



PLAIN LANGUAGE



INDEPENDENT
ENVIRONMENTAL
MONITORING AGENCY

A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

ANNUAL REPORT

2010-11



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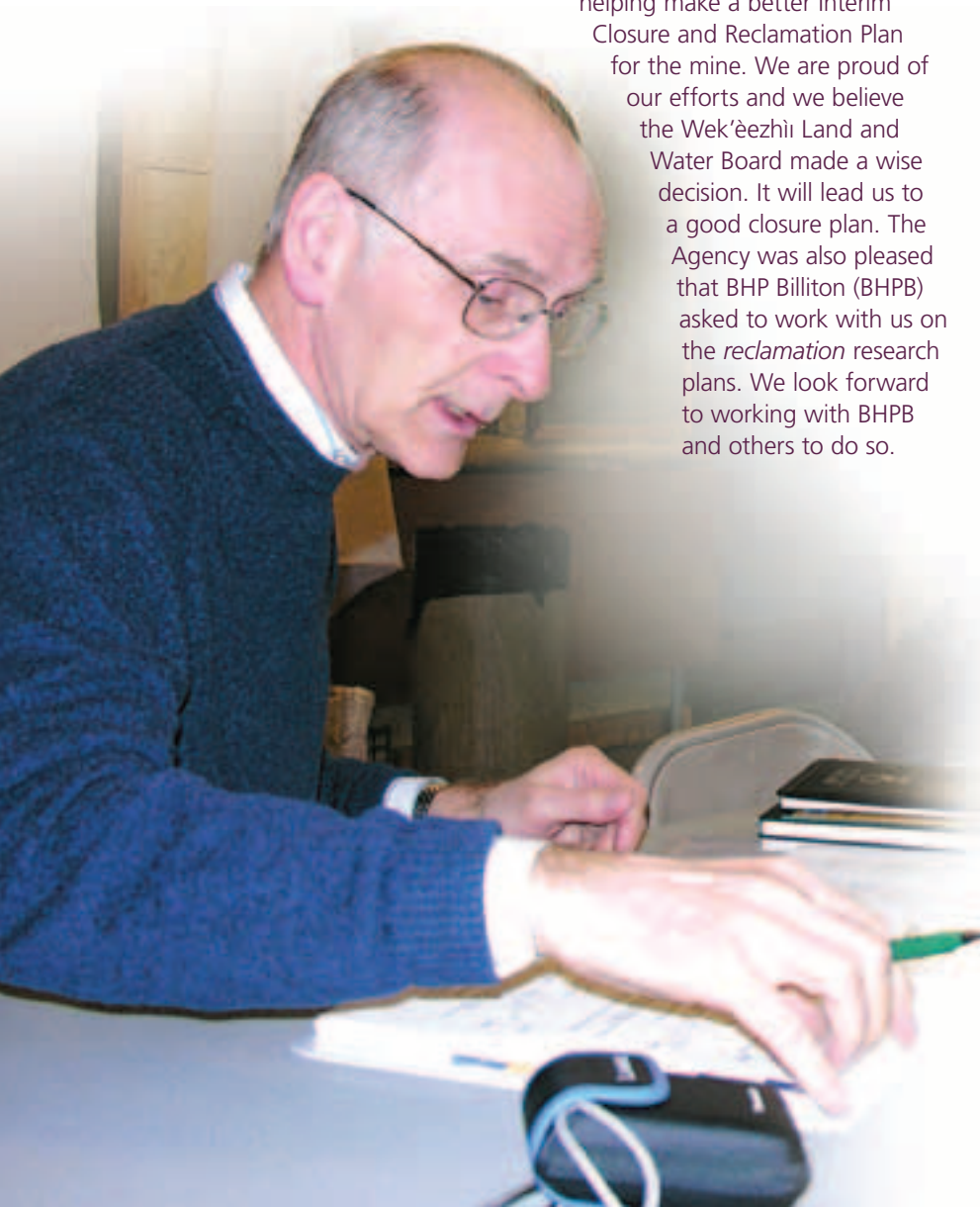
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Message from the Chair 2011



Our main activity last year was helping make a better Interim Closure and Reclamation Plan for the mine. We are proud of our efforts and we believe the Wek'èezhìi Land and Water Board made a wise decision. It will lead us to a good closure plan. The Agency was also pleased that BHP Billiton (BHPB) asked to work with us on the *reclamation* research plans. We look forward to working with BHPB and others to do so.

Problems with the 2009 Environmental Impact Report (EIR) seem to be solved. BHPB has promised to hold a workshop on this subject in the fall of 2011. We have sent out a discussion paper with our suggestions on how to improve the EIR. We look forward to a good workshop which should help BHPB prepare the 2012 EIR.

We are not satisfied with the outcome of the Diamond Mine Wildlife Monitoring Program Review. The mines did work together, but the resulting monitoring program for EKATI™ Diamond Mine does not seem to meet its goals. We have made suggestions to improve the Ekati wildlife monitoring program for future years. We also support the new NWT *Wildlife Act*. It will make for stronger wildlife monitoring.

The Air Quality Monitoring Program has improved because of work by BHPB staff. We still see some ways to make it better, and we are pursuing these. After a good workshop about air quality, we recommended that BHPB start running its new incinerator as soon as possible.

As suggested by our Society Members, another big change has been better Agency communication.



