



INDEPENDENT  
ENVIRONMENTAL  
MONITORING AGENCY



A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

# PLAIN LANGUAGE ANNUAL REPORT 2009-10

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# Message from the Chair 2010

I am pleased to report that BHP Billiton (BHPB) has continued to do a reasonably good job of protecting the environment at EKATI™ Diamond Mine. The Agency still has concerns that need to be addressed so that this good performance can last. These deal mostly with water quality downstream from the Long Lake Containment Facility (LLCF) and with wildlife (especially caribou) impacts. Our main focus for this past year has been a new Interim Closure and Reclamation Plan (ICRP), and reviewing how the diamond mines monitor wildlife.

This year featured legal battles to decide if the Wek'èezhìi Land and Water Board (WLWB) can require fish habitat in the closure plan. There was a WLWB hearing, then an appeal before the NWT Supreme Court. At both of these procedures, the Agency was represented in largely successful attempts to let fish use the pit lakes when the mine is closed.

The Agency found serious problems with BHPB's 2009 Environmental Impact Report (EIR) and recommended it not be approved. This recommendation was accepted and led to very helpful meetings. This, in turn, resulted in a great improvement to the content of the EIR and the process in the future. More improvements are needed before the 2012 EIR. We suggest in this annual report a useful way to work on these ideas.

Progress that started a year ago on wildlife monitoring plans seems to have stalled. We very much hope these can be restarted soon.

We are concerned about water quality downstream from the LLCF. It has a high level of *nitrates*, mostly created by blasting at the mine. BHPB has been studying ways to reduce *nitrate* levels.

We have also continued to try to improve our own performance. We have added to our staff a

Communications and Environmental Specialist (now filled by Monica Krieger). We send out short summaries of our Board meetings. We also report back to communities after a visit.

We look forward to next year. We hope a new closure plan will be approved to guide *reclamation* on site. We also hope for better wildlife monitoring and progress on water quality goals. ■



**William A. Ross, Chairperson**  
March 31st, 2010



# How we do our work

## → Highlights:

Five board meetings and the annual general meeting in Yellowknife.

Environmental Impact Report 2009 meetings in Yellowknife and at the Ekati Mine Site.

Board meeting, community visit and open house in Gamètì.

Presentations to North Slave Métis Alliance and Akaitcho Treaty 8 Impact and Benefit Agreement Board.

Took part in the reviews of aquatic and wildlife monitoring programs.

## Activities 2009-10

We had board meetings and an annual general meeting in Yellowknife. Every three years BHP Billiton (BHPB) prepares an Environmental Impact Report (EIR) and holds workshops. So in 2009-10, the Agency did not host an environmental workshop. Instead, an EIR workshop was held at the BHPB Ekati mine in August 2009.

The Agency visited Gamètì in October 2009. We had a board

meeting, open house, and school visits. We had very good talks about caribou, water quality and closure planning at Ekati. There was a large Tłı̨chʔ Government meeting in Gamètì too, so our open house was well attended. We also made presentations to:

- Akaitcho Treaty 8 Impact and Benefit Agreement Board in December 2009; and
- North Slave Métis Alliance in March 2010.

One meeting was held by the Inter-Agency Coordinating Team (IACT) in February 2010. IACT consists of the Agency and federal and NWT government regulators. We reviewed key BHPB environmental reports.

The Agency helped review BHPB's monitoring programs for fish and water. We also took part in a Diamond Mine Wildlife Monitoring Review workshop. Sponsored by the GNWT, it was held in N'dilo in September 2009. We strongly



Left: Gamètì community government office.

Above: Agency directors leave Gamètì.

believe that the three diamond mines should work together on wildlife monitoring. This will give us a clearer picture of overall impacts. We also want to make sure that wildlife studies are designed properly, so the right information is available to reduce the mine effects on wildlife.

The Agency helped with the Northern Latitudes Mining Reclamation workshop. It was held in Yellowknife in September 2009. The Agency Executive Director gave a presentation. He talked about lessons learned from the Ekati Interim Closure and Reclamation Plan process.

Twice a year meetings are held between the Agency and

*Environmental Agreement* signers (BHPB, GNWT and Canada). These meetings improve communication and give a chance to provide updates. They took place in June 2009 and January 2010.

### Agency Consultation and Communication

The Agency communicates using:

- Plain language and technical annual reports;
- Website and library of Ekati-related material;
- Booklet sent to each household in our Aboriginal Society Member communities;
- Annual general meeting; and



Environmental Impact Report site meeting.

- Environmental workshops.

During the year, we get many letters on Ekati-related issues. We also handle requests for information on and photos of BHPB's Ekati mine.

Director visits to communities are a key part of Agency communications. We try to send a director to any community that asks for information about Ekati. During 2009-10 we visited Gamètì (October 2009). We also gave presentations to the Akaitcho Treaty 8 Impact and Benefit Agreement Board and the North Slave Métis Alliance in Yellowknife.

Society Members say they are satisfied the Agency is doing its job watching over activities and reviewing environmental reports from BHPB.

### How are we doing?

In response to an outside review, in 2009-10 we added more communications. We now do a summary of each Board of Directors meeting and the annual general meeting. The full summary is posted on our website. A shorter one is e-mailed to Society Member representatives.

After each community visit, we now write a 'Reporting Back to Communities' booklet. It has photos, tells the Agency's purpose, lists what we talked about, and has contact information.

We also have a new staff job, the Communications and Environmental Specialist. It was filled in May 2010 by Monica Krieger. Some of the main tasks for 2010-11 will be to:

- Write a communications plan;
- Write meeting summaries and community reports;
- Update our website;
- Organize and promote the resource library;
- Write a newsletter; and
- Develop the timeline project (a website that shows the history of the mine and its effects).

The Agency is proud of its contribution to the Interim Closure and Reclamation Plan. In addition, our hard work in reviewing the EIR 2009 resulted in a Minister's Report and BHPB making important changes. ■

# Mining at Ekati

→ BHP Billiton (BHPB) is mining diamonds using large open pits and underground tunnels to remove the *kimberlite* rock that contains the diamonds.

## 1 Long Lake Containment Facility (Tailings Pond)

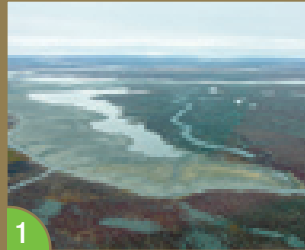
The Long Lake Containment Facility (LLCF) holds the crushed wet *kimberlite* that remains after diamonds are removed. It is a lake split into five sections (cells A-E) by dykes so the *processed kimberlite* can settle. Water is eventually released into lakes downstream when it is clean and pollutants are below the water licence limits.

## 2 Main Camp

This area includes: an accommodation building for hundreds of workers; a power plant; a truck shop; and a processing plant where the diamonds are removed from the *kimberlite*.

## 3 Fox Pit

This is the biggest pit at Ekati and most open pit mining activity is happening here.



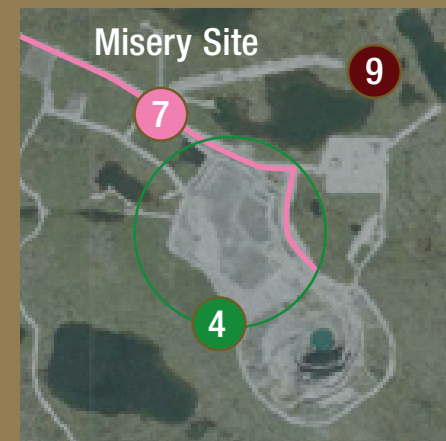
SATELLITE IMAGE 2009/BHP BILLITON DIAMONDS INC.







