



A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™



Independent
Environmental
Monitoring Agency

Plain English
Annual Report
2003-2004



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Regulators

DFO

Department of Fisheries
and Oceans

DIAND

Department of Indian Affairs and
Northern Development

EC

Environment Canada

GNWT

Government of the Northwest
Territories

IACT

Inter-agency Coordinating Team

MVLWB

Mackenzie Valley Land and Water
Board

RWED

GNWT's Department of
Resources, Wildlife and Economic
Development



Message From the Chairperson

I am pleased to present to you the Annual Report of the Independent Environmental Monitoring Agency (the Agency). As in recent years, we have produced the reports in both plain English and as a technical report. Our recommendations are developed more fully in the technical report and are listed on the back page of the plain English version.

This is the plain English summary. You will notice that many of the regulators are referred to by the short form of their name. For example, DIAND is used to represent the Department of Indian Affairs and Northern Development. You will find a list of the short forms and what they mean with the Table of Contents.

Last fall, there was a major change in the Agency as three directors stepped down: Red Pedersen, who was appointed by the Kitikmeot Inuit Association, Bob Turner, who was appointed by the North Slave Metis Alliance and Peter McCart, who was jointly appointed by DIAND, RWED and BHP Billiton (BHPB). I take this opportunity to thank them, with special recognition to Red and Peter who were directors from the very creation of the Agency in 1997,

for their extremely valuable contributions to the Agency and to good environmental management at Ekati.

I welcome Jaida Ohokannoak, the new director appointed by the Kitikmeot Inuit Association and Dave Osmond, the new director appointed by the North Slave Metis Alliance. We look forward to welcoming a new director to be appointed by government and industry.

The Ekati Mine has continued to enjoy good environmental performance. This is achieved by monitoring the environment closely, and changing practices at the mine when necessary, to protect the environment. The key to continuing this good performance is the close review by everyone, of the monitoring reports and programs. Three matters the Agency spent time on during the past year are the application by BHPB to renew its water licence, the review of the Interim Abandonment and *Reclamation** Plan and concerns about *cumulative effects* on caribou.

We also spent a good deal of time working on Ekati issues with the communities, as is documented

elsewhere in this report. This reflects direction we have been given and we wish to continue to improve in this area. It was a pleasure as well as informative, to work with the elders and community representatives who attended two workshops we hosted this year. Please contact us if you have comments on the mine's activities or how the mine is monitored or if you would like us to visit your community. Our contact information is on the back cover of this publication.

We look forward to another year of good monitoring and environmental performance at the mine.

William A. Ross
Chairperson
March 31, 2004



**Italicized words throughout this document are more defined in the Glossary on page 25.*



Agency Activities

The Independent Environmental Monitoring Agency was formed in 1997 to act as a public watchdog for the Ekati diamond mine. We are made up of a Board of Directors, some appointed by Aboriginal Society members, and others appointed jointly by DIAND, RWED and BHPB. The Agency keeps a public library of environment reports and photos related to Ekati.

Peruvian Premiers visiting the Agency in Yellowknife










Over the past year, the Agency has focussed on the issues of *reclamation*, changes to environmental management plans, the renewal of BHPB's water licence and *cumulative effects*. We reviewed many technical documents this year, and regularly provided technical advice to the regulators, BHPB and the communities. We have increased our communication and consultation activities with the communities by hosting two large meetings and by visiting the communities when invited.

We have been recognized outside of the North for our expertise in environmental monitoring. We were invited to a national meeting in Ottawa and gave a presentation on the Agency, how it works and how we interact with industry, government and the communities. The Agency hosted a group of Premiers from Peru who visited us in Yellowknife. They are hoping to form similar agencies in Peru.

We look forward to another good year working with the communities, BHPB and government.



Agency Mandate	To meet its mandate in 2003 the Agency
 Review, report and make recommendations on BHPB and government reports and plans	<ul style="list-style-type: none"> Reviewed and provided comments on air quality monitoring, waste rock seepage, Fox mine permitting and <i>wastewater</i>, the <i>Wastewater and Processed Kimberlite</i> Management Plan, nitrate <i>toxicity</i> research, abandonment and <i>reclamation</i>, water licence renewal and the Aquatic Effects Monitoring Program.
 Make recommendations on the integration of traditional knowledge and experience of Aboriginal Peoples into environmental plans and programs	<ul style="list-style-type: none"> Forwarded relevant recommendations from the Aboriginal caucus meeting to BHPB.
 Participate as in intervener in regulatory processes	<ul style="list-style-type: none"> Prepared an intervention related to the renewal of the Ekati water licence. 
 Provide an accessible public repository of all environmental information relevant to the project	<ul style="list-style-type: none"> Maintained a website which contains copies of reference documents, Agency technical review documents, Board Meeting summaries, records of incoming correspondence and digital photographs. Maintained and updated a resource centre of relevant correspondence and reports.
 Provide ways of distributing information to Aboriginal Peoples and the public	<ul style="list-style-type: none"> Hosted the Ekati Environmental Management Plan and Monitoring Program workshop. Responded to numerous requests from the public, industry, government and academia for information and documents. Provided summaries of key documents and submissions to our Aboriginal members. Responded positively to invitations to Agency Directors to consult directly with communities. Hosted an annual general meeting and prepared a plain English summary and technical Annual Report .
 Provide an effective means to bring to BHPB and governments the concerns of Aboriginal Peoples and the general public	<ul style="list-style-type: none"> Commented on BHPB's consultation and communication activities related to the 2003 Ekati environmental workshop. Consulted with Aboriginal members on Agency submissions. Forwarded recommendations from the Ekati Environmental Management Plan and Monitoring Program workshop to BHPB and the regulators. Forwarded recommendations from the Aboriginal caucus meeting to BHPB and regulators.