We followed advice from our annual general meetings and from the SENES Consultants report (2009) on Agency performance. We have improved our main website. We have also started our Ekati Timeline Project. This is a new website with information and pictures showing major events in the history of the Ekati Mine. We also send out short summaries of our meetings and summary brochures after community visits.



As always, we welcome your ideas and will try to answer any questions. ■



*William A. Ross, Chairperson
March 31st, 2011*



Agency Meeting with Kitikmeot Inuit Association.

-  *Appeared at WLWB public hearing on Interim Closure and Reclamation Plan.*
-  *Took part in Diamond Mine Wildlife Monitoring Program Review.*

-  *Workshop on air quality and review of snow sampling.*
-  *Discussion paper on Environmental Impact Report.*

-  *Three board meetings and AGM in Yellowknife. Board meeting and visit in Kugluktuk.*
-  *Better communications and launch of new Ekati Timeline website.*

How We Do Our Work

Activities 2010-11

We had three board meetings in Yellowknife this year and held our annual general meeting in November 2010. We made a site visit to the Ekati Mine in September 2010.

In March 2011 we went to Kugluktuk for a board meeting, community open house, and made visits to the schools. We also met with Kitikmeot Inuit Association staff and the Government of Nunavut regional biologist. Our open house had many visitors and people told us their concerns about environmental changes seen so far at Ekati. They also asked what the pits will look like after the mine closes, and what happens to wildlife involved in accidents.

The Agency met in summer 2010 with BHP Billiton (BHPB) to talk about our review of the 2008 Air Quality Monitoring Program

Streets of Kugluktuk.



(AQMP) report. In November 2010, we held a workshop about air quality. We talked about the AQMP and what BHPB is doing to improve air monitoring. In December 2010, we met with BHPB staff and the Government of the Northwest Territories (GNWT) to talk about the way the company does snow sampling.

In September 2010, the Agency appeared at the Wek'èezhìi Land and Water Board (WLWB) public hearing on BHPB's Interim Closure and Reclamation Plan (ICRP). The hearing focused mostly on what will happen to the pits when the mine closes and what research is being done to help make sure the mine is closed properly.

We took part in the Diamond Mine Wildlife Monitoring Program Review. There was a technical workshop in June 2010 and a community and Traditional Knowledge workshop in October. In August 2010 in Behchokò, Agency staff went to a Wek'èezhìi Renewable Resources Board public hearing. The Board was reviewing the joint proposal from the GNWT and Tłı̨chǫ Government for managing caribou herds.

Three meetings were held this year by the Inter-Agency Coordinating

Team (IACT). IACT includes the Agency and government regulators. The group also visited the Ekati Mine site in July 2010.

Twice a year meetings are held between the Agency and

Environmental Agreement signers (BHPB, GNWT and Government of Canada). These meetings improve communication and allow for activity updates. They took place in June 2010 and January 2011.

How Do We Consult and Communicate?

The Agency communicates using:

- Plain language and technical annual reports;

Agency presentation at Kugluktuk Elementary School.



Agency presentation at Kugluktuk High School.



Agency Meeting with Kitikmeot Inuit Association.



- Annual report summary sent to each household in our Aboriginal Society Member communities;
- Website and library of Ekati information;
- Annual general meeting (AGM);
- Environmental workshops;
- Summaries of meetings and workshops;
- Agency newsletter; and
- Booklet sent out after each community visit, including photos and community concerns heard.

In 2010-11 we started our old newsletter again (the Ekati Monitor). It is sent out twice a year. We also made big changes to our main website and started the Ekati Timeline Project. This is a new website where you can look at major events and photos in the history of the Ekati

Mine. Now we are working on a communications plan and better organizing our library and photos.

Director visits to communities are another way the Agency communicates. We try to send a director or staff to any community that asks for information about Ekati. In March 2011 we visited Kugluktuk.

How are we doing?

Our Society Members say they are happy with the way the Agency is doing its job. We heard other positive comments at our 2010 AGM and during our visit to Kugluktuk.

The Agency is proud of our part in the closure plan. It is much better now. We are very pleased that BHPB and the WLWB adopted many of our suggestions.

We had an important part in the Diamond Mine Wildlife Monitoring Program Review. Working together was useful, but the results were less than expected. We wanted BHPB to show how it has used monitoring to change and improve how it protects the environment. We also pushed for better caribou monitoring. We will continue to offer help to BHPB to improve wildlife monitoring. ■

2010 Agency annual general meeting.



Environmental Impact Report (EIR) Discussion Paper

The *Environmental Agreement* says that BHPB must write an EIR every three years. The EIR tells us about the longer term effects of the Ekati Mine. It compares the real environmental results to what was predicted in 1995. We see the EIR as an important management tool for Ekati. In our 2009-10 annual report, we talked about our review of the 2009 EIR. We said it was not acceptable. BHPB later made many changes to the EIR. In January 2011, we also sent out a discussion paper to help BHPB prepare the 2012 EIR. There will also be a workshop in August or September 2011.