PHOTO COURTESY OF JIRI HERMANIN/BHP BILLITON DIAMONDS INC.



#### 4 Waste Rock Piles

Rock that does not contain diamonds is piled in layers up to 50 metres high.

#### 5 Panda and Koala Pits

Open pit mining has finished here and underground mining is now underway.

BHPB has built an underground tunnel (located between Panda and Koala pits) to provide access to the bottoms of the pits. A conveyor belt system takes the ore to the processing plant.

#### 6 Panda Diversion Channel

This is a man-made stream to divert water that would otherwise flow into the pits. Fish, mostly grayling, use it for spawning.

#### 7 Haul Roads

BHPB has built all-weather roads to connect the pits to the main camp. BHPB carefully applies dust suppressant to the roads to make sure that it does not seep into the lakes and streams.

#### 8 Beartooth Pit

BHPB has just finished mining ore from Beartooth Pit. The company asked to store minewater in the pit, and the WLWB agreed.

#### 9 Misery Site

BHPB has stopped mining at Misery Pit. It may re-open the site in a few years.

# Processed Kimberlite and Wastewater Management

## → Highlights:

Fay Lake stable after 2008 spill.

Wek'èezhìi Land and Water Board approved Beartooth Pit to store water.

Second part of *nitrate* experiment in cell D completed.

Agency suggested changes to the 2010 Wastewater and Processed Kimberlite Plan.

## Activities 2009-10

### Long Lake Containment Facility

During the past year the Long Lake Containment Facility (LLCF) operated without any problems. A high road was built around the north side of cell A. This made cell A bigger and able to store more *processed kimberlite*.

The area affected by the spill of *kimberlite tailings* from cell B

into Fay Lake in May 2008 was reclaimed during the 2008 field season. A dam was built at the spill point (north end) to prevent another spill. BHP Billiton (BHPB) reports that monitoring in 2009 showed the entire site was stable. There were no signs of erosion on the roadbed or nearby areas where plants had been removed. Plants have started to grow back naturally. BHPB notes that *kimberlite* left on the tundra has made blueberries and dwarf birch grow better.

### Minewater Storage

BHPB applied to use the Beartooth Pit as a place to store minewater (a sump) in 2008. The Agency did not agree, but it was approved by the Wek'èezhìi Land and Water Board (WLWB) in June 2009. Since then, the pit has been used to store minewater rich in *chloride* and *nitrates* from underground operations instead of pumping it into the LLCF. The reason for this is to lower the levels of *chloride* and *nitrate* in the LLCF.



Engineering work at the north end of cell B.



## Nitrates and Chloride

A second part of the *nitrate* experiment in cell D was done in 2009. This project looks at ways to lower *nitrate* amounts in the LLCF. BHPB added phosphate to the LLCF to help plant growth. This extra plant growth uses up *nitrate*, and the *nitrate* levels in the water drop.

In 2008, the experiment was done in separate parts of cell D. BHPB says chlorophyll (a measure of plant growth) increased by ten times and *nitrates* were 13% less. In 2009, 16 tonnes of phosphate fertilizer were added to all of cell D. This increased tiny plants by 24 times. The number of tiny bugs also increased. *Nitrates*

in cell D during 2009 were 19% less. No changes upstream (cell C) or downstream (cell E) were found.

Unfortunately, BHPB's report on the experiment does not say if this is a practical way to control *nitrates* in the LLCF in the future.

## Agency Comments

### Beartooth Pit

The use of Beartooth Pit as a sump solves the company's problem about what to do with minewater high in *nitrates* and *chloride*. However, it creates long-term closure issues for site *reclamation*. The Agency had hoped that Beartooth would

be used as an experiment to prepare for making the other pits into lakes when the mine closes.

The Agency believes it would have been useful if the WLWB had studies of other options, and knew more about the opportunities that would be lost by closing the pit to other uses. We also think the decision greatly decreases the choices that would be helpful when the mine closes. For these reasons, the Agency is disappointed in the WLWB's decision.

### Wastewater and Processed Kimberlite Management Plan

*Tailings* operations in the LLCF seem to be running smoothly, but BHPB has no long-term management plans for the facility. We looked over the 2010 Wastewater and Processed Kimberlite Management Plan (WPKMP) and sent comments to the WLWB. We found that the updated plan has much less useful information about *tailings* management in the LLCF.

A number of issues discussed in earlier plans were dropped. There is no way of knowing if these have been resolved or not. For example,

the 2007 plan said there were some unknowns about processing Fox ore, but these are not in the new plan.

While the plan tells what is being done, it does not explain why. Older versions of the plan gave reasons, goals, and methods for managing wastewater at the mine. The new plan does not have enough details on how to deal with surface minewater or Fox mine drainage. By now there should be enough information about *processed kimberlite* (PK) in the plan, so the WLWB can understand the operating and closure issues for the LLCF.

The plan mentions the early use of cell B as a *reclamation* research area, but little information is given. What research is needed to figure out how the PK beaches will remain stable? Will plants be able to grow there? The Agency is still concerned about the lack of clear details.

The plan also mentions four LLCF monitoring programs, but no details are provided. What is being learned? How are operations being adapted to changes in ore or processing? What does this mean for *reclamation*? ■



Silt curtains in Fay Lake

# Traditional Knowledge

## → Highlights:

BHPB is asking for new TK project ideas from the communities.

DIAND sent out a draft 'Toolbox for Applying Traditional Knowledge in Aquatic Effects Monitoring Programs (AEMPs) in the NWT.'

A repeat Agency recommendation: asking BHPB to write down its use of TK over the last 10 years.

## Activities 2009-10

BHP Billiton (BHPB) did not issue any stand-alone Traditional Knowledge (TK) reports this year.

However, BHPB says it invited each Aboriginal government to be part of

community TK workshops. These groups thought of new TK projects and ranked their importance. Reports of the workshops were given to the communities. BHPB also held two staff TK workshops to think of ideas for TK projects.

BHPB says they had four TK projects in 2009:

- More support for the Naonaiyaotit Traditional Knowledge Project (NTKP) for the Kitikmeot Inuit Association;



Left: Drummers in Gamètì.

Above: Blueberries.

- Early study of TK data and data management for the Łutsel K'e Dene First Nation. This work will continue in 2010;
- On-site environment job-shadow program offered to all Impact and Benefit Agreement groups. This program has started with Łutsel K'e Dene First Nation. It will continue in 2010; and
- Donations for the Dene National Assembly, National Aboriginal Day, Łutsel K'e Spiritual Gathering and Tłıchq Annual Gathering.

DIAND led a team of the diamond mine monitoring groups. They worked on ways to use TK in Aquatic Effects Monitoring Programs (AEMPs). The step-by-step guide promotes working with Aboriginal communities to develop AEMPs. The 'Toolbox for Including Traditional Knowledge in Aquatic Effects Monitoring Programs (AEMPs) in the NWT' was released in December 2009.

The Agency stressed the need to understand how Aboriginal harvesters classify fish and animals, which is not always the same as biologists' ideas. Knowing about TK can help developers design better projects.

## Agency Comments

Over the past 10 years, BHPB has funded several TK projects that it thinks relate to environmental management of the Ekati Mine. However, it is not clear what information BHPB has gained from these projects. How has TK been used in environment programs at Ekati? Almost since we started in 1997, the Agency has asked that BHPB write down the use of TK in its Ekati operations. Last year the Agency asked for a 10-year review of TK use. BHPB did not agree to it.