Environmental Workshops:

One of our biggest achievements in the past year was hosting the Ekati Environmental Management Plan and Monitoring Program workshop. In past years, BHPB hosted the workshop in February. We believe the workshop was one of BHPB's most successful activities for consulting with others. The workshop allowed everyone, including Aboriginal Peoples, government regulators and consultants, to have a common understanding of the programs, review

the results from the year before and suggest changes for the next year.

We were very disappointed when BHPB decided to cancel the workshop this year. The decision was made because BHPB had heard from community members that the information was presented too quickly and was too technical and therefore was not being translated and understood properly. BHPB also had their budget reduced. Instead of the workshop, the company suggested it would visit communities individually to

provide information and gather input, and conduct the workshops every three years.

BHPB heard from many of the Aboriginal Peoples that they did not approve of the decision. We agreed and for this reason, we decided to host the workshop ourselves.

At this event the Directors provided a summary of the results from BHPB's environmental monitoring programs. People told us that they liked the presentations and that they could

Comments from participants at the Environmental Workshop:

"Very good workshop and knowledgeable Directors that gave me a level of comfort that the Agency is acting as the 'watchdog'. Good job to the Agency"

"Good overall review of programs and issues, allowing time for questions and concerns to be raised and more details requested."



Agency Director meeting in Lutsel K'e



understand them. Some people told us that they still think BHPB should make the presentations followed by a presentation from us on how we think BHPB is doing.

We were pleased to see that our Annual Report from last year was referred to regularly by our members throughout the workshop

Throughout the workshop we heard concerns from community members about the health of the fish, water and animals around Ekati. They want to make sure that the fish and animals are safe to eat. The following are some of the main recommendations and suggestions made at the workshop, and sent to BHPB and government for their consideration:

Agency recommendations resulting from the workshop:

- BHPB should use RWED's hair-sampling technique because it would improve wolverine monitoring by telling us how many different wolverines are around Ekati.
- BHPB, DIAND, RWED and others should decide how to monitor the regional *cumulative effects* on caribou.
- The risk assessment should be done again to see if animals would be affected by eating plants grown on *processed kimberlite*. This is because BHPB did not look at all the right information in the first risk assessment.

- BHPB should add monitoring of dust around Cell B to see how plants and snow are affected by blowing *processed kimberlite*.
- BHPB could reduce the bird monitoring program, because it has very good information now.
- BHPB should consider the results of its various monitoring programs together. For example, wildlife monitoring data needs to be more closely related to the studies on plants and dust.

Other suggestions heard at the workshop:

- BHPB must work harder to use traditional knowledge in its environmental management.

Responses to Agency Activities: Aboriginal, Government and International

"We continue to rely heavily on IEMA's comments and recommendations, especially in regards to the technical reports, and trust them to represent our interests well."

(Lutsel K'e Dene First Nation representative.)

"I read (IEMA's) letter on BHPB's Abandonment and *Reclamation* Plan and it is letters like this that make me appreciate that the agency is there....Although our review touched on some of the issues you discuss...we were not able to do as thorough analysis as you have done."

(DFO regulator)

"The IEMA is perceived by many knowledgeable people within the mining industry as well as outside, including CIDA, that it is an excellent model, one that could and should be replicated elsewhere in Canada and the World."

(Project Director, PERCAN)





- BHPB should make sure it is doing enough sampling in the winter, under the ice.
- BHPB should conduct fish tasting studies similar to those done by Diavik.
- BHPB should keep better records of materials entering the garbage dumps.
- Grizzlies and wolverines should be monitored to see if they are moving to newer places more often.
- Caribou and other animals that die near the mine should be checked to

see if they contain contaminants and at what levels.

- BHPB needs to determine how it is going to close each part of the mine and how much clean-up will occur.

We have recommended that BHPB reconsider its decision to cancel the annual workshops, and begin hosting them again every year. We believe the water licence should have a clause that states BHPB must review their environmental monitoring programs every year, in a way that brings people together to discuss the issues.



Agency Director consulting with an elder

Aboriginal Caucus on the formation of a Regional Monitoring Agency:

In October 2003, BHPB wrote GNWT and DIAND suggesting that the Independent Environmental Monitoring Agency be dissolved and be replaced by the Environmental Monitoring Advisory Board (EMAB), the monitoring agency established to watch Diavik. BHPB believed this would be a step towards forming a regional monitoring agency (RMA).

Based on this request, we agreed to host an Aboriginal Caucus meeting, funded primarily by DIAND, for participants from each of our Aboriginal society members. The purpose of the meeting was to advance the discussions on the formation of a regional monitoring agency, and to receive direction on how Ekati could be managed under such an agency.

The Aboriginal Caucus produced a report "An Open Door Exists and.... We Need to Change and Improve from What We've Learned." The report summarizes the important ideas about forming a regional monitoring agency. Here are some of the highlights from the report:

- RMA should be independent and make decisions, not just provide advice.