Agency Recommendations from the EIR Discussion Paper

1. BHPB should talk to INAC, GNWT, Aboriginal governments and the Agency before writing each EIR.
2. BHPB should turn the focus of the EIR to the longer term effects of the mine and how it can learn from this information.
3. BHPB should give examples of how it has changed its monitoring programs because of what it has learned so far.
4. BHPB should include details and highlights of its own internal reviews of environmental monitoring and management.
5. BHPB should show more clearly how it decides whether the mine has had significant effects on the environment. This should include clearer information where BHPB is unsure and/or where more research is needed.
6. Effects should be considered as the change from the baseline conditions (what the area was like before the mine). They should show what may happen in the future without any action.
7. BHPB needs to submit its EIR on time and with the plain language summary. The plain language summary should reflect what is in the full EIR.
8. INAC, BHPB, GNWT and the Agency should better track EIR comments, responses and Minister's decisions.
9. INAC needs to have a better way to ask for comments on the EIR and to make decisions about it, all within the timelines set out in the *Environmental Agreement*.

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 divided into five sections (cells A to 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 amounts set in the water licence.



2 Main Camp

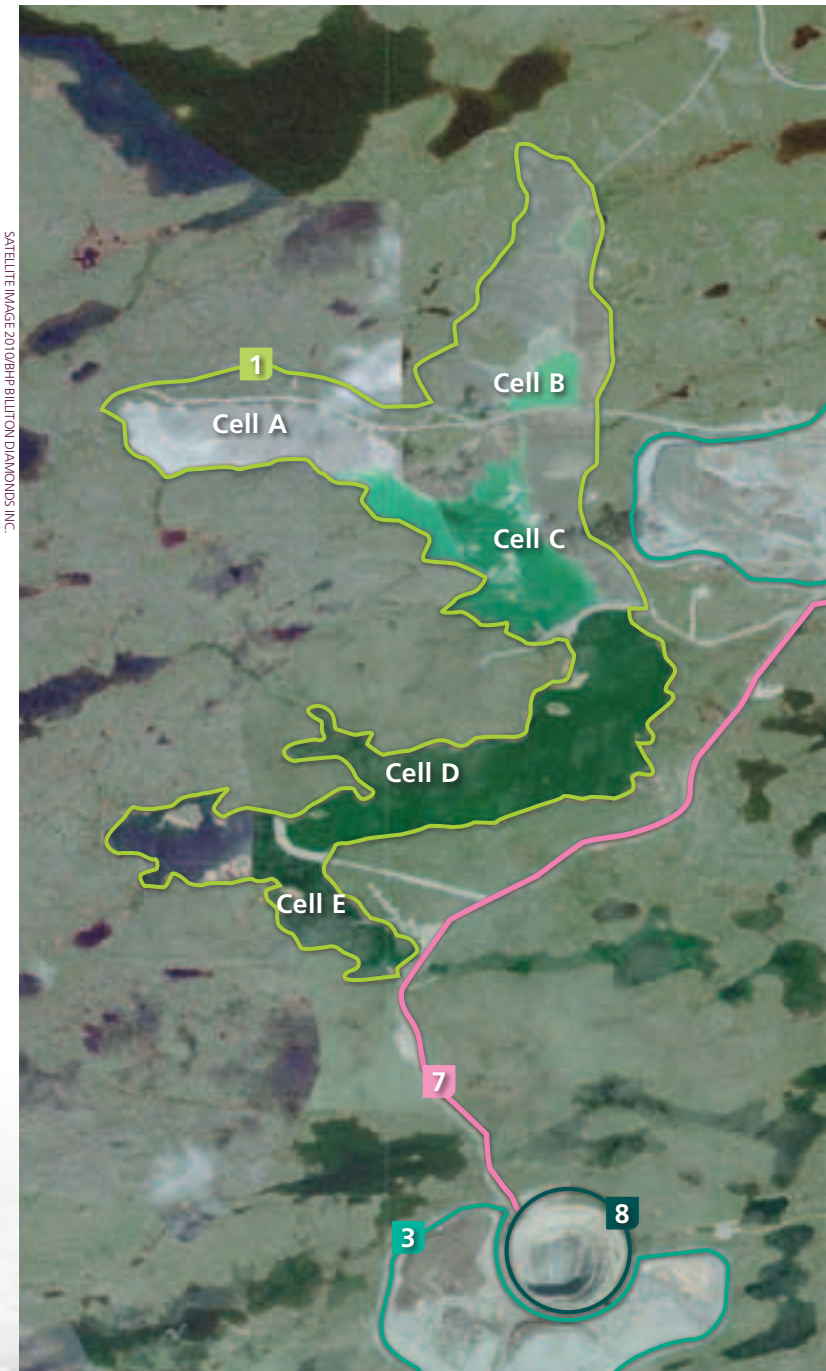
This area includes an accommodation building for hundreds of workers, a power plant, a truck shop, and a processing plant where the diamonds are removed from the *kimberlite*.



3 Waste Rock Piles

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

SATELLITE IMAGE 2010 BHP BILLITON DIAMONDS INC.





4 Beartooth Pit

BHPB has finished mining ore from Beartooth Pit. In 2009 the company asked to store minewater in the pit, and the WLWB agreed.



5 Panda and Koala Pits

Open pit mining has finished here. Underground mining is also finished at Panda, but still happening at Koala. 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 chemicals to reduce dust on the roads. It makes sure that chemicals do not seep into the lakes and streams near the roads.



8 Fox Pit

This is the biggest pit at Ekati and most diamond production is happening here.



9 Misery Pit

BHPB stopped mining at Misery Pit in 2005. The company plans to restart mining here with work starting in 2011.