Gamètì residents.

Some of BHPB's new projects sound promising, like the TK data management with Łutsel K'e. We will be interested to see how this will improve environmental management at Ekati.

Other projects, such as showing how to make traditional drums, help pass along TK between generations. Donations for cultural gatherings are also listed as TK projects. These efforts may teach Ekati workers about Aboriginal culture. They may also help BHPB in their relationships with communities. It is not clear how they improve environmental management.

Other projects may have a chance to use TK in a meaningful way. The job shadow program has possibilities. Hiring Aboriginal Peoples to do the wolverine DNA sampling studies could be good too. Yet, how much information is exchanged between environment staff and Aboriginal participants? How is this information shared, written and used? Taking part without sharing or in a project designed only by the company is not the same as using TK.

For 2009-10 we have the same questions as before. Over the past 10 years, how has TK been included in the environmental plans and programs at Ekati? Has TK been thought about as the plans and programs are developed? What are the successes and the lessons learned? What changes over the past 10 years at Ekati are because TK was used? How are the knowledge and experience of Aboriginal peoples being included in environmental plans and programs today? How will they be included in the future?

Therefore, for 2009-10 we repeat our recommendation and look forward to working with BHPB on this review. ■

# Wildlife

## → Highlights:

Diamond mine wildlife monitoring review stalled.

Changes to wildlife monitoring – aerial caribou surveys dropped, wolverine DNA sampling restarted, and grizzly bear DNA sampling trial.

## Activities 2009-10

BHP Billiton's (BHPB) Wildlife Effects Monitoring Program (WEMP) tells how mining activities impact wildlife. The latest WEMP report for Ekati covers October 1, 2008 to September 30, 2009. The report tells about wildlife habitat, caribou, grizzly bears, wolverines, wolves, foxes and falcons. A second report gives a 13-year review of the bird monitoring program.

## Mine Footprint

The mine site now covers 2,992 ha (close to 30 km<sup>2</sup>).

## Wildlife Incidents

BHPB has worked hard to improve its waste management so wildlife are not attracted to its dumps. They have also tried to reduce wildlife incidents and keep wildlife out of dangerous areas like the airstrip. Seven vehicle-related small animal deaths were

reported at Ekati in 2009. Nine non-vehicle wildlife deaths happened on site (8 caribou, 1 fox). Other animals were seen in the area (grizzly bears, wolves, wolverines and foxes) and sometimes had to be chased away. A moose was seen south of Lac de Gras in July 2009 for the second year in a row.

There were four caribou deaths because of airport fencing in 2009. Łutsel K'e residents saw two of these



PHOTO: KIM POOLE

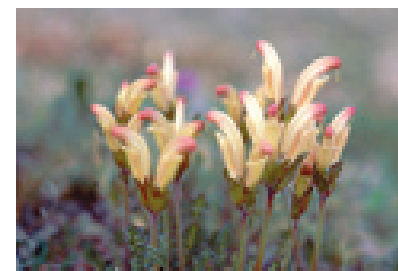


PHOTO: KIM POOLE

Left: Gyr Falcon nestlings.  
Above: Lousewort flowers.

deaths. The Łutsel K'e Wildlife, Lands and Environment Committee told the Agency of their concern. BHPB trimmed willows near the fences and flagged the posts and agreed to make longer term changes.

### Caribou Monitoring

BHPB keeps a record of the number of caribou, where they are, and how they behave near the mine. This includes casual sightings and air and ground surveys. Last year, 9,979 caribou were seen during summer air counts over the Ekati area. More caribou were seen as you got farther from the mine. Snow track surveys and road monitoring continue to show that high snow banks and heavy traffic make it less likely caribou will cross a road. BHPB wants to stop doing caribou surveys by air.

### Grizzly Bear Monitoring

During 2009 BHPB dropped the grizzly bear sign (droppings, tracks and diggings) survey used as the main monitoring tool. The company agreed that the sign surveys were not useful. There was no monitoring program in 2009.

BHPB is going to try hair-snagging posts to collect grizzly DNA in 2010 (the same as for wolverines).

### Wolf Monitoring

Annual surveys of den sites are the main monitoring program for wolves near Ekati. Of 18 historic dens checked, three were occupied in June, but none were successful. The Wedge Lake den, which was successful in 2008, was not surveyed in 2009.

### Wolverine Monitoring

The number of times wolverines were seen was much lower in 2009. No track counts were conducted in 2009. The DNA hair-snagging study was started again in April 2010.

### Bird Monitoring

The North American Breeding Bird Survey was conducted in 2009, but other surveys for upland breeding birds at Ekati were stopped. A closing report of 13 years of data said there was little impact to tundra breeding birds, except for the removal of habitat by the mine site.

Falcons still nest on pit walls at

Ekati and nearby. Surveys found high use by peregrine falcons (13 sites occupied; chicks at three sites), while only one site was occupied by gyrfalcons (unsuccessful nest site in Fox Pit).

### Review of Diamond Mine Wildlife Monitoring Programs

In September 2009, the Agency took part in a workshop with Government of the NWT's Environment and Natural Resources and the diamond mines. The aims of the meeting were to discuss if monitoring goals should be changed, if the study designs should be changed, and how the mines' wildlife monitoring could be better linked with government monitoring programs. Two dozen recommendations were made, mostly about caribou and grizzly bear. As of this writing there has been no response to the workshop.



Arctic Hare

The Agency urges BHPB to respond to the recommendations promptly. We also suggest a regular review of wildlife monitoring and management every three years.

## Agency Comments

### Review of the 2009 WEMP Report

The WEMP report, while covering a lot of information, does not really focus on what is most important. It still gives findings that BHPB admits are weak at best, often based on poor data and sample sizes. Parts of the report do not give a big-picture point of view. The Agency hopes that the next WEMP will include more information on the big picture. What is happening to wildlife at Ekati? Are the mitigation activities working well?

### Review of the Diamond Mine Wildlife Monitoring Programs

Last year we supported many of the temporary changes made by BHPB to the WEMP for 2009. We expected the WEMP program would be re-evaluated soon. The Agency is disappointed with the lack of progress in developing other good ways to monitor wildlife. ■

# Water and Fish

## → Highlights:

Two water licences for the whole Ekati Mine site now combined into one.

BHPB is managing *nitrate* but it is still present in high amounts in the mine wastewater.

Draft report for water management in NWT sent out by Mackenzie Valley Land and Water Boards.

Draft report for developers on how to use Traditional Knowledge (TK) in Aquatic Effects Monitoring Programs (AEMPs) in the NWT was released by DIAND.

Lake mud samples beside the main camp show effects from burning garbage in the incinerator.

## How BHPB Monitors the Water

BHP Billiton (BHPB) checks the water downstream of the mine and its tiny plants and bugs to see if the mine has been affecting them (see Figure 1). BHPB compares the results to other lakes and streams. BHPB has found that its mining does change the water downstream

of Ekati, but the changes are not likely to cause harm to fish.

Some sources of pollution of the water at Ekati include:

- Treated sewage from the camp;
- Fuel and chemicals used to blast rock and run equipment;
- Crushed rock left over after the diamonds are removed from the pits; and

- Salty underground water that seeps into the pits.

BHPB pumps all the dirty water and crushed wet *kimberlite* to the Long Lake Containment Facility (LLCF). The dirt settles and is filtered through dams. Once the water reaches the end of the LLCF, it is ready to be pumped into the natural lakes downstream of Ekati.