- RMA should make it easier for communities because they will only have to be involved with one agency for diamond mines and not three separate ones for Ekati, Diavik and Snap Lake.
- RMA should provide more training for communities and use traditional knowledge more in its monitoring programs.
- RMA should have excellent communications with Aboriginal Peoples.
- RMA should rely on permanent, independent technical advice for traditional knowledge and western science.
- Industry and government should advise, but not sit on the RMA.

Meetings of the Aboriginal Caucus have continued outside of IEMA. As we go to press, an *Environmental Agreement* has been negotiated for the Snap Lake project, which provides for an interim monitoring agency until a monitoring agency is formed for all three diamond projects.

We are very pleased to host the first Aboriginal Caucus on forming a Regional Monitoring Agency. We agree that a RMA should make it easier for communities to participate because there will be just one agency to deal with. We are happy to see that Aboriginal Peoples believe it is important to have a permanent technical panel to give them advice.



Directors visiting Ekati



Delegates at the Aboriginal Caucus workshop



Listening to the elders



Mining at Ekati Diamond Mine™

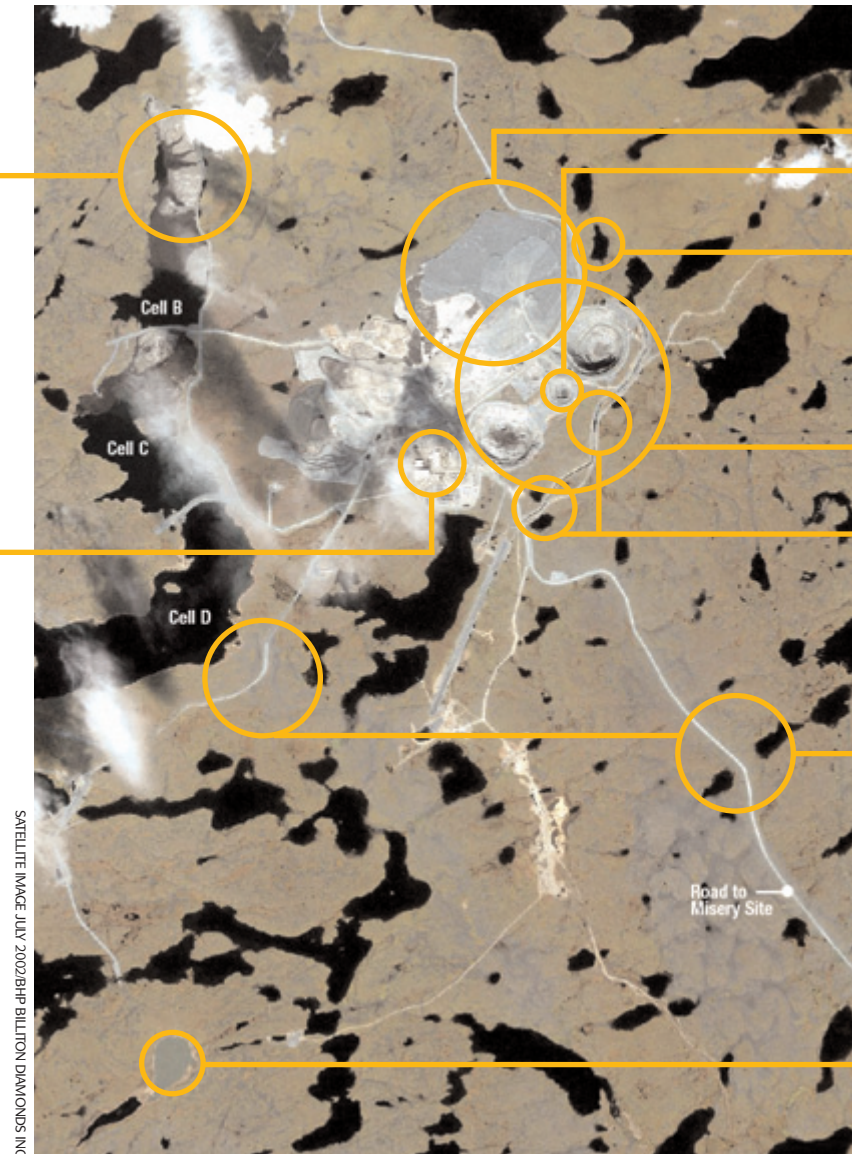
*BHPB is mining diamonds on its claim block north of Lac de Gras in the barrenlands of the Northwest Territories (for location site map see inside back cover). The diamonds are contained in large carrot-shaped rock formations, called **kimberlite** pipes, extending over 300 metres below the ground. Most of the pipes BHPB is mining are located beneath lakes.*



1. Tailings Pond The *Tailings* pond or Long Lake Containment Facility is where a mix of very fine ground *kimberlite* and water, sewage sludge and *mine water* is deposited. The facility (formerly lakes) has been split into five sections or cells. As water passes downstream, through each cell, the quality improves as the *tailings* settle. By the time it leaves the last cell of the facility, all water must meet requirements set in the water license. *Photo: Cell B of the Long Lake Containment Facility.*



2. Main Camp BHPB has built accommodation buildings, a truck shop and process plant. These buildings are some of the biggest in the Northwest Territories. The process plant washes and grinds the *kimberlite* rock, and separates out the diamonds. *Photo: Ekati™ main camp complex.*



SATELLITE IMAGE JULY 2002/BHP BILLITON DIAMONDS INC.



BHP BILLITON DIAMONDS INC.