PHOTO COURTESY OF JIRI HERMANN/BHP BILLITON DIAMONDS INC.



Revegetation at Fay Bay spill site (western track).



BHPB is looking at different ways to manage the LLCF.



Changes to design of Misery waste rock pile approved by WLWB.



Agency concerned with WLWB check of Wastewater and Processed Kimberlite Management Plan.

Wastewater and Waste Rock

Beartooth Pit filling with water.



Activities 2010-11

During the past year BHPB still sent processed kimberlite (PK) into the Long Lake Containment Facility (LLCF). The company made two changes to the LLCF during 2010:

- Raised dyke C to increase the storage space of cell C; and
- Built a rock pad in cell B to distribute PK better.

BHPB has told us it is looking into other ways to manage PK. Cell B of the LLCF is almost full of PK. Other ideas of all kinds are being looked at, so they can avoid or delay using cell D for PK. (Cell D is supposed to be an extra area to help keep the water cleaner.) BHPB is also:

- Studying the *extra-fine processed kimberlite* in cell C;
- Looking at results of the experiments to reduce *nitrites* in cell D; and

- Developing a goal for how much molybdenum (a heavy metal) to allow in water at Ekati.

BHPB is still watching the area where PK spilled from cell B into Fay Bay in May 2008. More monitoring of this area is planned. The area is stable. There is no more erosion. Natural plants are growing back on the tracks of the spill.

BHPB did regular monitoring of water seepages from the waste rock piles. This is required under the water licence and the waste rock management plan. In 2010 BHPB reported there were no big changes to existing seeps. Two new seeps were seen and will be watched more closely in 2011. No more monitoring will be done at Sable Lake because there is enough data now (10 years) before any mining might take place. Large areas inside the Fox waste rock pile may not be freezing as quickly as predicted.

BHPB sent out an updated Wastewater and Processed Kimberlite Management Plan (WPKMP) in early 2010. The Agency sent comments to the WLWB about a number of problems. We noted there was less detail and explanation of issues and actions. In June 2010, the WLWB approved the plan but the company had to make some changes. BHPB sent in a revised plan in August 2010. It was given final approval after a check by WLWB staff.

BHPB is planning to start mining again at the Misery pipe. In December 2010, the company asked the WLWB for a change to the design of the Misery waste rock pile.

Agency Comments

Long Lake Containment Facility

We had no major concerns about the operation of the LLCF during the past year. We hope that BHPB will involve others when they look at future options for PK management.

We are glad to hear that more studies are being done on *extra-fine processed kimberlite* as this material can take a long time to settle properly. We have been concerned about the problems this material could cause after the

mine closes. We look forward to seeing the results of this work.

Waste Rock Seepage Survey

The Agency reviewed the 2010 report and has no major concerns with the results.

Wastewater and Processed Kimberlite Management Plan

We had some concerns with how WLWB staff checked this plan before they approved it. We thought that BHPB had not provided a lot of the information they were asked for and had not made the changes that were requested. We wrote a

letter to the WLWB in January 2011 about this issue. We also met with WLWB staff in November 2010. We understand that the WLWB will now make sure they give clearer directions to companies if any changes are needed for reports.

BHPB will also be making more changes to the WPKMP after they finish looking at options for the LLCF.

Misery Waste Rock Pile—Request for Changes

The Agency supported the changes to the Misery waste rock pile

proposed by BHPB. We like that Desperation Pond can be used as a settling pond if needed, instead of being covered by waste rock. We also like the lower risk to Carrie Pond since the southern lobe of waste rock is gone. However, there were not enough details about the upcoming mining at Misery. Also, the last waste rock management plan was approved in 2001 so it needs to be updated. In February 2011, the WLWB approved BHPB's request but told them to update the plan within three months. ■

Minewater outfall into Beartooth Pit.





Revegetation at Fay Bay spill site (emergency road bed).





Tłıchǫ Government Office in Behchokǫ.

 BHPB has a new staff position, Environment Advisor – Traditional Knowledge.

 Community and TK workshop on wildlife monitoring was not as successful as hoped.

Traditional Knowledge

Activities 2010-11

BHP Billiton (BHPB) reported the following Traditional Knowledge (TK) and community cultural projects in 2010:

- Held two workshops (one technical, the other community and TK) plus a site visit for the Diamond Mine Wildlife Monitoring Program Review;
- Reviewed a proposal from Łutsel K'e Dene First Nation for a TK Archive Project;
- BHPB staff attended the 13th North American Caribou Workshop (October 2010);

- Naonayaotit Traditional Knowledge Project (NTKP) with Kitikmeot Inuit Association, started in 1996, now completed with new computer mapping software;
- Community visits;
- Two cultural workshops at the Ekati Mine: Dene Drum Making with the Tłıchǫ and Seal Skin Mitt Making with Inuit of Kugluktuk (films were made of both workshops);
- Funding for community programs, like Breakfast for Learning and youth career programs; and
- Funding for community events: cultural program in N'dilo, education programs in Dettah, the Tłıchǫ Annual Gathering, the Łutsel K'e Annual Spiritual Gathering, and the Kugluktuk Annual Fishing Derby.