Left: Staff sampling fish.

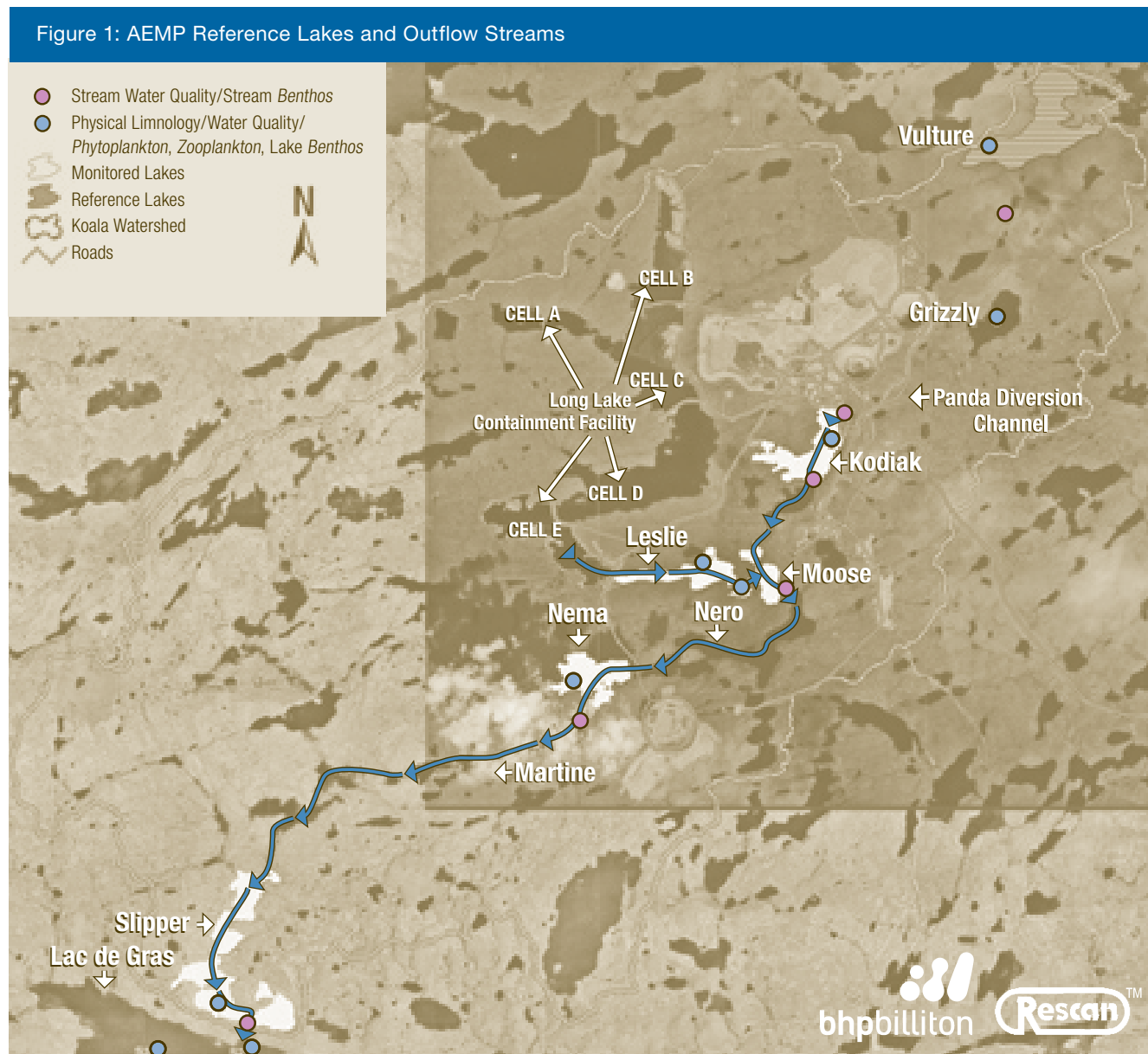
Above: Grizzly Lake potable water source at break-up.



BHPB can only pump water into the lakes downstream of Ekati if the water is clean. The amount of pollutants in the water, such as dirt, metals and salt, must be less than the limits set in the water licence.

In 2009, BHPB proposed some changes in the way water will be monitored in future years. Here are three of the most important ideas:

1. Standards are needed for how much change in downstream water quality is allowed. We disagree with BHPB's ideas and believe the Wek'èezhìi Land and Water Board (WLWB) should lead a discussion about water quality in the entire region;
2. BHPB asked to do open water sampling in August only, not July and September. They say August sampling shows a better picture of water changes caused by the mine. The WLWB has approved this change; and
3. Before the next fish sampling year (2012), BHPB will make a proposal for sampling trout and whitefish without killing them.



## 2009 Monitoring Results

In 2007, *nitrate* levels in the first lakes downstream of the *tailings* pond (Leslie and Moose) rose above amounts believed to affect growth of baby fish. To correct this, in 2008 BHPB held water in cell E until *nitrates* had gone down below the level safe for fish. In 2009, the time when water is usually pumped from the *tailings* pond to Leslie Lake was changed to begin in mid-summer

instead of spring. This helps reduce *nitrates*. These actions by BHPB seem to have helped lower *nitrate* levels, but the 2009 levels in Leslie and Moose lakes were still too high.

BHPB is also testing adding phosphate into cell D of the *tailings* pond to remove *nitrates*. Phosphates cause more water plants to grow. The plants use up *nitrates* in the water. Early results show *nitrates* in cell D are 19% less. At the same time, total *phosphorus* and growth of water

plants did not increase in cell E, showing that phosphate addition did not change downstream water.

Molybdenum is a metal that affects trout just after they hatch. Amounts of molybdenum have decreased or stayed the same in downstream lakes, but are still high. The same is true of some other metals.

The number of different kinds of water bugs in 2009 was the fewest ever recorded in Leslie and Moose lakes and is thought to be caused by the mine. This may impact fish

that eat these bugs in those lakes.

Numbers of water fleas, food for whitefish, are again smaller in Moose and Nema lakes than before the mine. This may be due to the large amounts of *chloride* salts in *tailings* pond water.

## Developing Guidelines for Industrial Projects

Department of Indian and Northern Affairs (DIAND) is working to set up water quality standards for the NWT. We are pleased that this work has begun. A draft report from the Land and Water Boards for the Mackenzie Valley tells how to develop water quality guidelines for a project. We are disappointed that the Boards did not consult with DIAND on these guidelines.

DIAND has been working on a guide for industrial developers. It will tell them what is expected in monitoring for water and fish. The Agency told DIAND there was a lack of information regarding the use of Traditional Knowledge (TK) in the guidelines. We are pleased that a new report tells developers how to work with communities to include TK in water and fish monitoring.



Left: Staff sampling fish.

Above: King pond.

## Special Studies

Environment Canada (EC) did a study to find out if there was a link between air emissions from burning garbage and contaminants in lake mud of Kodiak Lake. *Dioxins and furans* are two compounds that are released into the atmosphere when garbage is not burned properly. They can build up in sediments and are dangerous at high levels. *Dioxins and furans* were measured in the lake mud. They were found to be at levels higher than is safe for life in lakes. Unfortunately, there are no rules for NWT air quality like there are for water quality. EC has said it is time to include waste management conditions in water licences to make sure national standards for *dioxins and furans* are met in the NWT.

## Water Licences

A public hearing for renewal of the Sable, Pigeon and Beartooth Water Licence was held in Behchokò in March 2009. In August 2009, the two water licences for the Ekati Mine were combined into one.