3. Fox Pit BHPB has been mining Fox Pit intensively in 2003 to remove overburden.
Photo: Mining within the Fox Pit.

4. Waste Rock Piles Rock that does not contain diamonds is placed in waste rock piles. These piles will grow up to 50 metres tall and cover large areas of the tundra. *Photo: Panda/Koala Waste Rock Pile (June 2003).*

5. Open Pits BHPB has developed five open pits at Ekati. Once open pit mining is complete, underground mining can begin. *Photo: Panda Pit (June 2003).*

6. Panda Diversion Channel This is a man-made channel that diverts water around the pits and is intended to replace streams lost through development. *Photo: The Panda Diversion Channel.*

7. Underground Mining BHPB has begun underground mining at the Panda Pit.
Photo: Koala North.

8. Haul Roads Roads made of waste rock and quarried rock connect all parts of the mine, including the Misery, Fox and Beartooth sites and the Sable and Pigeon developments. Haul roads may cause problems for migrating wildlife because of steep edges, traffic on the road, or dust.
Photo: Haul trucks on Misery Road.

9. Beartooth Pit BHPB has begun to mine Beartooth Pit. It is the first of three new pits to be mined as part of the mine expansion approved in 2003.
Photo: Beartooth Pit (June 2004).

10. Misery Site

The Misery Pit is about 30 km south-east of the main site. BHPB temporarily suspended mining at Misery in 2003, but plans to reopen the pit in summer, 2004.

JIRI HERMANN/BHP BILLITON DIAMONDS INC.





Wildlife

BHPB monitors caribou, grizzly bears, wolverines, wolves and birds at Ekati. It also measures how much of the land is disturbed by the mine and tries to reduce this when it can. BHPB reduces the effect its mine has on all wildlife by changing the way it operates if animals are in the area and by ensuring animals can pass through the mine safely.

BHPB also prevents garbage from being left outside that could attract animals. The small number of food wastes found when inspecting the Ekati landfills is a good sign that BHPB is being careful to avoid harm-



Peregrine falcon

ing wildlife. BHPB continues to operate in a way that does not harm wildlife, but many people are concerned about the *cumulative effect* of the mine's development and activities on caribou.

In 2003 BHPB looked at grizzly bears, wolves and falcons and the results showed that they can be found throughout the Ekati area and they continue to raise their young successfully. Caribou were observed around the mine site in low numbers compared to other years, but there was no evidence to suggest that caribou are avoiding the mine on purpose. Wolverines were also observed but the method used for tracking wolverines did not allow a good estimate of how many are in the area.



Grizzly bear

What the Agency Thinks

We think that the BHPB wildlife monitoring program is of good quality but there are areas where some improvements could be made. BHPB may be able to better monitor wolverines by using hair

samples and a genetic identification process developed by the GNWT Department of Resources Wildlife and Economic Development (RWED). We suggested that BHPB check to see if wolves are using roads and rock piles to capture caribou more easily. We also suggested that BHPB could monitor birds less often now that there is a large collection of

information on the birds.

We don't know why there was only a small number of caribou around the mine last year. We think that more monitoring of caribou is needed in all parts of its migration range and not just near Ekati. This could tell us if caribou migrate around the mine due to the presence of roads, pits and rock piles. Another area of concern is the effect of dust from mining, especially



when the dust falls on plants that caribou eat. BHPB has begun to develop a better program to monitor dust so that impacts on plants and animals can be measured.

Risk to animals from eating plants grown on processed kimberlite

BHPB has done research to show that plants can grow on *processed kimberlite*, the crushed rock left over once the diamonds have been removed. Animals are attracted to the plants that grow on the *kimberlite*. This causes some concern that animals may be eating contaminants when they eat the plants. Aboriginal Peoples are worried about the effect this could have on the animals and on the people who eat the animals.

BHPB checked to see if the plants grown on *processed kimberlite* would harm animals or people who eat the animals.

Animals and Birds Monitored

- caribou • grizzly bears • wolves
- wolverines • ptarmigan, sparrows, sandpipers • falcons

All injured or dead animals and birds found around the mine are reported and looked at by BHPB and sometimes RWED.

BHPB decided that there are no dangers to animals or people. Along with GNWT-RWED, we think that BHPB could have checked more closely. For example, some important metals were not included in the study, and the amount of food it said a caribou eats was too low. We recommended that BHPB do the study again and use advice from more experts to help improve it.



Road dust at Ekati



White fronted geese at Ekati

Testing animals for contaminants

We hosted a workshop to review the information provided by BHPB's environmental monitoring programs in March 2004. Our Aboriginal members, BHPB and the government regulators attended the workshop. At the workshop, some people said that they would like to see animals that die around the mine are tested for contaminants. We think this is a good suggestion. One way to do this would be through the Bathurst Caribou Management Plan. It requires that levels and trends in contaminants such as metals be monitored every five years.





Water and Fish

Each year BHPB looks at the water and the small plants and animals that live in water to see if the mine is having effects on them. BHPB takes measurements in lakes and streams near the mine, directly downstream from the mine and where water flows into Lac de Gras. These results are compared to water that is not affected by the mine. Mining has changed the water downstream of Ekati slightly, but not enough to cause harm to the fish that live there.

Water downstream of Ekati has been monitored for the last six years. The water is pumped from a storage area which contains *wastewater* and *processed kimberlite* and is called the Long Lake Containment Facility (LLCF). BHPB can only pump out this water if it meets the

limits established by its water licence. These limits are set to protect the fish and plants downstream. It is important to note that some metals in the water are natural and were present before the mine opened.