Environment Advisor – Traditional Knowledge

BHPB also reported a new staff position, Environment Advisor - TK. This person will:

- Look after the mine's TK strategy;
- Talk with communities, TK stakeholders, and local governments to plan community TK projects;
- Organize site visits for community members to show them how BHPB monitors the environment and provide better follow-up; and
- Help plan projects at Ekati which will show how TK can be used to improve monitoring programs.

The Agency has met with the new TK advisor. BHPB is also discussing TK work with the other diamond mines, including sharing resources and funding for community projects.

October 2011 wildlife workshop.



Community and TK Workshop

Agency directors and staff took part in the community and TK workshop in October 2010. It was part of the Diamond Mine Wildlife Monitoring Program Review.

The workshop had two main goals:

- Talk about how the mines monitor wildlife and how TK can be used in those programs; and

- Get ideas from community members on how to improve wildlife monitoring programs.

Agency Comments

The Agency wrote a letter to BHPB in early 2011 about the Diamond Mine Wildlife Monitoring Program Review. We said the process was too long and the results were not very useful. We were very disappointed

that the community and TK workshop did not reach its goals.

We are still concerned that BHPB has not reported how TK has been used to improve environmental programs at Ekati. In our 2008-09 annual report, we recommended that BHPB write a 10-year review on its use of TK. We made the same recommendation again last year. We are disappointed that

BHPB has still not done this work.

However, the Agency is pleased that BHPB has hired a staff member dedicated to TK issues. This position should help BHPB use TK to improve environmental monitoring and management at Ekati. We look forward to reviewing the results of these new projects. We continue to offer help in this area. ■

Tłıchǫ Elders.



Kugluktuk Komatik.




Kugluktuk open house.






Caribou.

 *Technical and Traditional Knowledge workshops for the Diamond Mine Wildlife Monitoring Program Review.*

 *Progress on grizzly bear monitoring is very slow.*

 *BHPB and GNWT-ENR should agree to a review of wildlife monitoring and management every three years.*

Wildlife

Activities 2010-11

BHP Billiton (BHPB's) Wildlife Effects Monitoring Program (WEMP) tells how mining activities impact wildlife. The latest WEMP report for Ekati covers October 1, 2009 to September 30, 2010. The report tells about wildlife habitat and how different animals are monitored. These animals include caribou, grizzly bears, wolverines, wolves, foxes and falcons.

Ekati Mine Footprint

The mine footprint increased by only five hectares during 2010. The total footprint of the mine site now covers 2,998 hectares or 30 square kilometres. (A hectare is about the size of an outdoor soccer field.)

Wildlife Incidents

BHPB continues to try to improve its waste management so animals are not attracted to the landfill. The company tries not to have wildlife

accidents and keeps wildlife out of dangerous areas like the airstrip or the pits. BHPB reported there were:

- 6 animal deaths from truck collisions (2 Arctic hares, 1 Arctic ground squirrel, 1 red fox, and 2 ptarmigan) at Ekati in 2010;
- 18 non-vehicle wildlife deaths were seen (7 caribou, 3 fox, and 8 birds);
- Other animals were seen in the area (46 grizzly bears, 25 wolves, 18 wolverines and 174 foxes) and sometimes the animals had to be chased away; and
- 6 muskoxen were seen near Fay Bay in June 2010.

One caribou death in 2010 was caused by getting caught in the airport fence. (This happened to 4 caribou in 2009.) BHPB has replaced the electric fence with a bright orange plastic fence so this will hopefully not happen again.

New fencing at airstrip.



Caribou Monitoring

No caribou surveys by plane were done this year. 11,571 caribou were seen in 2010 in the Ekati area, most of them in October and early November. Traffic on the Misery Road was stopped twice so that large groups of caribou could pass. BHPB watches caribou crossing the roads and looks at their tracks in the snow. Results show that caribou are less likely to cross a road where there are high snow banks.

Diavik Diamond Mine studied the caribou behaviour data (1998-2010) from both Diavik and Ekati. The combined results show that nursery groups of caribou (cows with calves) spend less time feeding and resting when they are within 5 km of the mines. Several other studies have been done which show that caribou avoid going within 14 to 20 km of mine activities.

Caribou numbers are still a concern. The summer 2009 survey done by Government of the Northwest Territories, Department of Environment and Natural Resources (ENR) of the Bathurst herd showed 32,000 animals. This is a 90% drop over the past 20 years, and more than a 75% drop since 2006. Many reasons for this have been suggested.

Grizzly Bear Monitoring

Grizzly bears on the barrenlands use very large areas. In 2010, there was no formal monitoring of grizzly bears. Instead there was a pilot study that tested hair snagging on barbed wire posts, like what is done for wolverines. More pilot studies are planned for 2011. Full scale grizzly bear monitoring is expected in summer 2012.

Wolf and Fox Monitoring

BHPB works with ENR to study wolves in the Ekati area. Once a year den sites are visited. Of 19 dens used in the past, only two were used by wolves in May/June 2010, but no pups were seen in August. Only one den has been successful since 2007. This might be linked to lower caribou numbers. Only red foxes were seen in 2010. During the mid-1990s, Arctic foxes were seen more often than red foxes.

Wolverine Monitoring

The wolverine DNA study started again in April 2010, with the same studies held at Diavik and Daring Lake. In 2010, 13 males and 11 females were identified from DNA in the hair samples. Altogether over the 2005 and 2006 and 2010 studies, 51 wolverines (28 males and 23 females) have been

identified in the Ekati area. Hair snagging was also done in April 2011. This work should allow for a better understanding of how many wolverine are in the area, what the animals are doing and whether the mines are having any effects on the wolverine.

