside or outside the fenced area?

Melo: Outside.

The fence is chain link with a 1" wire mesh size. The posts are steel and there is no gap at the bottom. This prevents small or young animals from being separated from their mothers. The terrain is rough with a mix of muskeg and bedrock so we got someone to design a foundation for the posts. We drilled deep and put in a larger post with concrete. We used an airtrack machine to drill holes for posts. We cleared about 5-10 meters wide to put the fence in.

Elder Ahegona: The fence is 8' but how much strength is underground?

Melo: On bedrock the posts sink to 3-4', but on softer ground we went 8-10'down.

One of the recommendations was to install many smaller gates around the fence perimeter for removal of any small animals that did get through. The Elders and Anne Gunn advised us on where to put these. The construction of the fence was done mostly by young people out of Tli Cho communities. An Elder was part of the crew for encouragement. Once the fence was complete in fall 2003, we had a celebration. The overall cost was $1 million approximately.

Facilitator: Up to the point of building the fence, what were the major successes, problem areas, and lessons to pass on?

Melo: The partnership we formed with the Tli Cho was an important factor. We also assembled the right expertise. We had people with a scientific background, those with traditional knowledge, those with expertise in building foundations on muskeg, etc. All of this was part of the success. Also, having a champion in a senior bureaucratic position was important.

Some of the difficulties included a disconnect between the good ideas presented and the requirements of the Federal government. For example, we agreed there would be no sharp angles on the fence, but in reality, some angles occurred which now have to be fixed. We wanted wide areas, and some were not as wide and we had to fix them.

Mandeville: Another benefit was the training of youth and involvement of the Elders side-by-side with youth for fence construction. It is important to have two champions – one bureaucratic and one Elder.

Elder Ahegona: Was there any sign of an old camping site?

Melo: Yes, there was one near Tailings Lake.

Elder Migwi: The fencing idea has been around for many years. It started with the old Rae Rock mine site. Colomac mine site is a prime hunting area and there is a winter road connected to it. If people went there they could see for themselves how the fence

is and how it was put up. The important question now is the Diavik mine. Having a successful completion of a fence for Diavik will be more complicated. Diavik is bigger and there is different terrain. We have met with Diavik in the past and talked about fencing. We aboriginal people value that land because we travel there to harvest caribou. We want to protect the environment, the terrain, and the caribou. Any abandoned mine site should be considered a hazard and should be fenced. Once we finish Diavik, we may need to look at other mine sites (especially abandoned ones) to see if fencing is needed. We, as Elders, are concerned about the caribou having to cross steep banks, having broken legs, or getting cornered by wolves. The quality of water is also important to us. We keep thinking of Rae Rock. The main drainage is toward our area. Although this is cleaned up, there is still concern about seepage into the river. We are also concerned about Colomac because we are downstream from it. Our water is important to us. I am happy to be here because the fencing at Colomac is successful. Hopefully it will be even better at Diavik, even if it is complicated. We know we need a fence and need to convince the government that this is necessary to protect us. Thank you for listening to me.

Elder Camel: The idea of fencing has been around for many years, and many people have worked on it (Elders and chiefs who have passed on). We had to struggle with the government to ensure they had the funding to bring about our wishes. When we talked about these things we try to voice our opinions but we don't go direct to the ministers or INAC. It doesn't work that way. We need to talk to our Chiefs and heads of Band Councils and they bring the message to the government. We talked about fencing at Colomac almost 8 years, and in the 9th year the fencing came. The fence material was on the mine site but took over a year to be constructed. The fencing is done well. The posts inside the rocks are pretty deep and packed with concrete. They even put some skirting to the ground to ensure the animals don't get in. The posts themselves are anchored well. In the past we hunted around that area and saw caribou on the lake where the tailings were dumped. A year ago they went back, but the fence must have worked because they saw a change in pattern. I checked on the fence when I was near the winter road. The caribou went around it. The fencing is well-monitored by the people at the camp. They ensure no animals are getting through. Whenever we get a chance, we tour that area. By coincidence one moose got over the fence. We talked that over and figured the moose must have been sick to do such a thing. The fence itself is a big space and once the animal gets in there it would be difficult to get back out – best just to shoot it. The fence was done pretty good. It was put down to ground level. Hopefully this will be the case at Diavik too, although I'm not sure what circumstances they have there.

Facilitator: What are the Elders' main worries with the fence?

Elder Rabesca: We are worried about where the tailings are being spilled. Caribou like to eat mud and if the tailings look like mud, they might eat it – especially if they've eaten there before. We need to put fencing around that area. There is a need for fencing. Anything that is dangerous for caribou requires a fence. It won't be only Diavik but all mines coming into the North. We worry about migration of caribou and other animals. I am really worried about caribou and wildlife at Diavik diamond mine.

Mandeville: The waste product he is talking about, is it contaminated?

Facilitator: Diavik will get into that presentation shortly.

Facilitator: Octavio, what types of fencing were considered?

Melo: We relied on Anne and the Elders.

Gunn: We started out with chain link fencing for the Colomac situation. This was the design that would cause the least problems for the caribou.

Marlowe: Did you look at other projects in other countries?

Gunn: There is a lot of fencing in other countries but the explanation as to why it was done or how it was chosen is not good - and it is not well-monitored. The people in northern Europe have a lot of experience. They use temporary fencing that is very coarse to hold reindeer. They also use dogs and snow machines. In Russia, they have a 50km fence to divert caribou from the railway and pipeline. It worked to divert caribou, but there is no information available on how they built it. It illustrates the point that diverting caribou means they end up somewhere else. In Russia, the caribou were over-using the terrain they were diverted to. It caused as many problems as it solved. We don't know what happened because the monitoring was poor. The lesson we can learn is that you need to know where you are diverting the caribou to – and also it is very important to monitor.

The question of fencing at Lupin dates back to the 80s. The only experience we have there was flagging – a traditional practice of Dogrib. We found if caribou were easy-going, the flagging diverted them. If they were very motivated, they went straight through. The flagging only diverted the caribou that wanted to be diverted. It did not prevent them from entering the area. There is an electric fence at Ekati and some flagging to divert caribou from the airport. There has been no monitoring, despite repeated requests. Part of the agreement to build a fence should include monitoring. This could include remote monitoring by camera. The caribou triggers the camera mounted on a fence post. The fence at Ekati caused as many problems as it solved. Caribou got tangled in it. Openings were too big and antlers could get in it. Also the wire was slack. Wolves have also learned to push the caribou against the fence, so it gives the wolves an advantage.

The fence was also put up to protect human safety. One reason the caribou were attracted to the airstrip was because the company re-vegetated the area which actually attracted the caribou. Unfortunately, the plants pick up the poisons. Any mitigation technique has to be well thought out. Fencing also does not solve all the problems associated with tailings. The tailings dust will go through the fence, as will the lichen. This will be the case for all the mines. Even if you fence off the tailings, there is still a need to control the dust, at least 30m from the tailings pond. However, dust can travel as far as 20 km. Fencing has to be designed specifically for the caribou and the site. Things to consider are: does the tailings pond have salt. If yes, the caribou will be attracted to it. At Lupin the issue is not salt so much, but that the area is attractive because it is cleared and open. We need to consider what attracts the caribou. Flexibility/adaptability is key. What worked for Colomac may not work in another area. This is covered in the comprehensive study report. Diavik is required to fence open pits, explosive areas, and processed kimberlite. The report emphasizes that fencing needs to be adaptable to the situation. The need for a fence needs to be carefully considered and the type of fence needs to be highly adapted to the needs of the caribou. Being adaptive may mean that fencing is not the best solution after all.

Marlowe: Have fence experts in the world ever come here to show what kind of fencing options exist? For example, perhaps a combination of sounds with fencing would work.

Gunn: Yes. We have looked into howling wolf sounds and the use of wolf urine. These did not work consistently. There is work being done to investigate the effects of sounds, smells, mirrors, lights, etc. but nothing is conclusive. There is a lot of experience with fencing in Africa. We could talk to them, but we need to realize there is not one solution. The biggest fence is in Australia to keep dingos out. It ended up killing other animals. Unfortunately, most international experience tells us what not to do, not what works best.

Melo: Once a fence is built you need to monitor it. At Colomac this was done with standard operating procedures. These include inspections, etc.

Marlowe: Did you find any entangled animals to date?

Melo: No, but one moose got in.

Melo: There is a weekly fence inspection and a standardized report. The fence has been in place for a year. The numbers of caribou were small so we did not get a good test of the fence. We had one case of a dead caribou. We think it was a wolf kill, but it was difficult to know what role the fence played. Also, a moose jumped over the fence.

Gunn: The moose jumped in but then tried to get out underneath the fence by pulling at the restraining wire. The placement of the wire prevented the moose from getting out. This might be a consideration. If the restraining wire was higher, the moose might have been able to get out.