The Panda Diversion Channel



Effects of Mining on Lakes and Streams

Once the water leaves the LLCF it enters a chain of many small lakes (called the Koala Watershed) that eventually connect with Lac de Gras. The first lake is called Leslie Lake and it is an important lake to study. Leslie Lake is the first place where water from the mine enters the environment; therefore, it could have the highest amount of contaminants compared to how clean the water was before the mine opened. The water quality tests from Leslie Lake show that while some contaminants have increased since mining began, they have not increased enough to cause harm to the fish, plants or small animals that live in the water.

Moose Lake is the next lake downstream of Leslie Lake and the LLCF. Last year we reported our concern that the amount of small animals known as water fleas (or *zooplankton*) in the water had decreased in Moose Lake. In 2003 we observed that the number of water fleas had increased slightly, but not to as many as were found before mining started. The amount of water fleas in Moose Lake is



Directors looking at the Panda Diversion Channel

something the Agency will be interested in until the mine closes because they are important food for fish.

Slipper Lake is the last lake that water in the Koala Watershed flows through before reaching Lac de Gras. In 2003 the water quality in Slipper Lake was good. Some contaminants from mining had reached the lake but were found in lower amounts than levels set by the Canadian government to ensure the environment is safe. In Lac de Gras a small amount of the metal molybdenum was found. It was also found at low levels in the other lakes downstream of the mine. BHPB is trying to determine where the molybdenum is coming from.

What the Agency Thinks

We believe mining activities continue to change water quality downstream of Ekati but so far the effects have not been harmful. The program used by BHPB to monitor water quality is very detailed and involves specialized statistics. We want to be more certain that the program can identify changes and are reviewing the way BHPB conducts its statistics to see if it can be improved.

We appreciate the special studies led by BHPB to predict water quality in the future and to see if water from the LLCF could harm fish or fish eggs. These studies provide information to help the



Kodiak Lake



Lake trout

Photo: C. Petander, Mainstream Aquatics Ltd.



The Panda Diversion Channel fish box

mine operate in a way that effects the environment as little as possible. The results from these studies could also help improve environmental management at other mines in the North.



Mine Wastes

*Like any mine, Ekati produces waste materials that they cannot use. This includes waste rock, **wastewater**, **processed kimberlite**, hazardous materials and regular garbage. Most hazardous wastes are shipped south to be destroyed. BHPB does many things to prevent animals and birds from being attracted to the waste materials, such as fencing areas and making sure that food does not go into the dump.*

Waste rock being removed in Fox Pit



Waste Rock

To get to the *kimberlite*, which contains the diamonds, water is first removed from the lakes. Then large amounts of waste rock, or rock which does not contain diamonds, are removed. These rocks are piled in three different places, close to the area where they came from: around Panda, Koala and Beartooth pits, beside Misery Pit and alongside Fox Pit. *Kimberlite* that does not contain diamonds is also added to the main waste rock pile. These rock piles are monitored to see if any contaminants from the rock are coming out and leaking into the environment. Right now, any water that comes from the waste rock piles is collected and sent to one of the areas where contaminated water is cleaned. We want to make sure that when the mine closes, and the water is no longer treated, that the water coming from the waste rock piles will be safe for the environment. BHPB is doing studies to see if they can build the waste rock piles in a way that will keep them frozen and make them more stable. BHPB does not presently have plans to fill the pits back up with waste rock.



Processed kimberlite slurry entering the LLCF

Wastewater

Water is used to help remove diamonds from the *kimberlite*, to water the roads when they are dusty and to run the camp. BHPB re-uses much of the water in the processing plant, which helps reduce the amount of clean water taken from nearby lakes. Water that is dirty from the processing plant, sewage and camp activities is sent to the Long Lake Containment Facility (LLCF). There it is cleaned when it passes through dykes and filters. Dirt settles to the bottom of the water, also making the water cleaner. When the water is clean enough, it is released into the environment.

BHPB is conducting studies to see if they can reduce the amount of *ammonia* and other contaminants in the *wastewater* by spraying it from tall towers. The *wastewater* will land on the ground and drain into the areas where water is held



Coarse kimberlite rejects

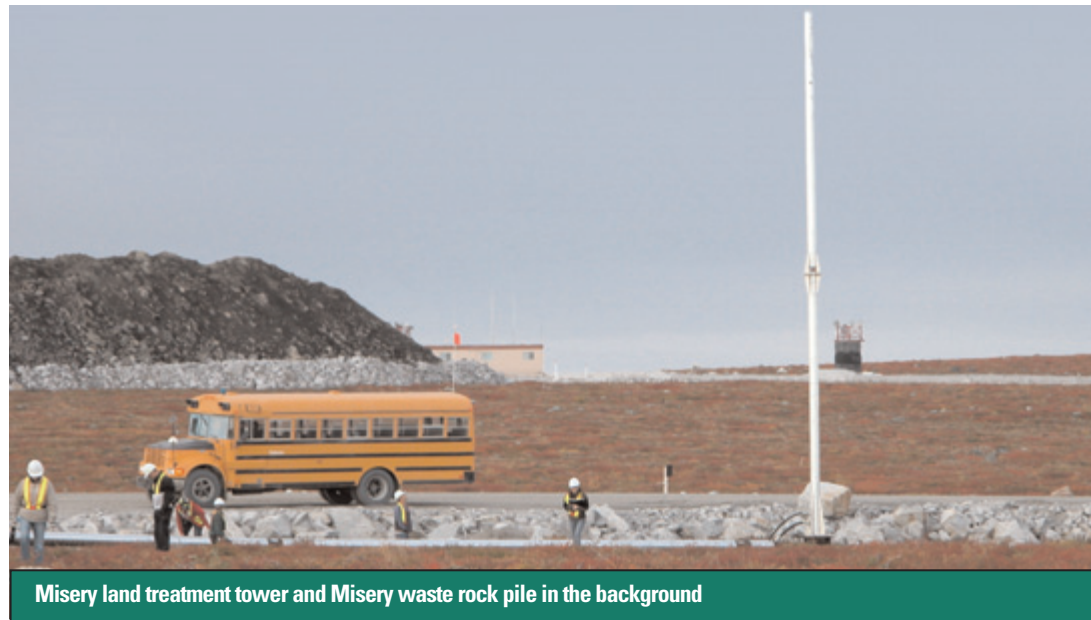
and treated. The land, plants and small animals will be checked to see if they are being affected by the sprayed water. Although BHPB had hoped to begin the study in 2003, the towers were damaged by wind. They are being repaired and will hopefully be used in 2004.