Bird Monitoring

Tundra breeding bird monitoring is no longer done at Ekati. The North American Breeding Bird Survey was done for the eighth year. Raptors continue to successfully nest on most pit walls at Ekati. Regional raptor surveys were done with ENR and Diavik. These studies found continued high use by peregrine

falcons (14 sites occupied; chicks at five sites), with only one site used by gyrfalcons (successful).

Diamond Mine Wildlife Monitoring Program Review

The Agency took part in two workshops about wildlife monitoring at diamond mines. The technical workshop (June 2010) made recommendations for the current programs. The TK workshop (October 2010) was a chance for community people to suggest changes and improve monitoring programs. BHPB replied to the workshop suggestions in March 2011, after it had filed for its annual research permit.

Arctic fox and grizzly bear.



Proposed changes to the Ekati WEMP for 2011 were:

- Work with Diavik to study how caribou behave around mine sites;
- Test ways of monitoring that do not disturb caribou as much;
- Continue pilot studies to collect hair from grizzly bears for DNA analysis; and
- Do the wolverine DNA study in spring 2011.

BHPB has not said whether they will do caribou surveys by plane again in 2012.

NTWT Wildlife Act Presentation

In early 2011, ENR released a draft of the new *Wildlife Act*. At our November 2010 Board meeting, ENR made a presentation on the new law.

Barren-Ground Caribou Management Strategy

In February 2011 ENR released a draft report called 'A Barren-Ground Caribou Management Strategy for the Northwest Territories 2011-2015'. One suggestion was to look at *cumulative effects*. How do past, present and future land use activities impact caribou, especially when combined with natural factors? How can we reduce these impacts? We urge ENR to be more

active in this area. BHPB should work with ENR to develop best wildlife management practices.

Agency Comments

Review of the 2010 WEMP Report

The WEMP report was well written. It tells about existing programs at the Ekati Mine. The updates on caribou seasonal movements and ranges were a big improvement. We think the discussion part of each section should have more details on long-term trends and the importance of results. We would like the next WEMP to include more on the big picture of what is happening to wildlife at Ekati. BHPB should also talk about how it tries to reduce impacts on wildlife, and whether those plans are working.

Diamond Mine Wildlife Monitoring Program Review

We believe that working together on this review is good. However, we are disappointed with the slow progress. Have the promised benefits happened? ENR should have been a stronger leader during the review. BHPB has removed major programs from the WEMP over the past three years. Replacement programs have been very slow to

develop. For example, no real grizzly bear monitoring has happened at Ekati since 2008. BHPB says it needs more pilot studies, but hair snagging for DNA has already been done for many years elsewhere. We need to know if the mine is having any effects on grizzly bear movements and population numbers.

We believe BHPB should try harder to find out why the caribou are avoiding the Ekati Mine. We urge BHPB to take responsibility to understand and reduce its impacts on caribou. We believe that real work on the effects of the mine on caribou has been too slow.

BHPB plans to test some new ways of monitoring caribou. The company wants to try using special cameras installed in helicopters and remote control aircraft. These can fly higher than airplanes and might not disturb caribou as much. However, these methods have not been tested well, especially in the North. Without a lot of testing, we cannot be sure these methods will give us better information than airplane surveys.

Caribou numbers may be at their lowest point, and we need to see if they start to increase again. Also, there will be more activity on the Misery road next year,

which could cause more impacts to caribou. We think BHPB should restart airplane surveys in 2012.

The WEMP should be designed to find out which mining activities disturb caribou. In particular, is dust causing caribou to avoid the mine site? If so, what can be done to reduce these impacts on caribou? We suggest that BHPB carry out a study to test the impacts of dust on the way caribou move around the mine site. This could be done with ENR and other mines.

The WEMP review process could be better. We suggest that BHPB and ENR agree to a review of wildlife monitoring and management every three years. Also, our latest copy of the wildlife management plan is from 2000. An update to this plan is greatly needed.

NTWT Wildlife Act

The Agency supports the new *Wildlife Act*. Wildlife monitoring programs will need to be approved and can be enforced by ENR. We feel the new *Act* should apply to existing projects like Ekati as well as new projects. ■



Draft guidelines on how to learn from and use water monitoring results were sent out by the WLWB.



BHPB is managing nitrate but some metals are still high in mine wastewater.



Several changes were made to the 2010 AEMP after the three-year review.



BHPB is making the PDC wider so the walls will be more stable.



Guidelines for water quality and waste management sent out by Land and Water Boards.



Seep site near Bearclaw Lake.

Water and Fish

How BHPB Monitors the Water

BHPB Billiton (BHPB) checks the water downstream of the mine and compares the results to other lakes and streams away from the mine. The company checks the tiny plants (*phytoplankton*) and bugs (*zooplankton*) living in the water to see if the mine has been affecting them. It also collects sediments and mud from the lake bottoms. Figure 1 shows the places where BHPB takes these samples as part of their Aquatic Effects Monitoring Program (AEMP).

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 (*processed kimberlite*); and
- Salty water from underground that seeps into the pits.

BHPB pumps all the dirty water and *processed kimberlite* into the Long Lake Containment Facility (LLCF). Most of 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. BHPB can only pump water into these lakes 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.