Melo: Monitoring also included dust control. This included a sprinkler system and an organic material to crust the surface and prevent dust.

The ultimate solution is construction of a rock cover on the exposed tailings, including coarse rock 75cm, with a finer rock over top.

Mandeville: Is this only for gold tailings?

Melo: It is used any place you need to contain contaminants. The Elders have been providing advice along the way, particularly about what the surface of the rock should look like so caribou are not injured.

Gunn: Fencing is a short term solution to separate the caribou from poisonous areas. The long term solution is to walk away and leave any remaining tailings in a way that is safe for the animals and the people. The Elders have helped us identify the rock surface which is appropriate. Re-vegetation will not work because the plants may absorb the contamination. The fence is the temporary solution and the rock cover is the ultimate solution.

Cluff: What happened to the moose?

Gunn: This fence was designed for caribou, because they were most prevalent in the area. Gates were set up to let caribou out. The fence was not designed for moose, and it is more difficult to herd a moose out through the gate than to herd a caribou. In the

end the Elders decided the moose should be shot in case it ingested any tailings. The meat was sent away to be tested. The test results have not come back yet.

Cluff: Were there any other carnivores involved in incidents?

Melo: One of the small gates was built in an area that was depressed with the thought of a road being built. A small bear got in this way.

The fence will stay up until the tailings are covered. DIAND and the Tli Cho looked at other elements of the mine such as open pits and quarries. Fencing for these was discussed, but we decided not to fence. Berms were being considered as a solution. A berm is in the mine safety act as a requirement. It is a rock wall around areas having steep embankments.

Turner: What is happening with the water quality of the mine? Is it getting better?

Melo: Yes.

Mandeville: Why can't all these holes just be filled in with the material that was taken out?

Melo: It is cost prohibitive at approximately $50 million.

Melo: The remediation plan was submitted in March 2004. Two years will be required for the regulatory process. After this we will build a new damn and cover the exposed tailings. We will start to discharge the tailings at 2008. This will be monitored and the fence will come down in (approximately) 2012.

Facilitator: Fencing is not just chain link fencing. Berms are other solutions, and other barriers are options.

7.5 Current Wildlife Management at the Diavik Diamond Mine Site

Presentation (Gord MacDonald, Diavik and John Virgil, Golder Associates) & Group Discussion
(11:30-12:10pm)

MacDonald: I am Gord MacDonald, the Manager of Sustainable Development, Diavik. I am here to hear people's concerns and to answer questions about Diavik. I have a few slides to describe Diavik, then John Virgil will describe what the monitoring results have shown so far.

MacDonald: This is a photo of the Diavik site. It is located on East Island. There is an open pit. We have a rock barrier all the way around on the inside of the road way. This is comprised of large boulders so vehicles do not go over it. In the PKC area (processed kimberlite/tailings) we are just beginning. These are photos of PKC and the pipeline where muddy water comes out. This is similar physically to Colomac, but there are no chemicals in the water. At closure, the site will be closed with rock and finer materials.

We currently have one fenced area with chain link fencing around the solid waste site. Our approach with the caribou is to have them come through the site and help them avoid the PKC (tailings) areas. We use herding to keep the caribou going through, while protecting them.

Marlowe: What do you mean by herding?

MacDonald: We use people to physically guide the caribou along. If there was a lot of caribou (which there hasn't been) we would not have enough people to do this and would need fencing. We know when caribou come onto the island and we can track their movements.

Virgil: I am with Golder Associates. I advise Diavik and BHP with their wildlife project. I have been working with caribou and mining for 8 years. Not long, compared to most of you. We are all concerned about the potential interaction of caribou with mining activity, especially if the interaction could lead to risk of injury or death of animals. Diavik already has a number of mitigation efforts in place to reduce the risk. Since Diavik has been in construction and operation, monitoring shows these mitigation methods are working well. This has led us to question whether it is really necessary to provide fencing for caribou at this time.

Virgil: There are three key questions when deciding whether to construct fences for caribou: Is there a need for additional mitigation on top of everything else being done? Are fences effective? Can fences create alternate risks to caribou?

Elder Ahegona: Are the fences effective?

Virgil: I will get to this. Overall, they are not 100% effective. Animals can get trapped in fences. Anne discussed this. I will go through data on caribou movement around Diavik area to help us understand and answer this question.

Elder Ahegona: The earth is not level and there will be holes at the bottom and small animals can get through (like foxes). We found some fur on the fence.

Virgil: I will get to this.

Virgil: Is there a need to reduce the presence of caribou on the East Island right now? We know that caribou do periodically travel through the East Island. However, after the post-calving migration period, Lac De Gras (LDG) acts as a natural fence to caribou moving onto the East Island. We know this from the monitoring that goes on in the LDG area.

The slides show the results of aerial surveys from May 2002 to July 2004. Each circle represents a caribou group of different size. This is during post-calving migration. It shows there are sometimes caribou on East Island, but there are very few relative to the rest of the study area. This suggests that LDG acts as a natural mitigation onto the East Island.

Information from the collared-caribou shows the general location and movement of caribou in the LDG area. It shows most of the caribou move around LDG and other larger lakes. These lakes tend to act as natural deflectors for caribou.

During the northern migration, when lakes are frozen, the chance of observing caribou on East Island is the same as the chance of seeing them anywhere else. During northern migration, caribou do cross large lakes. At this time of year, rather than other migration times, they are motivated and have a direction in mind. This leads to a concern that fences around the mine during this purposeful movement may create more danger.

Diavik has a number of mitigation and monitoring methods to prevent injuries and risk to caribou. These include continuous on-site monitoring, aerial surveys, satellite collar information, traffic advisories, speed limits, ramps over above-ground pipelines, herding procedures, giving animals the right of way. No caribou have been injured or killed by mining activity at either Diavik or Ekati. This suggests current mitigation and monitoring are effective.

Are fences effective? Fences have been used along some highways to deter ungulates (eg Banff) and prevent accidents between vehicles and animals. This has worked, but they have had to put structures over or under fence to permit migration.

Elder Camel: How high is the road built with the boulders? You said animals were not hit by company vehicles but I noticed some caribou with broken limbs around the site (they must have fallen on the boulders). What monitoring of this is happening - referring specifically to BHP Misery Road?

Virgil: In some places at Misery Lake the boulders are quite large and difficult for caribou to get over. In the places where caribou like to cross, a finer material has been put down and a different slope made. Any animals found dead near the mine site are checked to see if it is due to a collision with a vehicle. None of the reports show that this is the case.

Elder Camel: When at the mine site I saw limping animals along the road. I was not sure how the animal got injured. Is it due to hunters, vehicles, or stepping through the boulders?

Virgil: Another problem with fencing is that animals can push through and become trapped. They could become tangled in the fence. At Ekati, caribou got their antlers caught in the fence around the airport. This causes stress to animals. With chain link fencing, snow can pile up against the fence, creating a ramp that animals can use. Fencing requires a lot of maintenance. Fencing requires plans as to how animals can get out, which can be complicated. Fences can limit the number of animals going into an area, but no fence is 100% effective.

The final question is - can fencing create alternate risks to caribou? We don't know the full impact of preventing caribou from travelling along their natural paths. There is entanglement and trapping. Wolves will use fences to corral or trap caribou. Fencing around the mine area might increase the negative impacts to caribou.

In summary, is fencing necessary? The survey data confirm that caribou do travel to East Island, but it also appears that LDG might be a natural deflector. Fences limit the number of animals from an area, but no fence is 100% effective. Entanglement, entrapment, and corralling are dangerous. No caribou have been reported as killed or injured at Diavik site. All monitoring programs put in place were designed to learn if mitigation is working. The real question is, given the success so far, do we need to do fencing at this time?

7.6 General Group Discussion – Part 1

(12:10-12:30pm)

Gunn: Virgil suggested LDG acts as a natural fence. If this is the case, something has changed. When Diavik did its baseline assessment, this included caribou surveys. There were a lot of caribou used East Island. There were 24,000 in 1997. East and West Islands are so close to the north shore that caribou can easily go this way. The question is raised that if LDG is now a natural barrier, when it never used to be, maybe the mine itself or the fact that 400 people live there are causing the diversion. I do not think the LDG as a natural barrier is really an argument for or against fencing. In the past LDG was not a fence. So the current mitigation techniques cannot be relied on until we know if the former population of caribou will return. Also, the current herding practices would not work if the original caribou numbers returned.

Virgil: LDG is more a deflector/influence than a barrier. Also, we know the Bathurst herd has declined since 1997 so we can expect that the number of caribou is lower. We need to take this into consideration

Gunn: The point is we need to be careful with the conclusions we draw.

Virgil: At one point, 10,000 animals moved through the Diavik site on one day. It took several hours, but they got through successfully and the existing mitigation measures worked.