*Chloride* salts are not expected to be high in the three pits as long

as they are within the permafrost. However, the Agency and the WLWB think that high *chloride* levels may be a problem elsewhere at Ekati. A *chloride* standard for the water discharges from anywhere at the entire mine needs to be developed.

## Panda Diversion Channel (PDC)

PDC monitoring in 2009 centred on adult fish populations and return of fin-clipped fish to the PDC. The study of grayling eggs and *fry* is no longer done.

In 2003, a tiny fin near the tail was clipped on 1666 grayling *fry* and they were released. Only 2 of those grayling were caught in 2009. Most of the adult grayling who return to the PDC are 7-9 year olds. So if the 2003 fin-clipped *fry* were able to survive, we should see a lot more of them in 2010 to 2012. This would prove that grayling hatched in the PDC survive in Kodiak Lake until they are old enough to reproduce.

BHPB has reviewed 10 years of fish monitoring in the PDC (1999-2008). The numbers of spawning grayling that return to the PDC more than once has increased in

the last few years. Their condition was like that of grayling in 18 other area lakes. *Fry* hatched in the PDC had more fat in them than grayling *fry* hatched in the two streams not affected by mining. These findings show that fish habitat built in the PDC by BHPB is successful.

However, the total number of spawning grayling using the PDC has dropped every year since 2004. This is not the case in the two streams untouched by the mine. The company believes the number of grayling in the PDC was “abnormally high” in the first years after the PDC. But maybe *fry* hatched in the PDC don’t survive as well as those

older ones that were hatched in other streams. The count of fin-clipped grayling in the next three years should answer this question.

Another stream, connecting Nero and Nema lakes, is also monitored for fish. A bridge built over this stream a few years ago destroyed some habitat. BHPB made up for that by building gravel spawning beds in the stream. They have been checking these spawning beds for fish use since 2007. In 2008, grayling spawners were seen near two of the eight new spawning beds, and grayling eggs were found at five of them. BHPB continues to monitor this stream for fish use. ■



Panda Diversion Channel fish box.

# Air Quality

## → Highlights:

2006-2008 Air Quality Monitoring Program (AQMP) report submitted by BHPB.

Agency commissioned a review of 2008 AQMP report.

BHPB purchased new incinerators in 2006. They are still not being used.

## Activities 2009-10

BHP Billiton's (BHPB) Air Quality Monitoring program (AQMP) started in 1998. BHPB keeps track of changing air quality in several ways. Air samples are taken throughout each year. Snow and lichen samples are taken every three years. Dust monitoring is done over the summer each year.

BHPB reports on the AQMP every three years. The 2008 report was sent out in February 2010. It explains the results of the program between 2006 and 2008.

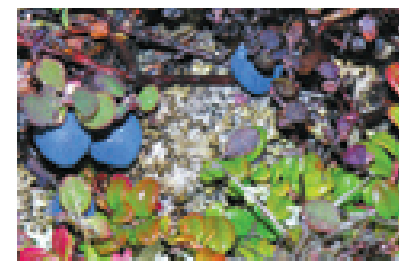
### Weather Monitoring

Weather data includes temperature, amount of rain or snow, wind speed and direction, and so

on. They are measured at three places on the mine site.

### Air Emissions and Greenhouse Gas Calculations

Fuel use gives an estimate of yearly emissions of greenhouse gases (GHG). The average annual GHG emissions from 2006 to 2008 are 25% less than for 2003 to



Left: Inside continuous air quality monitoring building.

Above: Blueberries on the tundra.

2005. BHPB says GHG emissions are lower because of its efforts to reduce fuel use since 2006. These efforts include reducing use of electrical equipment and lights when not needed, not idling trucks when parked, the use of old oil as heating fuel and the shift from open pit mining to underground mining.

### Continuous Air Monitoring

A Continuous Air Monitoring building has been installed at the mine site since 2007. In 2008 it

was moved to a better location near the Polar Explosives building. BHPB reported that the average monthly measurements are within Canadian and NWT standards. However, BHPB's data does not fit the format of the standards so it is hard to compare them.

### High Volume Air Sampling

Air samples at Ekati have been taken during summer since 1997. They use high volume air samplers in two places at the mine site.

The samplers are run on a six day schedule and suck air through a filter over a 24 hour period. The filter is then weighed and sampled for the amount of dust in the air. BHPB does not sample in the winter because of "extreme winter conditions" that affect the equipment.

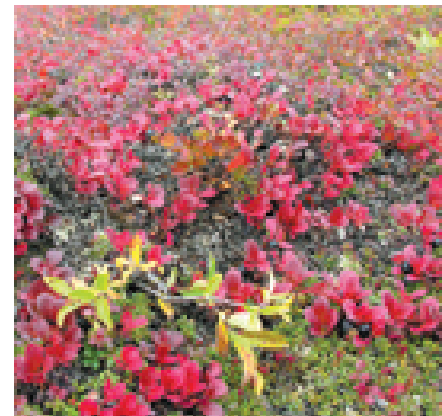
In 2006, we recommended that the samplers be run all year. Mines in Nunavut have used the samplers successfully at -30°C. We think that BHPB should take some samples during the winter.

This would ensure annual air quality numbers are accurate and can be compared to the standards.

### Dust Monitoring

There are 14 dust monitoring stations around Ekati along the roads, at the airstrip and at the LLCF (*tailings pond*). The stations measure dust patterns.

BHPB reports dust levels, but sometimes BHPB's explanations do not always fit with the actual data. Better explanations are needed. They



Far left: Dust from aircraft during takeoff.

Above: Tundra plants.

do not say if the *nitrate* and sulphate levels in the dust are a problem.

### Snow Sampling

The snow sampling program was changed in 2008. It now has 33 sampling places in a pattern like the spokes of a wheel spreading out from the mine. The chemicals measured are the same as those

used for water quality testing. Metal amounts were greatest close to the mine. No trend was seen for things related to gas emissions, blasting, and long-range transport.

The Agency has noted that there are quality control issues with the snow sampling. Results may not be accurate.



Dustfall monitoring site.



Grizzly Lake air monitoring station.

### Lichen Sampling

Lichens are good indicators of air quality, as well as being important caribou food. They hold many pollutants in their tissues. Lichen sampling for metals is done every three years along with snow core sampling.

There was no visible dust seen on the surfaces of plants in any of the lichen plots. The lichens were tested for a total of 28 chemicals. The metal amounts were very low. Dust monitoring results were compared with lichen tissue results. Snow results were also compared. The numbers mostly agree with each other.

### Agency Comments

The Agency has not finished studying the 2008 AQMP Report. The Agency asked independent air quality experts to review the document. We will provide our detailed evaluation of the air quality monitoring program soon and the highlights in our next Annual Report.

A first look at the report shows that some areas still need improvement.

For example, the results could be presented and explained more clearly, and BHPB should better explain how they collect the data.

In 2006, BHPB agreed to look for links between air, water, snow and lichen monitoring data. The Agency has often highlighted the importance of understanding these links. BHPB, however, has not reported on any links.

The Agency would like to see the AQMP improved more. We still recommend that BHPB involve Aboriginal peoples who have Traditional Knowledge. We also urge BHPB to coordinate its air quality monitoring with Diavik Mine. The impact of dust likely goes beyond a single mine.

Finally, the Agency is disappointed that BHPB is not using new incinerators bought in 2006. These new incinerators could greatly reduce air pollutants. This may be very important because a 2009 Environment Canada study shows *dioxins and furans* from the mine are collecting in lake bottoms. ■



# Closure Planning at Ekati

## → Highlights:

The current Interim Closure and Reclamation Plan says that BHPB will not restore the pit lakes for fish use or passage.