Wastewater from the Misery site was pumped into King Pond. BHPB is also pumping minewater into Beartooth Pit because the company has finished mining at Beartooth.

Changes to the 2010 AEMP

Every three years BHPB and others look at the AEMP to make sure it is working properly or if it needs any changes. BHPB sent in a revised AEMP in January 2010. The

Wek'ëezhii Land and Water Board (WLWB) looked at the ideas of BHPB and others. The WLWB told BHPB to make several changes including:

- Open water sampling can be reduced to August only, not July and September. This will give a similar picture of water

changes caused by the mine without taking more samples.

- New types of tests will be done in the laboratory to look for arsenic and selenium.
- Water will be tested for more metals and other chemicals than before.

Drainage sump near Beartooth.



Figure 1: AEMP Reference Lakes and Outflow Streams



- BHPB will identify which small plants (*phytoplankton*) can survive in areas with high levels of pollution and which ones cannot. BHPB will also monitor *phytoplankton* eaten by fish.

2010 Monitoring Results

We think BHPB is doing a good job of protecting the water at the mine site. The AEMP can find very small changes in the samples so actions can be taken right away. However, there are still a few challenges.

In last year's annual report, we talked about the rising levels of *nitrate* in LLCF water since 2007. *Nitrate* can affect the growth of baby fish if it gets too high. BHPB took some steps to correct this problem. While this seems to have helped, the *nitrate* levels in Leslie and Moose lakes were still too high. Levels of some other metals like copper are also still too high.

Molybdenum levels have stayed the same or gotten lower downstream of the LLCF. However, they are still higher than some guidelines. We are concerned about this because molybdenum is a metal that can affect trout just after they hatch. BHPB plans to restart open pit mining at the Misery Pit. The Misery ore seems to be where the

molybdenum is coming from, so the levels could get even higher.

In 2010, the number of different kinds of water bugs (*zooplankton*) in Leslie and Moose lakes was the lowest ever recorded. This is strong evidence that the mine is causing changes in the water. This may also impact fish that eat the bugs in these lakes.

Numbers of water fleas (food for whitefish) also continue to get lower in Moose and Nema lakes. This may be due to the large amounts of salts in the minewater. Some water fleas may not be able to live in these conditions.

BHPB did some extra studies this year to compare different ways of collecting water bugs and mud from the bottoms of lakes. The company is also trying to find out how some fish were exposed to *hydrocarbons* (elements found in oil products).

Panda Diversion Channel (PDC)

In 2010, a total of 1,564 Arctic grayling were counted moving through the fish boxes. There were 11 seven-year-old grayling counted. This age group is important because in 2003, a tiny fin near the tail was clipped on 1,668 grayling *fry* and they were released. Most of

the adult grayling who return to the PDC are 7-9 year olds. If the fin-clipped grayling were able to survive, we should see a lot more of them in 2010-2012. This year there was only one confirmed fin-clipped grayling, and three others that were possibly clipped.

BHPB recently wrote a report on ten years of PDC monitoring (1999-2008). The Agency hired an expert to look at the report. We also looked at some other research papers. Results suggest that PDC grayling are smaller and have less body fat than grayling from other streams. This means they might not survive through the winter. We are

still not sure whether grayling that hatch in the PDC survive in Kodiak Lake until they are old enough to reproduce. We think BHPB should keep monitoring the PDC to prove whether this is happening.

Nero-Nema Stream Monitoring Program

During the winter of 2002-2003, BHPB built a bridge over Nero-Nema stream as part of the Fox Access Road. Some fish habitat was lost. To make up for this, BHPB built eight gravel spawning beds upstream and downstream of the bridge. Monitoring shows these are working very well.

Fay Bay Monitoring Program

In May 2008, *processed kimberlite* spilled out of the LLCF into Fay Bay. BHPB has done a good job monitoring the water and land affected by the spill. However, they did not look at possible impacts on fish. Four kinds of fish live in Fay Bay, and it is possible that cisco eggs could have been covered with the *processed kimberlite*. We have asked BHPB to look into this.

Developing Guidelines

The Land and Water Boards of the Mackenzie Valley finished making two new policies in March 2011. One tells how to develop water quality pollution limits for a project. The other talks about how to develop a waste management plan.


The Wek'ëezhìi Land and Water Board sent out some draft guidelines. These focus on *adaptive management* – how companies should learn from and use monitoring results to change and improve monitoring programs. The Agency made comments on the draft.


We are pleased with this work to develop good water quality standards for the NWT but would like to see further progress. ■


Cell D nitrate removal experiment.





 Agency hosted Air Quality Workshop.

 BHPB bought a new incinerator in 2006 yet it is still not working.

 Improvements made to air monitoring program but need more work on snow sampling.

Inside Continuous Air Quality Monitoring Building.

Air Quality

Activities 2010-11

The *Environmental Agreement* says that BHP Billiton (BHPB) must monitor air quality. The Air Quality

Monitoring Program (AQMP) at Ekati started in 1998. The company keeps track of changing air quality in several ways. Air samples are taken

throughout each year, including measurements for dust, metals, *nitrates*, sulphates and greenhouse gases. Snow and lichen samples are taken every three years. Dust

monitoring is done along roadsides over the summer each year.