Elder Nitanatuaq: Elders went to Diavik to look at the mine site and there were not many caribou there. We used to see a lot of caribou migrate through that area. We suspect the noise from the mine has made the caribou move away. A lot of the old caribou trails are now covered with moss. There is so much noise from the mine site; the caribou are migrating away from the site instead of going along the shores.

7.7 General Group Discussion – Part 2

(1:45pm-2:25pm)

Facilitator: There are fencing methods that are better than others and we need to discuss this. Before that, I want to ask the Elders something. You heard what Diavik had to say. They said the mud they are creating does not have the chemicals that Colomac has. They have a number of measures in place to make sure the caribou are not affected by the mine. Yet we are discussing fencing. Having heard all this, what are your ideas regarding fencing and the Diavik Diamond Mine? We will discuss best practices, but what is your opinion so far?

Marlowe: Diavik says their mitigation procedures work. They may work for the mine, but not for the communities. The present mine is right on the caribou migration route. You can see the trails where the caribou used to go. Since the construction of the mine, caribou have not come around the community for 4-5 years. Before that there were caribou around the community yearly. Since the mine, there have not been caribou around. My thinking is that since the mine was built right on the migration pattern, the caribou are disoriented. 48% of our caribou are now gone. This is a huge loss. I'm not sure if that figure is correct. This affects us in the communities.

Facilitator: The caribou have become disoriented and are not doing what they used to do. How does this relate to the matter of fencing? Having heard what you heard, I would like to know what you are thinking about fencing with respect to Diavik?

Marlowe: For me it is the blocking of our caribou herd and killing them off with poison. Also birds and fish are affected. Fencing would mean we are trying to protect the animals from harm and keep them from being destroyed.

Facilitator: What I'm hearing is that the fence provides the security you need to know the animals will not be destroyed or injured.

Mandeville: What I'm hearing is the fence is not needed. It sounds like Diavik is not consulting with the Bands or using traditional knowledge. They're just saying the data shows the caribou are not coming. Why don't they hire some locals to do the herding?

Facilitator: Diavik is saying the caribou were there before the mine and they do not want to disrupt the migration by putting up fences. Yet, fencing provides you and your community with security that you are protecting wildlife.

Mandeville: I've been to the mine site. The boulders are huge around the dike. I've heard some caribou are injured. If caribou get over the road, there is a steep drop-off. If they are migrating in great numbers, the ones in the back will push the ones in the front. Something needs to be done.

Facilitator: You are looking for a level of confidence in the event of 20,000 caribou they will be protected from, say, a sheer drop.

Mandeville: Yes, we need some sort of barrier, maybe a concrete wall.

Facilitator: You need the confidence that animals are not being injured or killed. You've heard what Diavik is doing with their monitoring. They are saying there are only a few caribou now but there was 24,000 previously. We also hear they are disoriented.

Mandeville: At Ekati, there were lots of caribou migrating but they didn't seem to be affected by the noise.

Facilitator: Is noise a way to divert caribou?

Elder Migwi: I'm still concerned about protection around the mine site. I don't agree with how the monitoring system is set up by Diavik. The prime users of the land should be the ones monitoring. The 400 people doing the monitoring are out there to work. We should be the ones monitoring the caribou. This might create some jobs for hunters or Elders from various organizations who can monitor caribou migrating inland. This would help us better understand the patterns of the caribou. It is more than the caribou migration. We are also concerned with the blasting and the dust that falls on vegetation. The caribou are eating this vegetation and the Elders are concerned about this. Another area of concern is the fish from the main area where the dike was built. What happened to the fish? Did they die or were they moved? Diavik is situated on the gulf stream from Coppermine and they have the same concerns we do. The caribou is the prime source of meat. We did a lot of harvesting for meat and for fur around the LDG area. The caribou are important to us. The company representatives appear to not want to build a fence but I totally disagree. We're not trying to ask for a fence around the entire mine site. Even build a fence in a test area to see if it works and then look at more fencing later.

Elder Baillargeon: There are differences between aboriginal people and non-aboriginal people. Non-aboriginal people are considered transient – they extract minerals out of the land. Consultants are only here to make money. We are not concerned about money but about the land and the wildlife. The Colomac mine fencing appears to be successful with a partnership approach. It took them quite awhile – 8 years. We will need many groups involved for the Diavik partnership. What I have seen at Diavik is some need for temporary fencing, maybe from the airport down to the open pit mine as a test pilot. This would give us an idea and we could see the effects – this is better than doing no fencing. This would allow them to test before implementing.

Every time we want to do a project like fencing, the company representative/consultants will say there's no money. At the Diavik site there is a need for 2 more dikes to deal with the underground kimberlite. There will surely be money for that. Asking for money for a fence is not asking too much. Sometimes now the caribou are running over the rock fence and some of the boulders are rolling over them. Hoofs can be damaged. Before the mine was set up, there was nothing wrong with the animals. Ever since the mine was set up we've seen a lot of change in the animals.

Do the mines know how caribou behave? As aboriginal people, we know how they behave, but not necessarily around industry. However, we know there has to be an effect. One time I saw a big mountain at the site and next time I was there it was flattened out. Where did the debris and dust go? What could have happened to waterfalls or fish, and was drainage affected? Some people are not too happy with the way things are developing. Also because of past mining practices that were not done well, there are bad memories. In the future they need better monitoring and our involvement and the involvement of our organizations in an advisory capacity. The

companies need to use our knowledge. We give direction, but they need to take our direction. I don't know why we're here at times. They need to listen to us.

Every time Elders visit the mine sites, we hear lots of stories about what is happening over there. We find out there are a lot of cover-ups there. For example, there might be oil spills they cover up by the time we get there. We are no too happy with this.

Elder T'setta: I heard a lot of good stories about fencing. They don't want to see history repeat itself like at the Rae Rock mine. Colomac appears to be working and it is satisfactory to us. Even around YK in the past since the 1940's we had about 5 mining sites. Now they are all abandoned. The mine people walked away without proper clean-up. Fuel tanks are rusting and equipment is left behind. This is a concern to us as Elders. This is where our hunting, fishing, or trapping areas were. The caribou sense that an area is polluted or contaminated. We never find caribou around these areas. Even as recent as 10 years ago, there used to be lots of caribou, but the migration size has gone down. This was said earlier and is true. For fencing around Diavik maybe we should try for a test run. Although it sounds costly, but we are not asking for a huge area, just some fencing. We don't know the life of the mine out there. We need to act before the problems get too big. The population of the caribou is decreasing. There are probably other animals involved like rabbits, wolverines, and grizzlies. It has been reported to us that the amount of money from diamonds is big. They should be able to afford a fence.

Marlowe: Where did you get the figures on 48% decrease in caribou herd and the natural diversion of the LDG?

Virgil: The information for the population size came from RWED's survey last year and the previous estimate in 1996. These numbers were used to determine an estimate %. The observation of caribou with LDG acting as an influence on migration is my own observation. There are obviously other factors, like the operation of the mine.

Mandeville: A couple of years ago the newspaper reported the caribou population had increased. I am surprised.

Facilitator: Scientists are not always right. With the best that they know as of last spring, the numbers had declined in the 30%+ range. This makes the question about fencing and caribou and other wildlife more sensitive. People are more sensitive to a species when it is declining.

Facilitator: Is flagging a type of fence?

Mandeville: I heard it was not that good. Once caribou are running flagging does not stop them.

Gunn: Flagging uses bits of cloth on a string to attract the attention of the caribou. It has been tested at Colomac. It was used at Ekati but not monitored. We used it at Lupin as a test. It was one of the traditional ways of the Dogrib to steer caribou. It was a good way to encourage caribou in a certain direction. It is not a barrier and some will go through anyway. It doesn't protect them from the toxic substances. Maybe we need to do some testing. Put up some fencing and try out different types and see what works best in different situations.

Elder Nitanatuaq: We used inukshuks to steer caribou in the direction of the hunter – not during the hot summer, but in the fall. We also used canvass to spook caribou away from certain areas. Maybe instead of fences we could use inukshuks or canvass (but not in summer) to steer caribou away from mining activity.

Mandeville: I've heard of using inukshuks so you don't need so many people.

Facilitator: Is noise a barrier or way of deflecting?

Marlowe: Gunshots deflect (ha, ha)

Mandeville: If you howl like a wolf they will run.

Facilitator: We tend to think of a fence as something we build, but a fence can be more. Not all fences are alike. There is sound/noise, flagging, flexibility, etc. Before we get into best practices, what is the best way to deal with caribou coming toward the mine to give you the comfort you need? I heard noise from the mine keeps the caribou away. Is this right?

Mandeville: Noise doesn't scare them that much. At Ekati they lay around right beside the buildings. Even hunting or beside airstrip they don't move. We know a fence will keep them out.

Gunn: If you want to deflect them, you can use noise in conjunction with something else. On its own, noise doesn't work. However, combined with something else it might. Also, caribou are smart and learn fast. If they hear a noise and there's no bad consequence, they learn not to respond to it.