Pile with waste rock and coarse kimberlite rejects

Processed Kimberlite

After the diamonds have been removed from the *kimberlite*, a fine sludge is left, called *processed kimberlite* or *tailings*. Chemicals are used to settle some of the fine clay out of the water. Both the



Misery land treatment tower and Misery waste rock pile in the background



wastewater and the *processed kimberlite* are sent to the LLCF. The *processed kimberlite* builds up and dries out enough that animals and people can walk on them.

BHPB is checking to see if plants can grow on the *processed kimberlite*. This would help make the *tailings* more stable and stop them from blowing away. BHPB has done a study to see if the animals that eat the plants that are growing on the *tailings* are safe to eat. More information on this can be found in the wildlife chapter.



Directors looking at the snow containment facility

Hazardous Wastes

Many dangerous wastes such as old batteries, chemicals and other contaminants used in mining are shipped south for safe destruction. Other wastes such as oil can be treated at site and are stored in a landfarm. This year BHPB added a locked gate to the landfarm to prevent people from dumping the wrong materials there.

Sometimes oil leaks out of tanks and into the snow or water around the tanks. This snow and water is collected and

brought to the landfarm. This year, the landfarm was not big enough to hold all the contaminated snow, therefore BHPB built a separate facility to collect the snow called the snow containment facility. Both the landfarm and the snow containment facility are covered by flag tape to scare away animals and birds.

Garbage

Regular garbage that does not contain food is buried in a landfill within the waste rock piles. This includes scrap wood, scrap metal, plastic and paper. The landfill is covered over regularly so that it does not attract animals and to prevent garbage from blowing around. Most food waste is burned.

Over the last year, the Agency has heard concerns from community members about the type and amount of garbage



Caribou tracks on tailings



being put into the dumps, and the amount of materials that are not being recycled.

What the Agency Thinks

This year, the DIAND inspector found some problems at the landfarm. Usually it involved the wrong materials being put in the wrong place. We believe BHPB has improved its practices at the landfarm and in general, handles its wastes properly. We encourage BHPB to listen to the concerns that community members have brought to them and provide more information on the materials they put in the landfills and the materials they recycle.

We recognize BHPB for its studies on treating *wastewater* by spraying it from towers. If this produces good results, similar processes could be used at other mines.



Flagging tape at the landfarm to prevent bird access



Main waste rock pile



Ekati landfill inside the waste rock pile



Closing the Mine

Ekati has been open since 1998 and BHPB expects to close mine in about 11 years, or 2015. Aboriginal Peoples and others want to be sure that the environment will be protected once the mine closes.



Panda Pit

Preparing for when the mine closes involves planning, carrying out scientific studies, and the creation of an Abandonment and Reclamation Plan (A&R Plan). The A&R Plan can be changed as the mine develops and is based on the results from studies.

BHPB submitted a revised A&R Plan in 2003. We reviewed it and recommended the plan not be approved for many reasons. We did not think there was enough information on what BHPB will do with the empty pits, the piles of waste rocks, the Panda Diversion Channel and the Long Lake Containment Facility (LLCF).

As the mine gets older and more studies are completed, BHPB should have a bet-



Revegetation at Ekati



ter idea of what it will do with every part of the mine and should include it in the A&R Plan. The plan should be changed from not having a lot of details such as when the mine first opened, to being much more detailed as the mine grows.

What the Agency Thinks

We believe that it is time that BHPB stated what it wants to do with every part of the mine, when it closes. We think

BHPB's A&R plan needs to be changed to include this information. We also believe that BHPB must consult with Aboriginal Peoples and the government to hear what others have to say about how the mine should close, before any decisions are made. This will give Aboriginal Peoples more confidence that the land and water will be left in good condition when mining is done.



Shoreline erosion protection at Ekati

Security Deposits

Since the mine opened, BHPB has given money to the government to cover the costs of cleaning up the mine if it closed early or if the company could not afford to clean up the mine when it was finished mining. This is called a security deposit. We think BHPB should be able to change the amount of money it must give to government once it has cleaned up parts of the mine. This is a way to encourage BHPB to clean up parts of the mine as soon as it can and not wait until the mine closes.



Revegetation at Ekati



Working with the Communities

We believe that good environmental management at Ekati can be made better by working closely with the Aboriginal communities. This includes using traditional knowledge in environmental programs and consulting regularly with communities.