BHPB went to court over whether the Wek'èezhìi Land and Water Board could require them to create fish habitat in pit lakes.

The Supreme Court ruled that it was too early to decide, and the Wek'èezhìi Land and Water Board should be allowed to do its job.

## Activities 2009-10

In April 2009, we were getting ready for the Wek'èezhìi Land and Water Board (WLWB) hearing on BHP Billiton's (BHPB) Interim Closure and Reclamation Plan (ICRP). This was interrupted by legal arguments from BHPB. Did the WLWB have

authority to require creating fish habitat at mine closure?

The Agency's May 5, 2009 submission to the WLWB's hearing on BHPB's proposed ICRP said:

"We are now about halfway through the active mine life, and as we move into this latter

phase, there is a need to be increasingly attentive to the plans being developed for closure and *reclamation* of the site. In our view, closure planning for Ekati should now be the overriding focus for all parties. This is the process that will establish the conditions for the site and



Waste rock pile revegetation plot.

the legacy left behind long after the company has left, and it is important for obvious reasons to get it right.”

We also said that the WLWB’s working group process had resulted in a closure plan that better fits the needs of the site, future users and the regulators.

We proposed that BHPB should do more work to parts of the ICRP that

were not complete by the hearing date. BHPB should submit the results of this work before approval of the ICRP. We also said that two serious issues need to be dealt with before approval of the ICRP. The first was a need to allow fish passage into cell E and the pit lakes and to make shallow zones in pit lakes for fish use. BHPB was the only member of the ICRP working group who disagreed with this position.

The second serious issue for the Agency was the *reclamation* research plans. They were not finished and may not be complete until the next review of the ICRP.

## Agency Comments

An important remaining issue with the current ICRP is BHPB’s proposal not to restore the pit lakes for fish use or travel. All older versions of the ICRP up to January 2007 did not mention fish barriers. BHPB now says that it is not required to reclaim the pit lakes, or cell E in the Long Lake Containment Facility (LLCF), so they can be used by fish or for fish to swim through. BHPB says it made an agreement with Fisheries and Oceans Canada (DFO) and paid money for the right to destroy fish habitat. So, BHPB says it does not have to create fish habitat.

The company is alone in this view. The Agency sees the correct *reclamation* goal for the pits and cell E is that fish should be able to travel through them. A further aim is to work toward pit lakes where fish might once again live. These aims fit the overall goal of returning

the site to a working ecosystem. BHPB’s plans do not. We argue that BHPB should be required to have closure plans for fish travel and for shallow zones. This is the right thing to do and it follows the best mine restoration standards of today.

When a mining company first develops ideas for closure, not everything about the mine and about what might work as a good closure action is known ahead of time. These unknowns need to be identified early, with a plan to do the needed research to answer the questions. This is a key part of planning for closure. The research must be done early in the mine’s life so answers can be used for *reclamation* and closure. To figure out if the company’s proposed research is acceptable, we need to know both what the plans are and when they will be carried out. In the Agency’s view, BHPB needs to provide more details on this.

In our May 5, 2009, intervention for the ICRP public hearing, we stated:

“In the Agency’s view  
arrangements made by other



Agency directors and legal counsel at Wek’èezhìl Land and Water Board public hearing, July 2009.

agencies cannot fetter the discretion of the Board with regards to its jurisdiction over closure planning..." and the Board "... thus has the authority and jurisdiction to direct changes to the ICRP, including where such changes may deal with fish or fish habitat."

On May 11, 2009 the company wrote to the WLWB stating:

"These statements are fundamentally contrary to BHP Billiton's position regarding the Board's jurisdiction and to the manner in which BHP Billiton has, in good faith, operated the EKATI Diamond Mine for over 10 years. BHP Billiton believes that it would be unproductive to continue with any further review or planning of reclamation work with this issue unresolved because the direction of further review or planning is dependent on its resolution."

BHPB asked the WLWB to hold a public hearing to find if the WLWB has the power to require the company to allow fish into the pits or to make fish habitat in the closed

pit lakes at Ekati. So the WLWB postponed its ICRP hearing and set another date in July 2009 to hear arguments on BHPB's motion.

The Agency, Tłı̨chǫ Government, DFO and Department of Indian and Northern Affairs (DIAND) participated at this hearing. We all supported the view that the WLWB is responsible for issuing BHPB's water licence, which can include conditions in closure plans. Therefore, the WLWB had the power to decide what BHPB should do about fish and fish

habitat when the mine closes. We said that this power was not changed by any agreement the company had with DFO to destroy or change fish habitat. BHPB said that in its original agreement with DFO, it had paid for the loss of fish habitat and therefore did not have to create any fish habitat or allow fish back into the pit lakes.

On July 27, 2009 the WLWB ruled that the DFO-BHPB Habitat Compensation Agreement did not limit the WLWB's power to require fish habitat as part of the ICRP for

the Ekati site. BHPB did not agree with this decision, and asked the Supreme Court of the Northwest Territories to review the WLWB's ruling (this is called a judicial review).

On March 15, 2010 Justice Vertes made his decision. He said it was too early to ask for a judicial review. The judge noted that *reclamation* is within the authority of the WLWB to decide. He observed that any agreement BHPB has with DFO is outside any other law. How it affects the WLWB's use of power is for the WLWB to decide. ■



Waste rock pile revegetation area.

# BHP Billiton Diamonds Inc. vs. Wek'èezhì Land and Water Board

Reasons for Judgement of the Honourable Justice J. Z. Vertes, Supreme Court of the Northwest Territories. March 15, 2010.

## Is there a conflict between DFO and WLWB legislation?

paragraph 35 – All of the responding parties dispute the applicant's premise that there is a conflict in the legislation so as to warrant the application of the “special over general” doctrine. ...The test for unavoidable conflict is where two pieces of legislation are directly contradictory. It is not a question of two statutes dealing with the same subject-matter. The application of one must implicitly or explicitly preclude application of the other. Here there is nothing in the *Fisheries Act* which would, on its face, be directly contradictory to anything in either the *MVRMA* (*Mackenzie Valley Resource Management Act*) or the *Northwest Territories Waters Act*. These statutes are all part of an integrated resource management scheme and are meant to work in a complementary fashion.

**Agency Interpretation** – DFO uses the *Fisheries Act* in its work, while the WLWB uses the *Mackenzie Valley Resource Management Act* and the *Northwest Territories Waters Act*. BHPB said that these laws overlap and allow the company to do different and conflicting things, but all the other parties did not agree. The judge said that the laws were all part of an overall system to manage mining. They are meant to work together, and there is nothing in one law that conflicts directly with the other law.

## Does the Compensation Agreement limit the jurisdiction of the WLWB?

paragraph 41 – There is no question that the particular matter, reclamation, is within the authority of the Board to decide. In BHP's submission, the scope of that decision is circumscribed by the 1996 compensation agreement. But that is something external to any statute. It may be part of the s. 35(2) authorization, as argued by some, or it may be an agreement

to pay compensation, and a contract as argued by BHP. How that affects the Board's exercise of its jurisdiction is something within the Board's mandate to decide. It is no different than any other external document.