Elder Nitanatuaq: During the very hot summer days, the caribou are not afraid of things. They are more concentrating on mosquitoes, etc. They are not even afraid of people. In cool weather, they are easily spooked.

Mandeville: During running season they are not afraid of anything.

Facilitator: Diversion works better in the fall. Is chain link fence the only kind that will work?

Marlowe: In the old days they used willows and willow branches to herd the caribou. The branches were woven into a type of fence. This might be an opportunity for jobs to have young people gather willows to weave a fence.

Elder Migwi: The Inuit have a unique herding method with inukshuks, also willows are good. The Dogrib used to do this also with little trees. In the future there will be more activity. You may want to experiment with fencing now so when more mining activity occurs, you'll be ready.

Mandeville: There are 5 areas for fencing at Diavik. Contaminants storage, fuel storage, dike perimeter, airport, and waste disposal. One area is already fenced (waste disposal), but there was a concern about the use of barbed wire on the top. A particular area of concern was the fuel storage. People were concerned about pipes and valves and potential injury of caribou from these parts sticking out. On the whole, most of the buildings could remain how they are because animals would just run past. Whoever

monitors could simply watch for this. Fencing would be preferable around the dike area. The airport is huge and they may not want to fence it in. Perhaps a diversion would be better there. An alternative to chain link is pipe pounded into the ground at two foot intervals on the horizontal. Similar to what they use on farms. Use conduit instead of wood. Need some type of clamp system that would be easily removable after mine closes.

7.8 General Group Discussion – Part 3

(2:45pm–3:25pm)

Elder Baillargeon: The fence could be considered north of the PKC area and the north country rock area - also near the airport. This area and right down to the water and discharge area might help. We may not need to worry about the dike itself. There were so many areas I was concerned about when I visited. I don't want to see the caribou injured or going through the area with the muck. Start at the North Inlet Water Treatment Plant and discharge area along the air strip, across north country rock area, and PKC area. This is only a suggestion. The caribou might go around it.

Mandeville: The only problem with this is when the caribou head back north they will run into the fence from the other side. When they hit the fence they'll have to double-back and this will confuse them.

Elder Rabesca: The best way is to keep the caribou out is to fence the whole work area. There is no sense to fence only some parts. It is better to keep caribou out of entire area. I was at Colomac mine and the fence was good. The only problem was at the gate where small animals could go through.

Regarding the decline of the caribou, I've seen lots of caribou limping. I also saw two caribou that were not afraid of people. These 2 caribou had been hanging around the same spot for 2 days. They had to kill them because they appeared unhealthy and unable to care for themselves. After we killed them we noticed the legs and hoofs were full of puss. RWED sent these caribou to be tested, but there has been no word back to the committee. I was over at BHP and the waste lake, and there were two caribou there too. They didn't have the energy to look at us. It was at the tailings pond where they were dumping the mud. This is why the caribou are sick. I am 81 years old. I know the migration of caribou and I have never seen the animals like this before. I never saw an unhealthy caribou until the mining development. If we are really going to help out for caribou, the best way is to fence the whole work area. I am really happy to be attending this workshop and talking about the caribou. I am happy that there are other Elders here. We need to come up with the best solution.

MacDonald: Could Alfred explain how he sees caribou coming onto the island and why he would put the fence where he suggests?

Marlowe: What part of the agenda are we on?

Facilitator: Right after Gord's question, I will get back to best practices. I've been asking these questions to explore your understanding of what works best. Is all fencing the same, are there options? Not diversion works or works the same. We are on the topic best practices.

Marlowe: Success, failure and lessons learned. Are there other examples?

Facilitator: In the NWT, the experience with fencing is limited and poorly documented. What we are doing is taking the first concrete steps to understand types of fencing and when to best use them. Nobody has written a book on this.

Marlowe: Let's write the book then.

Facilitator: We need to decide what the chapters of the book should be. We need to understand the most important things to consider when setting up a fence, so it works most effectively. We will not decide today on a location, but we will decide the things that are most important to keep in mind. Octavio has experience and I'd like to ask him what he has learned - what has been achieved, and what made it work - so together we can come up with recommendations to EMAB about what to do.

MacDonald: Elder Alfred, how do you see caribou coming onto the island and why would you put the fencing where you recommended?

Elder Baillargeon: I chose this area because of the grey area on the map - it looks like the waste rocks or tailings are there. I don't want to see the caribou resting on the grey rocks. This is my great concern. Putting a fence around the airport and discharge area prevents the caribou from roaming around the mining activity. Maybe we should send some Elders to do some monitoring and check whether the area to be fenced is feasible or what would be the best. They need to see what would work and wouldn't work. I've toured the area. There are some historical sites (burial sites) nearby. These have to be protected. I would like to see the land being more respected. All the trappers and hunters having been in that area probably have the same concerns as the Elders. We should send out Elders to look at the area and give advice.

Turner: A weakness I see is that EMAB is portrayed as the environmental monitoring agency, but Diavik is doing the monitoring and selectively releasing information through Golder Associates or whomever. The monitoring should be done by someone not employed by Diavik to give accurate information. This would be a more open process. EMAB should monitor rather than rely on what Diavik wants or does not want to do. Diavik will release information that supports their position. This group or EMAB should be on site with access to the information. Now we are pressured into guessing. It would be helpful to have access to that. Best way is to have EMAB on site.

Virgil: This is a question for the Elders. Before the mine was there and the caribou were moving south, which way would they have gone? What was there traditional migration route?

Mandeville: Varies from year to year. They shift around because of the food.

Virgil: From East Island how would they get onto the mainland - toward the pit, or toward the east end of the airstrip?

Mandeville: Maybe RWED would have that information.

Facilitator: Colomac faced the same challenge you face around this table. What do you do for fencing and where do you locate it? What they did was not an accident. They put some thought into it. What they did represented many people's input. What factors led to the location of the fence, Octavio?

Elder Camel: Can Octavio answer regarding funding? What amount of money was spent on fencing at Colomac? We need to consider cost with Diavik.

Melo: The fence at Colomac cost $1 million. Materials were bought one year for approximately $250,000 and the rest was labour the following year.

Mandeville: It would be pretty hard to compare. All the equipment is already at Diavik. The fencing material might be cheaper.

Melo: There is a winter road to Colomac so materials were trucked in. The decision to drill the holes was made part way through the year and the drills were flown in by Hercules aircraft. There were two projects going on (ditches and fence). This was a business decision to do both at once. We decided to build the ditches and divert the fresh water.

Mandeville: If you were to fence in the whole area at Diavik, how big would that be?

MacDonald: The airstrip is 1.5km, but I do not know the whole perimeter. It might be close to 15-20km.

Mandeville: Roughly $100,000 per km for fencing.

Facilitator: I still want to identify the message to leave with us for today. What are the factors to keep in mind?

Melo: One of the most important factors the led to the Colomac success was the partnership with the Tli Cho people. We were making decisions together and had trust and openness. This was extremely important. When we did remediation of Rae Rock there was very little dialogue with aboriginal people. At Colomac we worked on it together. We interviewed Elders and spent much time in discussion. It is one thing to design something and then present it to the people. The other, and better way, is to involve people from the outset. It is important to develop the sense of trust and partnership.

Once we got into location and size, we brought together the Elders and the scientists. We also needed someone to broker the case. There was opposition within the federal government and a champion was necessary. Some of the motivating factors included employment and economic opportunities. This was a business decision to build a strong relationship. Cost is reduced by a smooth project.

Elder T'setta: When discussions were originally held about the dike at Diavik, most of the people from Dettah were against it. The people didn't want the mine in the first place. Now the trade off is to ask them to do us a favour by building us a fence, because our Elders are concerned about the caribou.

7.9 Summary of Issues and Agreements

Facilitator
(3:15-3:30pm)

Facilitator: At the start this morning, there were 3 things we hoped to provide to EMAB: 1) advice about type of wildlife fencing; 2) advice about where to put fencing; and 3) advice about monitoring – what to do to make sure it's doing its job.

We had DIAND provide information on the Colomac site. We have had information from Diavik in terms of what they are currently doing for wildlife management. This afternoon, we asked what do you think. This is what I heard:

1. Not all fencing is the same. There is boulder/rock fencing, willow fencing, chain link fencing, deflectors (inukshuk, canvass, etc). If we talked more, we could come up with other types.

2. Where you locate fencing is very important. We cannot just build a fence and say the problem is solved. We need to understand what motivates the caribou and how they think. For example, some caribou want to get away from flies; others are attracted to the salt in the tailings. With this in mind, there may be 3-4 different fencing solutions needed.

3. There may be a need for testing different options before we do a full scale implementation. All this work must involve Elders and people from the communities.