One of the purposes of the *Environmental Agreement* is to facilitate the effective participation of Aboriginal Peoples when dealing with environmental issues at Ekati. The agreement supports the integration of traditional knowledge and the experience of Aboriginal Peoples into environmental management plans and programs. It also directs BHPB to communicate the results of its environmental programs and activities every year in a public meeting. Part of the Agency's mandate is to help make sure these things are happening and provide recommendations if they are not.

BHPB's Activities

BHPB produced good reports on its monitoring activities. Their Annual Report was well-written with helpful maps, photos and graphics. A plain English summary was provided at the front of the report. BHPB also translated

important words from its Interim Abandonment and Reclamation Plan into Dogrib, Chipewyan and Inuinnaqtun.

In 2003, BHPB visited the communities of Gameti, Wha Ti, Dettah and Yellowknife to discuss its environmental monitoring programs. BHPB also provided community members with tours of the mine site on various occasions throughout the year. The company worked with Dene and Inuit elders to determine how to divert caribou from mine infrastructure and to identify new archaeological sites within the claim block.

Community Concerns

We have heard from some of our Aboriginal members that they are concerned that communities are visiting the mine separately. This means BHPB could hear different and opposite things from different communities which could

lead to disputes between groups of people. We think BHPB should work more with the groups together, so that areas of disagreement can be discussed with everyone at the same time.

We note that in 2003 BHPB received criticism from most of the Aboriginal members on its consultation activities such as consultations related to water licence renewal and community visits. Of primary concern was BHPB's cancellation of its annual environmental workshops. Communities felt that the workshops were an important way for BHPB to tell communities about the results of its studies and receive input on how to improve its programs.

During the environment workshop, community members advised BHPB that they were concerned about the lack of traditional knowledge used in its environmental programs.

What the Agency Thinks

We recognize that consultation and communication can sometimes be hard to do. It is made more difficult by the technical nature of the information being discussed and because of the busy



schedules of communities, regulators and BHPB. To improve communications with communities, the company and others should:

- Visit the communities at a time that is good for the community;
- Talk to the communities first to find out what their concerns are so the right kind of information can be provided during the meeting;
- Provide information in a way that is easy to understand and allows for questions and discussions; and
- Be willing to consider suggestions that are given.

There is definitely opportunity for BHPB to improve its communications with Aboriginal communities. We encourage BHPB to respect the consultation requests they receive and enter into more direct and timely discussions with the people who are chosen to represent the communities. We also encourage each Aboriginal party to the *Environmental Agreement* to let BHPB and government agencies know how they would like consultations done.

BHPB will not provide written reports on the things they have learned from community people who visit the mine site. We believe that they should do this

so that everyone can see how traditional knowledge is being used, and will know if it is not being used.

It is not easy to use both western science and traditional knowledge when monitoring the environment and making

decisions. We all need to work harder on trying to achieve this. We encourage Aboriginal parties to work closely together to provide direction to BHPB on how to use TK more.

Things to include when determining how you would like consultations done:

- Who the person or people are that BHPB should contact when dealing with environmental issues at Ekati
- Who BHPB should contact to arrange visits in the communities
- Who BHPB should contact to invite people to visit Ekati site
- Who BHPB should send reports and correspondence



BHP BILLITON DIAMONDS INC.





Environmental Management of Ekati

*The Agency serves as a public watchdog for the environmental management of Ekati, the regulatory process and the implementation of the **Environmental Agreement**. This mandate includes monitoring the performance of BHPB and the regulators.*

The role of regulators is to develop and enforce licences and permits for BHPB to run Ekati and to review environmental management plans and reports. The regulators for BHPB include:

- Department of Indian Affairs and Northern Development (DIAND)
- Department of Fisheries and Oceans (DFO)
- Environment Canada (EC)
- Department of Resources, Wildlife and Economic Development (RWED)
- Mackenzie Valley Land and Water Board (MVLWB)



Explosive storage structure at Ekati

BHPB continues to meet almost all of the conditions set up in the water licences, land use permits, land leases and the *Environmental Agreement*. The obligations that BHPB has not met relate to the content and timing of reports they must produce, and do not have a direct effect on the environment.

Small changes have been found in the environment around Ekati and are most likely related to the mine. These changes were expected and mentioned when BHPB applied to open the mine. We have not seen any negative effects on the animals, water or fish.

BHPB has been doing studies on things that have never been looked at before in the North. One study is looking at the effects of certain chemicals that come



The inter-agency coordinating team (IACT)



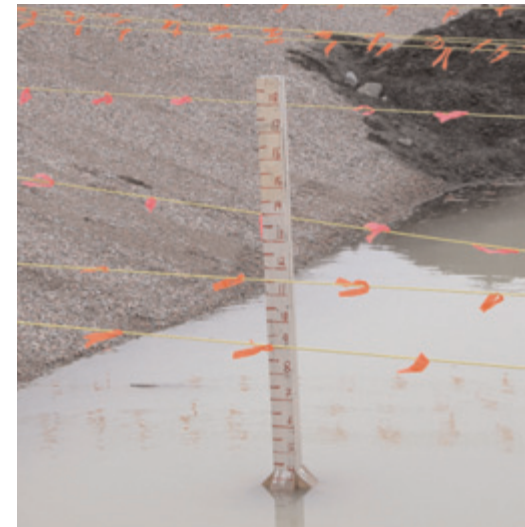
from blasting, on fish eggs and small fish. Another study looks at the type of local plants that could grow on *processed kimberlite*.