**Agency Interpretation** – BHPB signed a Compensation Agreement with DFO when the Ekati Mine was approved to allow some lakes to be drained and then mined. The Agreement said that BHPB had to pay DFO a certain amount of money, in exchange for the fish habitat that would be destroyed when the mine was created. BHPB said that this agreement meant the WLWB could not tell BHPB to create more fish habitat. The judge suggested that this was not true. The agreement was made outside of any other law, and it is up to the WLWB to decide how to deal with it.

## Is it premature to bring forward the judicial review?

paragraph 61 – Counsel for Tłıchq argued that the order sought by BHP would amount to an order of prohibi-

tion. The Board would be foreclosed from considering any issue relating to fish habitat and reclamation with respect to the pit lakes. He also submitted that the Board should be allowed the “elbow room” to decide the substantive issues relating to BHP's reclamation plan on their merits, including all issues surrounding the pit lakes, without requiring the court to prematurely decide legal issues that, in the end, may or may not be relevant or necessary to decide. I agree.

**Agency Interpretation** – Tłıchq Government argued that if BHPB's request for a judicial review was allowed, the WLWB would never be able to consider any issue related to fish habitat and *reclamation* for the pit lakes. It also said that the WLWB should be given time to look at BHPB's *reclamation* plans, and make a decision on its own without the court being involved. The judge agreed.

## For the full document, see:

<http://www.justice.gov.nt.ca/dbtwwpd/textbase/judgments/pdfs/2010nwtsc23.pdf>

# Regional Monitoring and Cumulative Effects

## → Highlights:

Report on *cumulative effects* in the Bathurst herd summer range not yet released.

Revised joint management proposal for Bathurst caribou herd to be submitted by Tłıchq Government and GNWT to WRRB by May 2010.

Cumulative Impact Monitoring Program part of \$8 million funding allocation over two years by Government of Canada.

## Activities 2009-10

GNWT Environment and Natural Resources was expected to release a report on *cumulative effects* in the Bathurst caribou herd summer range in spring 2009. This report has not been released as of this writing. We hope this report will soon tell us more about how the mines impact caribou. It may help give us more ideas about how to change wildlife monitoring programs.

The Wek'èezhì Renewable Resources Board (WRRB) asked for a joint proposal on caribou management actions for the Bathurst herd from the Tłıchq and NWT governments in 2009. All three diamond mine monitoring agencies sent a joint letter for the public hearing held in Behchokq̓ in March 2010. It highlights the lack of progress on improving caribou monitoring and management of diamond mine effects. The letter

also states this work should become a higher priority for GNWT and the companies. The March hearing ended with the request for a revised joint management proposal to the WRRB by May 31, 2010. We will report more on progress next year.

Finally, we have some good news to report. There is funding for development and implementation of the Cumulative Impact Monitoring Program (CIMP) under the *Mackenzie Valley Resource Management Act* and the Nunavut General Monitoring Program under the Nunavut Land Claims Agreement. The federal government announced \$8 million over the next two years for these two programs. The new funding should allow for the development of the programs to be completed and then to start work under them. This should help to better monitor and manage *cumulative effects* in the Slave Geological Province and on the Bathurst caribou herd range, including the impacts of BHPB's mine. ■



Caribou trails at Ekati.



# How are the Government Regulators Doing?

## → Highlights:

Regulators remain effective.

Department of Fisheries and Oceans and Department of Indian Affairs and Northern Development dropped out of the judicial review about the Wek'èezhìi Land and Water Board's (WLWB) power on fish habitat.

Environment Canada did a useful study on lake sediments near the mine.

Government of the NWT is active on caribou issues.

WLWB ran a well-managed water licence process and review of the AEMP.

## The Regulators and Our Mandate

The Agency monitors the performance of BHP Billiton (BHPB) and the government agencies that regulate the mine. The regulators are still effective in making sure that BHPB runs an environmentally sound mine. We were pleased to see how the regulators work together.

### Department of Fisheries and Oceans (DFO)

DFO took part in the WLWB hearing on BHPB's challenge about fish habitat, but when BHPB appealed to the Court, DFO did not take part. We believe DFO should have continued, considering its role in protecting fish.

DFO staff is helpful to the Agency and others. They continue to work

on getting more information about what levels of contaminants are harmful to northern fish species.

### Department of Indian Affairs and Northern Development (DIAND)

We are pleased with the timing and detail of DIAND inspections. The inspector shows initiative and produces high quality reports. DIAND also contributed to the Environmental Impact Report (EIR) 2009 and AEMP reviews. Like DFO, DIAND took part in the WLWB hearing about jurisdiction, but then dropped out when the decision was reviewed in court. The Agency believes that DIAND was wrong to drop out.

### Environment Canada (EC)

EC continues to give good advice to BHPB and the Agency on ways to monitor air quality at Ekati. The Agency is pleased with EC's study to find out if burning garbage results in pollution of lake sediments and water.

### Department of Environment and Natural Resources (GNWT)

GNWT work on the EIR 2009 review was helpful, especially on wildlife. We think caribou monitoring at the mines should be a higher priority.

### Wek'èezhìi Land and Water Board (WLWB)

The Agency has a good working relationship with WLWB staff. They are open and helpful in providing information. When the WLWB joined the two water licences for Ekati into one, the process was well-run. The Agency appreciated how the WLWB dealt with the issue of its power over fish and fish habitat as part of closure planning.

We are disappointed that the WLWB decided to let BHPB use Beartooth Pit as a minewater sump without fully exploring other ideas. The WLWB also needs to do more work on how BHPB uses the results of its water and fish monitoring. ■



# How is BHP Billiton Doing?

## → Highlights:

BHPB operates Ekati in an environmentally sound way with room for improvement.

Need to move forward on *reclamation* planning and research.

Lack of progress in reviewing the wildlife monitoring programs.

BHP Billiton (BHPB) runs the Ekati Mine in an environmentally sound way. There is, however, always room to improve.

We were pleased that the company agreed to change its Reclamation Research Plans while we waited for the decision on Wek'èezhìi Land and Water Board (WLWB) jurisdiction. We believe it was correct for BHPB to get answers on who had the power or authority to decide what happens with fish and fish habitat at closure. Yet, we are disappointed that after more than a year, we are back at the same point with little progressive *reclamation*. We all need to move forward with the top priority for Ekati – having a detailed plan in place to close the mine so it is part of an area with a healthy ecosystem afterwards.

We found the Environmental Impact Report (EIR) 2009 to be not good enough, resulting in a Minister's Report from the Department of Indian Affairs and Northern Development.

It seemed to us that the company had ignored our comments on the last EIR in 2006. We are pleased to report that many concerns were resolved in some helpful meetings after the Minister's Report. There is broad agreement now on how to work better together next time. The Agency remains concerned that the EIRs do not properly address the changing water quality downstream and how caribou avoid the site.

The Agency was disappointed at the lack of progress on reviewing wildlife monitoring programs. With great public concern over caribou, there is a need to respond with better monitoring and management. We are willing to work with BHPB to ensure that wildlife management is the best it can and should be.

The three-year review of the Aquatic Effects Monitoring Program was satisfactory. The company was helpful about suggested changes and answered

requests for more information.

The 2008 Air Quality Monitoring Program report was sent out in October 2009. The Agency has hired independent experts to review the report. Improvements should be ready for the 2011 sampling season.

BHPB's environmental monitoring programs have generally improved over the years. However, we are still not clear on how the results are used or how changes are made. ■



Underground Operations Centre at Ekati.

# Agency Recommendations for 2009-10

## 1 Recommendation

The Agency recommends that BHPB, ideally in collaboration with ENR and other mines, complete its diamond mines wildlife monitoring review and develop an improved Wildlife Effects Monitoring Program (WEMP), including addressing recommendations from the September 2009 workshop, evaluating monitoring program objectives, and developing innovative methodologies and study designs to address these objectives.