Anne Gunn left us with an important message - that great care must be taken to keep caribou away from places that might hurt them, and that poor fencing decisions might end up hurting the caribou. The decisions must be made carefully. Try things on a smaller scale to make sure things work best. My question is, is this what you heard?

Virgil: I had many of the same points. It is important to think like a caribou, be adaptive, consider experiments or test trials, including tests of design, implementation and monitoring. This would involve the Elders and communities.

Facilitator: These are the minutes of the workshop in 1999 [minutes distributed]. I have summarized them and their similarities with today's themes. I'll leave you with this one thought – a mechanism must be in place to support a flexible and adaptable plan involving aboriginal people. We'll discuss this further tomorrow.

Much of what was determined in 1999 was confirmed today. Wise people come to the same conclusion twice.

8 THURSDAY September 9, 2004

8.1 Opening Prayer

Elder Joe Migwi

8.2 Opening Comments and Review of Agenda

Facilitator
9:05-9:15am

Facilitator: I will summarize yesterday's work and provide you with a target of what we can achieve today after a round of introductions.

[Participants introduced themselves]

Facilitator: I noted that yesterday's conclusions were very similar to the conclusions of the 1999 workshop in Dettah. The main principles and fencing considerations were basically the same. We need the involvement of governments, the sharing of information, and concentration on the priority areas for location of fencing, with an overall goal of protecting animals. I am hopeful that when two groups of people arrive at the same conclusions, they are both getting to the right answer.

What I'd like to do is build on what you achieved yesterday and get into more detailed work. Yesterday you talked about the principles important to you to protect wildlife in terms of protection from physical impediments, tailings, blasting areas and the open pit. You saw what they did at Colomac as an example. I'd like this group to explore what you would recommend in terms of fencing or barriers or deflectors. I'd like to do that, keeping in mind that not every fence is what we initially think. It can mean inukshuks or willow fences, and if we can go there in terms of this discussion, it will be a step forward from our achievements yesterday. Is there general agreement that this is worth pursuing? Do you want to go there with me?

No response.

8.3 General Group Discussion – Part 1

(9:15-10:05am)

Marlowe: The minutes of the 1999 workshop do not reflect that interpreters were there.

Facilitator: The draft copy was reviewed by Diavik and EMAB and subsequently approved and put on the public record. These are the ones distributed.

Marlowe: There is no indication of the interpreters being present. Were they there and did the Elders understand what was happening at the meeting?

Facilitator: Not sure as I wasn't there. I can assume they made an effort to ensure people understood what was going on. Your point is well taken.

The two things that stand out in my mind is that, first, you want to do some testing. Second, there have been few caribou at the site recently, but there is concern about what to do if the caribou return in large numbers. There are two problems. Where do you put the fence; and is Diavik's current management plan able to handle 24,000 caribou if this number returns?

Does Diavik have anything to add to what they presented yesterday? Does Diavik believe that its current operations can handle any volume of caribou?

MacDonald: The way we've been approaching this issue is adaptively – we will make changes as they arrive. If 24,000 caribou arrived on site tomorrow, it would be a challenge, but we would adapt. It would probably mean closing the mine and having people herd the animals away. It would be a learning experience. Maybe we would need people to standby.

Gunn: This topic came up before - the need for mitigation to be scaled to the volume of caribou. Diavik has argued that their measures are scaled to deal with numbers. We don't think herding works when there are thousands of caribou on the site. It is not good for the caribou anyway. Dealing with the unlikely, yet possible, event of many caribou requires some re-thinking. It may mean coming up with criteria of what needs to happen and at what point. They may need to consider contingencies like temporary fencing while the caribou are moving through the site (whether willows, snow fencing, etc).

Two things to be covered: contingency and some need for experimentation. Does Diavik have a large scale plan/model that your office could drop off for us to look at today?

Macdonald: Yes.

MacDonald: Perhaps I was using the term 'herding' incorrectly. I meant using people to direct caribou away from dangerous areas, not to scare them off the island.

Facilitator: Is doing test work in advance of establishing contingencies acceptable to the group? In the event of many caribou, and the need to protect their safety, we need to do some testing.

Elder Rabesca: If we put a fence around the mine site, it is best to use a wire fence because it will last for a long time. It will not have to be monitored as much. There was

an abandoned mine around our community. There was no fence and it was dangerous and many animals were going in the area. We need to talk to the government about fencing around abandoned mines. The best fence is steel and wire for the Diavik site. I say this from the experience of what happened with the abandoned mine at Star Lake. The fish close to that lake are unhealthy as there is seepage into the lake.

Mandeville: To deal with all of these fencing questions, it would be best for us to go to the site. We were there in the springtime but we couldn't see what was under the snow. We need to be there in summer time. During our last trip, they would not allow us on the island. There were 16 of us sitting in the bay away from the island and we missed a good opportunity to do an on-site visit. As a group we need a visual. We can make better recommendations that way. We may decide we don't need the whole area fenced, but only some areas.

Facilitator: This can be a recommendation that you as a group can make. I have maps here for us to work on today. What you're saying is that you actually want to go there.

Mandeville: Yes.

Facilitator: As a group are you interested in knowing what contingencies Diavik is considering?

Group: Yes.

Facilitator: Right now we are at the planning stage. Next we'll make a decision, check to see if it is working, then act to change any problems. This is called a management cycle (Plan, Do, Check, Act). As a group you would like to do some test work, then check it, and then modify it as necessary. I am also hearing that Diavik has a contingency while you are doing the test work.

Macdonald: You are stating it too formally. We don't have a formal approved contingency plan that everyone has agreed to.

Gunn: I would hope so.

Gunn: I understood there were contingencies for worse case scenarios, such as a large herd of caribou on the north shore trying to cross over. At the time, we discussed putting up a temporary diversion fence so the caribou wouldn't get stuck. We discussed this, so I'm not sure why there's not a formal plan. The thing about contingencies is that they could include temporary fencing on the north shore. The next line of contingency is if the caribou still get on the island, then what? The next contingency might be fencing around machinery.

Elder Migwi: I agree with George about having to go to the mine site to check the terrain. This fencing has been discussed since 1999. The mining companies have heard this. It is nothing new. It is always good to go there and inspect the site. All the previous meeting with mining companies we talked a lot about fencing. It is now time to work at it and come up with solutions. It is always good to have input from all our sectors. A good example is Colomac mine. The Dogrib communities were involved. INAC did a good job with us. The caribou need to be healthy and we need to support them. We don't want them to get attracted to the mine site, particularly hazardous sites. This is why we are so interested in fencing. The decline of the caribou is a concern to

us. We are having a really good workshop. We have a good consultant working with us. We should be thankful that we have a good group working with us. I just wanted to say I agree with George about visiting the site.

Mandeville: Getting back to the onsite visit, things tend to move slowly. It has been 6 months since we've been requesting the minutes from our March 2004 meeting. We will soon miss the opportunity to visit the site without snow. It may not be possible now until next June.

Elder Camel: For fencing at the mine site we should consider something similar to what was done at Colomac, even if it is temporary. They found out it is working so we should consider it. Once we start talking it takes time. How long are we going to wait for something to get in place? The best time is now. Hopefully we can convince Diavik to move ahead. We need to benefit the people who use the caribou herd. How it came about at Colomac, we at Treaty 11 had to convince our leaders to make it work for us. We are now sitting with a similar group for Diavik. The people are here who could make this thing work. The history of the LDG area where Diavik is now has a Dogrib name that is associated with the caribou. When they were out there harvesting caribou, people used to leave their families on the island. The caribou herd has declined for many years. It is difficult to find the cause. Right now it is drastic and we are not happy with it. In the past, Renewable Resources had a quota to bring the caribou back up. We may not be discussing this today, but the decline is a concern to us. There are a lot of hunters out there. We want the fence in order to save the herd. We are so concerned about them. I agree with George about having some Elders visit the mine site. It took many years to convince the government to put fencing in Colomac. We made many trips to Colomac. The terrain at Diavik is very different. It is only fitting that we all go there and see for ourselves what we are talking about and talk to the mining managers.

Facilitator: If we were to put lines on maps today about where fencing could go, then go check those lines in the summer time at Diavik, would this be acceptable?

Elder Migwi: Maybe it would be good to go there to see for ourselves rather than look at a map.

Melo: I just wanted to reinforce Elder Migwi's point that one of the keys to success at colomac was the way the site was open to Tli Cho visitors. We encouraged visitors to provide advice about where the fence should go so it would be most effective at diverting caribou. This openness and free access to the site was one key to a successful project.

Facilitator: Octavio, did you look at maps before going to look at where to build the fence?

Melo: We have a physical model which shows the outline in 3 dimensions. We also had aerial photos like the Diavik ones here on the wall. But some of the decisions were made by actually visiting the area to look at caribou tracks. The initial planning process using maps and models was good, but eventually we had to go to the site.