When BHPB hears concerns from communities, government agencies or from us, they often will do a special study to see if they can address the concern. For example, when concerns were raised about water quality in the Long Lake Containment Facility (LLCF), BHPB undertook various studies including a study to look at contaminant levels in fish in Cell E and a study to estimate the amount of contaminants

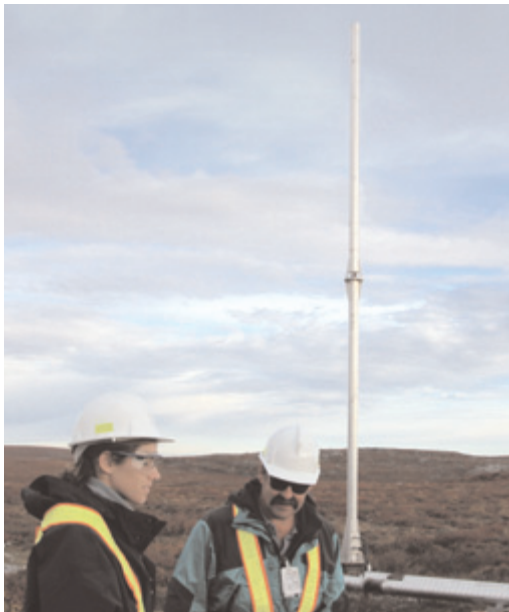
that might end up in downstream lakes. When community members said they were worried about caribou eating plants that grow on the *processed kimberlite*, BHPB looked at the issue carefully. You can find more information about this study in the Wildlife chapter.

What the Agency Thinks

BHPB continues to enjoy good environmental management at Ekati. Working together, the communities, regulators, BHPB and the Agency have helped make this happen.



Monitoring the Ekati snow farm



Touring the Misery land treatment site



The inter-agency coordinating team (IAC)



Recommendations from the 2003-2004 Technical Annual Report

Wildlife

1. BHPB should consult with RWED in order to re-design the wolverine monitoring program based on hair samples and DNA-based identification of wolverine individuals.
2. The monitoring of land breeding birds should be done every other year rather than every year.

Risk to Wildlife from Exposure to Processed Kimberlite

3. BHPB should undertake a new assessment of effects on wildlife from exposure to *processed kimberlite* based on the comments from RWED and IEMA.

Abandonment and Reclamation

4. BHPB should produce a first draft of Ekati-specific closure criteria within one year. The next step should be for the company, government and other affected parties to meet in order to finalize closure criteria for Ekati.
5. The principles for *progressive reclamation* security should be incorporated into the water licence when the licence is considered for renewal later in 2004.

Traditional Knowledge

6. BHPB should make more explicit efforts to incorporate the use of TK into monitoring, *reclamation* and other mine operations and report on its usage in these activities.

Regional Monitoring and Cumulative Effects

7. BHPB, DIAND, RWED and others should initiate discussions on how to monitor the regional cumulative impacts on the Bathurst caribou.

Environmental Workshops

8. BHPB should reinstate its annual environmental workshops in February of each year.
9. The MVLWB should add a provision to the renewed water licence ensuring that annual reviews of environmental monitoring programs are undertaken by BHPB in a collaborative, collective process with the affected parties.

Bathurst Caribou Herd





Glossary

Ammonia

The most toxic form of nitrogen, most commonly associated with blasting at Ekati.

Cumulative Effects

The environmental changes that occur from a project or activity combined with effects from other human activities.

Environmental Agreement

Created as a legally binding instrument to provide monitoring and input into management practices not covered by other authorizations.

Kimberlite

A rare, potentially diamond bearing iron and magnesium rich rock from deep in the earth's mantle. *Kimberlites* are generally found as vertical pipe-like structures.

Mine water

Water found within the pit containing wastes from mining practices.

Processed Kimberlite

The waste material and water mixture that is left over after the mill removes the valuable rocks (i.e. diamonds). Also referred to as *tailings*.

Progressive Reclamation

Reclamation that occurs while the mine is still operating. As mine activities are completed and the infrastructure no longer required, roads are reclaimed, buildings and equipment are removed, areas are revegetated and landfills and dumps are remediated.

Reclamation

The recovery of areas of land and water-bodies that have been disturbed during mining.

Tailings

The waste material and water mixture that is left over after the mill removes the valuable rocks (i.e. diamonds) from the ore. Also referred to as *processed kimberlite*.

Toxicity

The ability to cause harmful or deadly effects to plants and animals.

Wastewater

Water that contains wastes from the mining process including sewage and chemicals from explosives.

Zooplankton

The small, almost microscopic animals that live suspended in freshwater (and ocean) environments. Zooplankton feed on phytoplankton.





A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

Independent Environmental Monitoring Agency

Plain English
Annual Report
2003-2004

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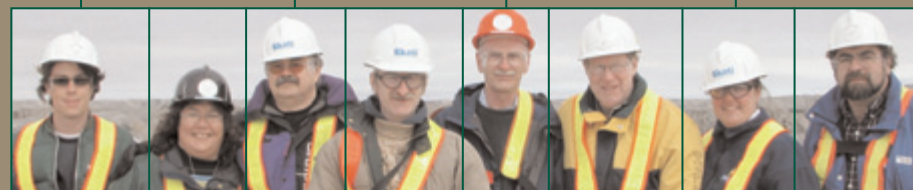
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