**BHPB Response:** BHPB has committed to continuing the WEMP review process and has suggested two workshops in 2010 to facilitate technical and community collaboration with the aim of developing an improved WEMP.



Explaining Ekati geology.

## 2 Recommendation

We recommend that BHPB invite all interested parties to an Environmental Impact Report (EIR) workshop to be held not later than spring 2011. This will make the results available in time for BHPB's preparation of the 2012 EIR and hopefully avoid disagreement on future EIRs. The workshop should better define the purpose and focus of the EIR, review the methodology used (especially for determining significance of impacts), better define *adaptive management* in the context of the Ekati Mine, and such other matters as others may contribute.

**BHPB Response:** BHPB has committed to an open "pre-EIR" meeting in 2011 to kick off the 2012 EIR process. The workshop could address the items identified by IEMA as well as other topical issues.

**DIAND Response:** Indian and Northern Affairs Canada (INAC) supports this recommendation and will participate in any workshops or other discussions concerning the development of the 2012 EIR.

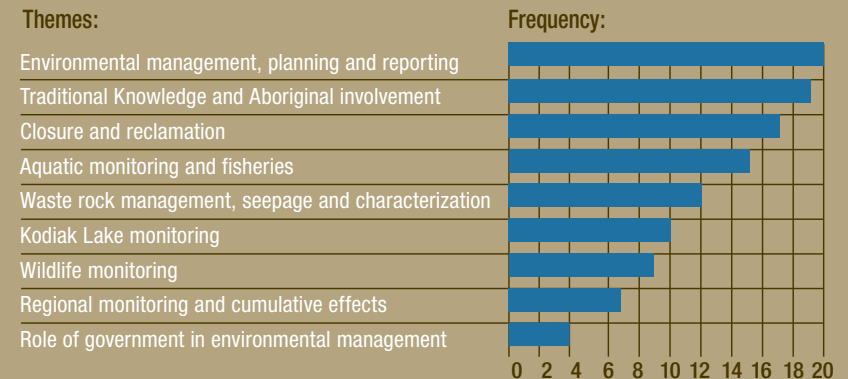
### 3 Recommendation

BHPB should carry out and make public a 10-year review of its use of Traditional Knowledge (TK) in its environmental plans and programs. This review should document how the company has given full consideration to the incorporation of TK into environmental plans and programs, the successes and lessons learned from the TK Studies, and what changes or improvements in *adaptive management* can be attributed to TK.

**BHPB Response:** BHPB recognizes the importance of the inclusion of Traditional Knowledge into our environmental practices and designs. There are a number of past and current successes in which BHPB is proud to have played a part. BHPB sees better value in pursuing forward-looking opportunities rather than a retrospective review. This approach inherently incorporates past experience in a constructive manner.



#### Agency Recommendation Themes 1997-2010



Recommendation Recipient	Frequency of Recommendations
BHPB	83
Government (GNWT, GN, Government of Canada)	13
Water Boards (NWT Water Board, MVLWB, WLWB)	8
Environmental Agreement signatories	3
Aboriginal Society Members and BHPB	3
Aboriginal Society Members	1
All Agency Society Members	1
Total	112



Independent Environmental Monitoring Agency: left, Monica Krieger. Far left, (back row, left to right): Tony Pearce, Kevin O'Reilly; and, (front row, left to right): Bill Ross, Kim Poole, Laura Johnston, Audrey Enge, Tim Byers, Jaida Ohokannoak.

# Glossary

## **Adaptive Management -**

A management system with continual monitoring so that if initial mitigation measures are ineffective, additional or alternative mitigation is applied to keep the impact within acceptable levels.

**Benthos -** The bottom of rivers, lakes and ponds that can contain living organisms (e.g. benthic invertebrates). Benthic invertebrates like mosquito larvae are an important food source for small fish.

**Chlorides -** Salts resulting from the combination of the gas chlorine with a metal. Small amounts of chlorides are required for normal cell functions in plant and animal life, but fish and aquatic communities cannot survive in high levels of chlorides.

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

**Dioxins and Furans -** Toxic substances released into the atmosphere primarily from waste incineration. They are

extremely persistent and can accumulate in biological tissues.

**Environmental Agreement -** Created as a legally binding instrument to provide monitoring and input into management practices not covered by other authorizations. Parties to the Ekati Environmental Agreement include BHP Billiton, the federal and territorial governments (Akwaitcho Treaty 8, Kitikmeot Inuit Association, North Slave Métis Alliance and Tłıchq Government were involved in the negotiations).

**Fry -** Early life stage of fish following absorption of yolk sac (alevin) stage.

**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.

**Nitrate -** A nutrient, like a fertilizer, derived from nitrogen.

**Phosphorus -** A plant nutrient that can cause rapid bacteria and algae growth when present in high amounts.

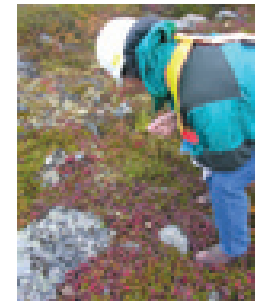
**Phytoplankton -** Microscopic plants, such as algae, found in freshwater and ocean environments. They are an important food source for zooplankton.

**Processed Kimberlite -** The waste material and water mixture that is left over after the mill removes the diamonds. Also referred to as "tailings".

**Reclamation -** The recovery to viable ecosystems 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 diamonds from the ore. Also referred to at Ekati as processed kimberlite.

**Zooplankton -** The small, mostly microscopic animals that live suspended in freshwater (and ocean) environments. Zooplankton feed on phytoplankton and small particles in the water. They are an important food source for small fish.



Left: Tundra flowers.

Above: Looking at plants.

# Acronyms

<b>AEMP</b>	Aquatic Effects Monitoring Program	<b>ICRP</b>	Interim Closure and Reclamation Plan
<b>AQMP</b>	Air Quality Monitoring Program	<b>IEMA</b>	Independent Environmental Monitoring Agency ("the Agency")
<b>BHPB</b>	BHP Billiton	<b>LLCF</b>	Long Lake Containment Facility
<b>CIMP</b>	Cumulative Impact Monitoring Program	<b>MVRMA</b>	Mackenzie Valley Resource Management Act
<b>DFO</b>	Department of Fisheries and Oceans	<b>NWT</b>	Northwest Territories
<b>DIAND</b>	Department of Indian Affairs and Northern Development (also known as Indian and Northern Affairs Canada or INAC)	<b>PDC</b>	Panda Diversion Channel
<b>DNA</b>	Deoxyribonucleic Acid	<b>PK</b>	Processed Kimberlite
<b>EC</b>	Environment Canada	<b>SPB</b>	Sable, Pigeon and Beartooth
<b>EIR</b>	Environmental Impact Report	<b>TK</b>	Traditional Knowledge
<b>ENR</b>	Environment and Natural Resources (GNWT)	<b>WEMP</b>	Wildlife Effects Monitoring Program
<b>GHG</b>	Greenhouse Gases	<b>WLWB</b>	Wek'èezhii Land and Water Board
<b>GNWT</b>	Government of the Northwest Territories	<b>WPKMP</b>	Wastewater and Processed Kimberlite Management Plan
<b>IACT</b>	Inter-Agency Coordinating Team	<b>WRRB</b>	Wek'èezhii Renewable Resources Board



A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

# PLAIN LANGUAGE ANNUAL REPORT 2009-10

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