Gunn: There is no substitute for actually being there to determine the location of the fence. One of the successes of the Colomac fence was the openness of being invited to look at the site and exchange ideas on what needs to be fenced, and under what conditions. We could then decide whether we need a temporary or longer term fence, then go up and see it. Right now the caribou have abandoned the Diavik site, but they

could come back. We need to discuss under what conditions we'd need to fence the site and how we would do it.

Facilitator: Are you OK with picking up on this idea to determine priority fencing areas?

Elder T'setta: The suggestion is good that we should do it right away. No sense in delaying it more. If it should be done, just do it. The location I don't really know, but as soon as the group here agrees to a location, we should proceed. We need to look in the future at how close to the lake shore we set up the fence. We need to consider the effect/influence of ice on the fence.

Marlowe: With reference to the agenda, there are 3 items here. Mr. Virgil made a presentation about what's happening around Diavik. It was very fast. What I heard is that everything is good at Diavik and there are no problems. What is the caribou management plan at Diavik? What are the best practices on fencing? What is the best practice for Diavik fencing? I want to hear what Diavik is doing about fencing? I want to hear about all these things.

Facilitator: After your question is answered I want to look at the map and look at what areas you think should be fenced.

Marlowe: When there were hearings in the communities, they said all the water they take out of the pit and dump somewhere else would have phosphorous added. Is this an area for fencing?

Facilitator: Not speaking as facilitator, but as knowledgeable person, I understand you can't fence phosphorous.

MacDonald: You're asking about phosphorous of the water we take out of the pit. Some goes to the lake and some goes to PKC area, filtered and then pumped back into the lake. There really is no one source of phosphorous sitting on the island.

Marlowe: Does phosphorous create something that is poisonous or noxious?

MacDonald: The worry is that it will increase the algae in the lake; however the phosphorous does not stay in one specific area. This is more an issue about fish than a caribou issue so a fence is not appropriate here.

Our approach has always been to allow the caribou to come on and off the island as they want to, while keeping them away from things that might harm them. How we keep them away from those things is called adaptive management. We are learning and developing techniques as we go. We haven't had much caribou come on the island so far so we haven't had a chance to test many of our procedures. Your question about what to do if a large number of caribou show up is a good one. The only fencing we have now is at the land fill. This was designed from a carnivore perspective, not caribou. This is our only experience with fencing. The group that came up this year advised us on this fence.

We have an electrified fence around the traditional knowledge camp that some of you attended. This was to keep bears out. One caribou got tangled in it.

Turner: What was the size of the fence around the landfill?

Macdonald: 2.5" mesh fence. The landfill fence had problems with areas underneath and barbed wire on top. The fence is electrically charged. Animals may get tangled in the wires. The purpose was not caribou.

Facilitator: Three of the most senior managers at Diavik are here today. What do you want to tell them about where a fence should go?

Turner: A decision was made 6 months ago to visit the site in the summer. Why didn't this happen? Why was there no access to the site during the TK camp?

Wytrychowski: The group wanted to observe the movement of caribou on the island, but there were no caribou on the island at the time so there was no need to have the group access the site.

McCullum: A group of people went to Diavik in March 2004 and they made recommendations, including fencing location and some diversion fencing. In their report they said they wanted to see the site in the summer. In response, we set up a proposal for a traditional knowledge camp, which did not include a visit to the island. The way Diavik's security works, you need to give them advance notice and our proposal was not written that way. EMAB's proposal obviously didn't meet the participants' needs.

Facilitator: Let's have a break, then I will hand out pictures and I want to ask you where the fencing should go in general.

Mandeville: Are we going to get Diavik's presentation on fencing?

Facilitator: They don't have a presentation on fencing other than what was provided yesterday.

Turner: Then, are they saying the only fence they have is the natural barrier of the lake itself?

Facilitator: Let's have coffee and discuss it.

8.4 General Group Discussion – Part 2

(10:30am-12 noon)

Facilitator: You have some maps in front of you. I want feedback from the group on the importance of this area to protecting the animals, so they won't ingest items. I'll let Gord MacDonald take you through the site, one area at a time. Afterwards, I want some feedback from the group about keeping animals out of each area and if it is high or low priority.

MacDonald: Most of you have been to site. Please ask questions. This is the main plant site area with accommodation, fuel storage, process plant (where kimberlite is crushed and washed to pull out diamonds), tire storage, machine shop. There is a pile of kimberlite there. There are trucks and cranes I this area.

Back to the left is the explosives are and the ammonium nitrate is stored. This whole area is where the processed kimberlite goes (tailings). It grows over time, so each year the damns get higher and higher. The North Country Rock Area is the rock pile that came out of the pit that does not have diamonds in it. The map shows water there now, but that will be gone shortly and covered with rock.

There is another area with the camp, buildings, machine shops, and a lay-down area for things brought on the winter road.

Then there is the dike with a road around it and a rock area; the north inlet (the water is used for the mine before it goes into the treatment plant and then out); and finally the airstrip.

Mandeville: Which areas do you feel are most dangerous for the caribou? How would you rate these in terms of hazards to animals?

MacDonald: I think some of the hazards are the little things like pipelines.

Mandeville: What about the dike area. You say there's a barrier?

MacDonald: There is a road with boulders and a rock berm on the inside. It is difficult for caribou to get there. I have a tough time envisioning a caribou wanting to go in there. I am not a caribou expert. They will likely stay on the farther side of the island because it is very busy on this side of the island. We did worry about them getting stuck in the tailings.

Mandeville: If you had to put a fence around the tailings, where would it be?

MacDonald: The damn grows upward every two years. If we put a fence around it, we would have to take it down and rebuild each year.

Turner: You could build the fence outside the damn area.

MacDonald: Yes you could go outside, although this could be difficult because in some places the lake is there.

Gunn: Here is a suggestion. Caribou used to come down from the north and onto the island through the north country rock area. They will probably come the same way if they come back. We probably don't want to fence the whole of the tailings area, because if all of it is fenced, we'll need a plan to get the caribou out if they get inside. You may just want a temporary fence or diversionary fence along the north country rock area and tailings area. You should have the materials on site and ready if the caribou do show up. It could be temporary until we make sure the fence doesn't actually cause problems itself. You only need a fence when the caribou are running.

Turner: It is not that difficult to monitor if a caribou gets into a fenced area. There are cameras, etc.

Gunn: There are relatively few caribou using the area now but that could change.

Mandeville: You are talking about migration from north to south. What about south to north?

Gunn: Then if they are really migrating, it is hard to know what they would do.

Turner: It's not that big of an area and they could go around it.

Gunn: The real concern is in the summer.

Facilitator: What do the Elders think of what Anne said? Anne is suggesting diverting the caribou by putting up temporary fences or diversionary fence to divert the direction. Anne could you show us again where you would put that?

Gunn: The thing is I don't want to get too specific. When you're on site it will look different. What I want us to talk about is where the caribou are likely to come in, and why we need the fencing. We need to decide how permanent or temporary we need. Do we need a permanent fence or something to be put up just when the caribou are running? The exact location can't be determined now.

Elder Ahegona: Is there a way to get to the site before freeze-up?

Facilitator: I can't answer about you going up there. My job as a facilitator is to provide recommendations to EMAB and they are meeting in a few weeks. I'll leave that up to John.

Marlowe: You say EMAB will recommend to Diavik, but there was a recommendation about fencing in 1999. We are in 2004 and are still talking about fencing. Will EMAB's recommendations even work?

Facilitator: I'm not sure what EMAB's authority is. John can speak to that.

McCullum: We are a monitoring board not a regulator. We can't tell Diavik what to do, but we can make recommendations. They can reject our recommendation, but they have to give us a reason. Usually EMAB doesn't make a recommendation unless everyone agrees. EMAB is meeting in two weeks and this item is on the agenda.

Turner: What is the answer from Diavik on EMAB's recommendation of a site visit?

McCullum: EMAB didn't recommend an onsite visit this summer when we asked for a TK camp. We did not write in the proposal that people wanted access to the site.

Turner: There are probably enough people here from Diavik to answer that.

McCullum: Diavik just needs advance notice.

Mandeville: If we wanted to see the site in the summer, now it won't be until June

McCullum: Unless it's soon.

Facilitator: If I understand where this is going, you want to get up there as soon as possible - before the snow flies. I will be blunt: Is the group suggesting that Diavik get you up there for a site visit now?

Mandeville: Yes, and soon.

Elder Nitanatuaq: Maybe before the snow flies we can watch the migration of the caribou coming through this area. We can watch where they are coming/going. If we could put a fence just north of the airstrip and north of the waste water disposal, this would be good. It is not necessary to have a fence around the whole site. During the springtime heading north, maybe the recommendation to Diavik is that they bring Elders to watch the migration so we could see for ourselves how the caribou are moving. Then we could make proper recommendations.

Elder Baillargeon: I agree with Joseph. The airport probably serves as a barrier itself. As far as the north/south movement of the caribou, the thing to be concerned about is where the waste water is located. This is the only thing I want to see fenced. Nobody wants to see an animal drinking out of the waste water. We may also want to monitor caribou activity around buildings and operation. However, for now, we should test fencing around the waste water area. In the future, if we see more need for fencing, we can do it then. If we all could come to agreement that for a start we fence the waste water area, that would be good. But it is only proper that we go to inspect the site. The best time is to go right now. We can then consider future expansions. I am Band Councillor from the Dettah Band. At the community level there is criticism for not doing much. I don't want to get criticized for not having an accomplishment from this meeting. At the community level we try to negotiate in good faith, but at times it doesn't go anywhere. At times I wonder how effective our advice is. We want to see that our advice has been well received by the company and we can go away feeling good.

Facilitator: So from our discussion, the key fencing areas would be:
1) PKC; 2) Waste Water; and 3) diversion as needed

Elder Baillargeon: The migration is very important to us. A lot of people are awaiting the arrival back of the caribou. It all depends on how the land is being used out there. The caribou know where to go. All the Elders are in the same boat as to how they feel about the caribou. As for temporary use of fencing (taking up and down), I think there should be something more permanent. The snow might drift over the fence. Other species might wander around the fence, like grizzlies or wolverines. It is the best time of year to go out there and inspect the area. We can proceed from there.

Facilitator: Again, I'll summarize for you the priority areas to consider fencing, not in any order. The processed kimberlite area (PKC)/tailings; waste water area (grey on map), and the possibility of a diversion fence at the north end. After this year, the grey area waste water will not be there, it will be a rock pile, eventually about 160'/50 m high – higher than this building (Explorer Hotel).

Elder Baillargeon: If the waste rock will be stored there, maybe we should inspect that area to see where it will be stock piled.

Elder T'setta: Our main concern is the caribou migration and the people using the land. We will use it forever. The mining company will be there a relatively short time. Downstream to Coppermine might be affected. Where is the rock coming from that will be stock piled in the waste water area? The company seems reluctant to do what we want to see happen there. We are not getting direction. We don't know if you want us to come to the mine site. You seem reluctant. Also you seem reluctant to build the fence. What is the use of having this workshop? Maybe I'm uncertain about the delegation here representing various regions. One thing is we should have a youth organization at the table because they are the future. We know the long history of the relationship with mining companies in this area and some of it is bad - we don't know they didn't involve us. We hope now they will take us seriously. The way we aboriginal people negotiate or work things out, we meet each other and work things out right away and make decisions. Most of us are here and are in agreement. The only person that doesn't want to agree with us is Diavik. Why can't we make decisions here?

Facilitator: What does he see that we've agreed on doing?

Elder Ahegona: Mentioning about the waste water, does the water ever escape through the bottom? This area seems close to the lake.

MacDonald: It is a wall and inspected weekly for seepage and there hasn't been any.

Elder Ahegona: After so many years of waste building up, what will happen?

MacDonald: Any water is pumped back to the PKC. It is a bit confusing.

Elder T'setta: The only solution is that majority of the people seem to agree (but we still have the afternoon to work on it). Right now we are wondering if Diavik is willing to have us out there and to put up a temporary fence.

Facilitator: The group wants to have a visit to the site before a fence location is determined. This is necessary. Second, do you want temporary fencing or permanent fencing? Elder T'setta spoke about temporary fencing, but I heard other comments.

Gunn: One doesn't preclude the other. We can have a temporary fence and see how it is working, and if it doesn't work, build a permanent fence.

Facilitator: Do we agree that you want to proceed with a temporary fence and see how it works, then assess whether a permanent fence would go up?

Gunn: We don't know exactly what's in the tailings, so it is important to keep the caribou away. We just don't know enough yet, so we should treat the tailings as a problem until

we understand more. I suggest that a diversion fence if it looks like the caribou will show up.

Mandeville: There is a big difference between by-product (tailings) from gold mining and diamond mining.

Gunn: The by-product of diamonds is water and ground kimberlite rock. This is in fine particles that can mix with the food of the caribou. There are enough natural chemicals in the rock, that when it is ground up, there could be a problem. The ground kimberlite is different from when it is in rock form. At Ekati they did an assessment and found the ground rock wasn't harmful - but there are questions about that study. Until those questions are answered we need to be careful about ground kimberlite. Also at Ekati, they want to re-vegetate, but the plants they are choosing absorb chemicals. I'm not saying the tailings are poisonous, but we need to be cautious until we know for sure that they are not.

Facilitator: So we know a site visit is the number one recommendation. Also, we know you want to look at a temporary fence, test it, and then take any other action as necessary which could include full or permanent fencing. The location of the temporary fence will depend on the site visit.

Turner: By temporary, what do you mean? Will it last 20 years?

Gunn: Because there are not many caribou, temporary fencing could be a month or two (maybe July-Oct), then take the fence down and put it back up in the spring. This would have to be discussed.

Turner: Why roll it up each year? If it's not in the way, why remove it?

Gunn: If it's up all year, it could create problems for the caribou. Also, if it was permanent, it could not be relocated if it was needed in another area later on.

Turner: Temporary to me means loose and dangerous.

Gunn: We could put up something temporary, but sturdy. We need to look after it and monitor what is happening. There will be a high degree of maintenance. A sturdy fence could still be temporary or diversionary.

Facilitator: What type of temporary fencing? Take up/down or more permanent?

MacDonald: Does it have to be one or the other? Can you put some fencing that is take up/down and other fencing that is more permanent? There is not necessarily one fencing solution for everywhere. There are a range of options.

Turner: When the caribou head south, put the fence on the north end, and when they head north, but the fence on the south end. This would require a take up/down fence.

Elder Ahegona: I'm wondering how a large number of caribou would act through the whole winter if there was no fence. We found some caribou affected by minerals. The area between the skin and the body was so "rusty". What is the reason for this?

Gunn: When you skin a caribou and it feels like grains of sand, it is a bug. The caribou is in poor shape. While this is a natural occurrence, it can become more serious.

Facilitator: After the recommendation of a site visit, do we agree that you want to try temporary fencing and permanent fencing to see if they work?

Mandeville: That can be determined after the visit.

Facilitator: You will decide on the location and the type of fence after the visit? Can you decide now whether you even want a fence or the permanency of it? No? When you meet after the site visit, you want to decide or provide recommendations on the type of fencing and where it should be located. Did I hear you right?

Elder Migwi: It is only fitting that we visit the site not only for the location, design, and type. Once we are there and see the terrain then we can know what we are talking about and might be able to meet with the management who can help us get good ideas. Anne has a lot of good information about where the caribou cross and history tells us she is right. Anne just told us what our ancestors told us. We learn from each other. Maybe if we go to Diavik, the company can learn from us and us from them. It is only appropriate to thank those people who organized this workshop and those who will organize the site visit. In the future we should invite a youth organization.

Gunn: What worked with the Colomac experience was that it wasn't just one site visit but several visits because when you first go to a place you can't take everything in.

Facilitator: It seems to me you have a plan for getting to where you want to go. I do some skidooing. Before I go, I like to plan it out. Then if I get stuck or broken down I ask myself what did I do wrong and plan for next time. You are at the planning stage for fencing. We can take this plan to EMAB and get their support to actually do the visits to the site. Then we can provide recommendations about where to build fencing and then later to see how it's working. This is a good time to break for the afternoon. When we come back, we will summarize where we are at and discuss next steps.

Elder Baillargeon: Anne, do you work for Renewable Resources?

Gunn: Yes.

Elder Baillargeon: I'm concerned about big game outfitting. I saw a lot of antlers go by recently. Also, I'm concerned about the number of buffalo on the road. I have a question for Anne about the buffalo increasing. There are many accidents with buffalo and vehicles. People could get killed or hurt. The buffalo are not very well managed. The caribou and the buffalo don't mix. They don't like one another. Now that the buffalo are increasing, we sense the caribou might not come back to our area.

Gunn: The next meeting of the caribou management committee is in November. This would be a time to discuss the bison and the caribou. I can pass your concern to Ernie Campbell. There is a group of people discussing the hazards of bison on the road. I can put you in touch with them. Ernie would have to talk to you about bison hunting, as I don't know.

8.5 General Group Discussion – Part 3

(1: 38-3:00pm)

Facilitator: You will notice there has been a lot of change from today's agenda. This is because there is not a lot known about fencing. The second day has not gone the way the agenda was planned.

Marlowe: We aboriginal people always go with the flow.

Marlowe. I have a comment on the present site. What if there is expansion at the site later on? Are we just discussing now or the future?

Facilitator: EMAB is around for the duration of the mine. I don't know if it is in our scope to discuss future plans for Diavik.

MacDonald: We should be thinking about all the pits to come. There is at least another pit coming. The map here does not show this. Also, the PKC area is growing because of this.

Marlowe: If this is the case, these areas will get higher (fuller) – the PKC area. The grey area on the map is flat now but it will get larger and be stacked up once the pits are dug.

MacDonald: We don't dump the waste back in to the original pit because it could run into problems.

Facilitator: Today we have left the agenda open to general discussion. Now I need to give the pen back to you. You need to tell us what you recommend back to EMAB. There has been a lot of discussion. I think I narrowed it down this morning. What I need from this group is confirmation on a number of things. I need to know yes or no. You want to do some test fencing (anything from deflector to completely enclosed area). Is this correct?

Elder Ahegona: It is important to visit the site.

Facilitator: Yes, you are right. Let's start with that. Number one you want to be able to go to the site one or more times (or as often as necessary) to determine where you want to put the fence or diversion?

Group: general agreement.

Facilitator: When you are at the site you want to look around and decide on the best way to protect the caribou – in terms of putting up test or diversion infrastructure.

Elder Migwi: When we go to the site, it will be more than just a visit. We want to meet with management too. There is talk of future kimberlite extraction with more dikes. We would like to know what is really happening - the full story. The movement of the caribou needs to be discussed in the full perspective.

Facilitator: Thank you Elder. You mentioned this before. You want to work together… and also with Anne Gunn. Working together you can decide where to put temporary fences and then take the information to decide what to do for the bigger site.

Mandeville: It would be a good idea to bring someone like Octavio when we visit. He knows about engineering fences, etc and can provide direction and options.

Group: agreement.

Elder Baillargeon: It is a good idea to send all the Elders and the federal government people like Octavio and Anne.

Elder Migwi: We will have to work with the territorial government. They might have expertise to lend to us.

Facilitator: I also understand you want to visit the site as soon as possible.

Elder Migwi: This time of year, before snowfall, is best. The weather changes quickly this time of year and we need to get out there quickly. You are a good coordinator and you should coordinate this for us.

Elder Camel: Maybe the building of a second dike might take awhile. I'm not sure how long it took the first one. I am still interested in building a fence around that area, using Colomac as an example. Maybe the Diavik site terrain is flatter than Colomac.

Facilitator: Did he say he wanted to have the dikes fenced?

Elder Camel: I just want to know the length of road that might cover the proposed dike. This is a question for Diavik about the future fencing length?

Gunn: I have a suggestion. This group might want to put some deadlines on their recommendations. These recommendations are similar to the ones made in 1999, but nothing much has happened. Perhaps we need to put a little more clout or push behind the recommendations this time. If we make a deadline, we won't end up back here in 5 years having the same conversation.

Mandeville: In addition to putting deadlines on the recommendations, the Board should put a deadline on when the minutes of the meetings are reviewed. I have never seen the minutes from March or August.

Facilitator: So you also want deadlines for getting information back.

Mandeville: We are forever having a change-over of people on the team. Minutes are essential so we all have the background information.

Facilitator: Anne suggested we recommend to EMAB when our recommendations should happen. So, when do you want to visit the Diavik site?

Mandeville: Next week is preferable, or at least within 2 weeks.

Turner: This is to confirm that we're going there to check out the site. Unless there is an area that is contaminated, the idea of a fence is not that crucial. We are not going to find a location for a fence, but to see if we even need one.

Facilitator: I understand you want to test first and see what works.

Turner: I know that discussion was out there, but if there are contaminants, we shouldn't test at all, just get a fence to protect the caribou.

Facilitator: Have I missed anything? How long do you want to run the tests for?

Mandeville: We want to meet with Diavik. They have already done some fencing around the garbage dump. We want to see what they have in mind for the other areas. The presentation we got yesterday said fencing is not needed. We want to clarify that.

Facilitator: That is what I understood too. My interpretation is that current mitigation procedures are working, but there is currently no contingency for migration of caribou in the thousands. It is a good idea to have a contingency, but a contingency plan is not developed at this time. In some respects you would be guiding the contingency planning.

Gunn: I am surprised. The contingency planning was meant to be done in 1999. It seems to take a long time.

Facilitator: I want to ask Diavik. How receptive is Diavik to having a site visit?

MacDonald: We are quite willing.

Facilitator: You have a plan. You want to involve youth and experts to work together to determine what test fencing can be done. If that is what you want me to tell EMAB in my report, I will tell them.

Elder Migwi: I've had second thoughts about a youth organization. Perhaps it would be better to have youth representatives from various regions.

Elder Baillargeon: I'm not too sure what we decided in 1999 about fencing. All I know is it has been a long time since then. I am concerned that it will appear nothing has happened from this workshop. Now that we've repeated the message, we need action. We have to be serious here. It took us this long to convince the companies to do something. The Dene people, when we decide to do something, we do it. It is the same in this situation. We have started this, so now let's finish it. The first fencing workshop was in 1999. Now the Elders have thought about it and the Colomac example is done, and we're ready to move ahead.

Marlowe: Is there a fence expert we can consult?

Facilitator: We will recommend they look around for a fence expert.

Elder Camel: During the fencing process for Colomac, they toured the communities. Every morning they went into the schools and gave information about what was happening, who was doing the construction, etc. The students were very impressed. They showed them slides about the contaminated sites, etc. With the Diavik project, it

will be important to ensure a similar good relationship with the communities. We could do more in this area.

Facilitator: Anything else you want me to include in the report to EMAB? If there isn't, I recommend we have closing comments in terms of your observations and then John can give you feedback on the next steps, timelines for review, etc. John, can you clarify where will the report go and when it will be tabled?

McCullum: The EMAB meeting is scheduled for Sept 21-23, 2004. The first agenda item will be to look at the report of this group. Louie will get a draft report ready in a week. It will also look at the report from the TK camp and the TK panel report from March. EMAB will then make recommendation to Diavik in a letter. If there is action EMAB has to take we can authorize it then.

Elder Nitanatuaq: I have no problem with what this group has suggested. Once we have visited the site, we will have a better idea and we can make decisions on where to put the fence.

8.6 Closing Comments - Participants

Facilitator: There is a good news story in this, even though people are wondering why things are taking a long time. Twenty-five years ago we wouldn't have been sitting here making joint recommendations like this. We are doing things that weren't done previously. I thank you all for coming and sharing your experiences and frustrations. This is moving forward.

Gunn: no closing comments

Wytrychowski: I thank everyone for participating

MacDonald: no closing comments

Elder Ahegona: I have a tight schedule and I don't know if I can be available for a site visit. I will get back to my home and confirm the dates.

Turner: I am just hearing from John that the timeline is tight. It seems like we will need to have the site visit soon so you can write your report. I agree that we are far ahead, but also the aboriginal people asked for a fence for Colomac originally and if the recommendation had been acted upon originally, this could have saved money. We shouldn't put things off. Need deadlines.

Mandeville: Everything has been said.

Madsen: I'm here as an observer and the work that has been done.

Elder Rabesca: Good recommendations and I have nothing else to add. As soon as we got the mining company in our land, we were talking about fencing with Elders. Many of these Elders have moved on. Now we know what we want and it is time to move on. Thank you.

Marlowe: Everything's been said. I want to say whatever is good for good Diavik may not be good for the communities or the wildlife. Since the mine has been developed, the community and wildlife has not been good. Industry has a negative effect.

Elder Migwi: This was good meeting with representation from various communities. Nothing has been done since we first discussed this in 1999. There must have been some communication problem. We need to inform one another in a cooperative manner, maybe through newsletters of something. We need to stay and keep informed. The sooner we can get to the mine site the better – hopefully next week. We need 2 days out there to find a suitable area for future fencing.

Elder Camel: The site visit should happen soon, but this time of year you cannot rely on the weather. Sometimes it is overcast. I am concerned about these things with the site visit.

Elder Tsetta: I don't think we will change our plan. The last few days we said the same thing. Even if we stayed another day, you would not hear new recommendations. The site visit is necessary. I heard of the size of the diamond activity is growing. I feel the

future will expand and there will be even more need for a fence. Regarding travel to the mine site, I have a sick wife and I might not make it.

Elder Baillargeon: The thing at the mine site is the fish habitat and the impact on fish and caribou. Regarding fencing, if you go to the YK airport, there is a big area where it is dug out and is covered with plastic fence which is removable. This might be considered, if we look at a temporary fence. We had a good meeting the last two days. I hope our recommendations are well received by EMAB and the government.

Facilitator: John will provide closing comments for EMAB.

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Closing Comments - EMAB

McCullum: First I want to thank Louie Azzolini and Lynn White for guiding the group through a long process. I wish I could have been here for the whole meeting. I also want to thank the interpreters for doing such a good job, and to thank everyone who came and gave their thoughts and their time. Thank you. This is what EMAB needs to make good recommendations to the company. It seems like this has been a very good meeting. Thank you for sharing.

Thank you.

8.7 Closing Prayer

Elder Baillargeon

APPENDIX 3: PRESENTATIONS