BHPB reports on the AQMP every three years. The last report was in 2008, and the Agency hired experts to look at the report. They found some areas that need to be improved. For example, BHPB's report does not explain very well how samples are collected and studied. The results were also not presented or explained clearly. This year there have been helpful meetings with regulators, BHPB and the Agency to solve most of these problems. BHPB will be rewriting the 2008 report so it shows all the changes. This has not been finished yet.

Inside Continuous Air Quality Monitoring Building.



Continuous Air Quality Monitoring Building at new site.



Dust Monitoring

There are 14 dust monitoring stations around Ekati along the roads, at the airstrip, and at the Long Lake Containment Facility (LLCF). BHPB will continue to

monitor dust at these places. However, helicopters are used to get to some of the stations. Helicopters landing and taking off may be causing higher levels of dust in the samples. BHPB will be looking into this.

High Volume Air Sampling

High volume air samplers suck air through a filter over a 24 hour period. The filter is then weighed to measure the amount of dust in the air. BHPB has only been using these in the summer, but this year

they will try winter sampling as well. The Agency has suggested this in the past. It will give us a better idea of how much dust is in the air year-round. Results can also be compared to air quality standards. BHPB has also improved the way it handles dust samples in the laboratory.

Continuous Air Monitoring

A Continuous Air Monitoring building has been at Ekati since 1997. BHPB is looking at different ways to review the data. This could include having an air quality expert look at the data every day.

Dustfall samplers near airstrip.



Grizzly Lake air monitoring station.



Fall cranberries.



BHPB may also add a weather monitoring station to the building.

Snow and Lichen Sampling

Snow samples are taken at 33 places around the mine site. BHPB looks for the same metals and chemicals as they do in the water samples. During the last review of the AQMP, the Agency looked closely at the snow sampling program. We asked whether snow samples should be kept frozen until they are tested in the laboratory. We also looked at the equipment BHPB uses to collect the samples. BHPB has made several improvements to make sure snow samples are collected properly. The company is also testing whether letting the samples melt gives the same results as if the samples stay frozen.

Lichens are good indicators of air quality because their tissues

hold many pollutants. They are also important food for caribou. Lichens are sampled for dust and metals every three years.

Air Quality Workshop

In November 2010 the Agency hosted an Air Quality Environmental Workshop. BHPB and the Agency talked about the 2008 AQMP review and the improvements that have been made. Environment Canada gave a presentation on a 2008 study it did at Ekati. Chemicals (*dioxins and furans*) in mud from the bottom of Kodiak Lake were measured. These dangerous contaminants can cause cancer. They are released into the air when garbage is not burned properly. They can settle into the water and build up in soil and plants, which are eaten by small bugs and fish. The study found that Kodiak Lake mud had high levels of *dioxins and furans* when compared to lakes not affected by the mine.

Agency Comments

We are very pleased by BHPB's efforts to improve its air monitoring program. The company worked well with other air quality experts. There are still a few areas that could be improved.

The incinerator for burning garbage

at Ekati is located on the shores of Kodiak Lake, and has been used since 1998. BHPB bought a new incinerator in 2006. It is a better model that releases much less pollution into the air, including *dioxins and furans*, yet the company still does not have it working.

At the Air Quality Workshop, the Agency heard from Society Members that there is a large concern about contaminants from burning garbage showing up on the land and in the water. Society Members stressed the immediate need to get the incinerator up and running and the Agency agrees that BHPB needs to make this a priority.

The Agency has often said it is important to understand the links between different monitoring programs for air, water, fish, wildlife, snow and lichens.

For example:

- a) Do caribou avoid the mine site because of dust and chemicals on plants or in the air?
- b) Are small bugs and fish in Kodiak Lake being affected by pollution from the incinerator?
- c) Does dust from the airstrip end up in the water of Kodiak Lake?

As cell B in the Long Lake

Containment Facility (LLCF) is filled and dries out, there could possibly be more dust. The Agency and others have suggested that BHPB install a new dustfall sampling site on the west side of cell B. This would test whether rock and vegetation covers work in keeping dust down.

The Agency also suggests that BHPB do snow sampling to see if dust is affecting Kodiak Lake.

There are still no laws in the North that control air pollution. Land use permits and water licences do not usually tell companies how to manage air quality.

Diavik has recently been given a Minister's Report and told to improve its AQMP. This is a good chance for BHPB to work with Diavik to look at the big picture in the Lac de Gras area. If both monitoring programs are done the same way, the results can be compared. Dust goes beyond each mine's boundaries so companies need to work together and share resources.

BHPB also needs to work more with Aboriginal Peoples. Traditional Knowledge can be used along with scientific knowledge to help design a better AQMP and understand the results. ■



WLWB approved 2008 ICRP with some changes. When the mine closes, BHPB must make the pit lakes good for fish to live in and move through.



BHPB will revise some of the reclamation research plans.



Fox portal revegetation plots.

Closure Planning at Ekati

Activities 2010-11

In our last annual report, we wrote about BHPB's legal arguments on its 2008 Interim Closure and Reclamation Plan (ICRP). BHPB went to the Northwest Territories Supreme Court in 2009. The company asked a judge to decide if the Wek'èezhìi Land and Water Board (WLWB) could tell them to create fish habitat in pit lakes when the mine closes. In March 2010, the judge ruled that the WLWB should be given a chance to make a decision on the plan before anyone disagreed with how that should be done.

The WLWB had a public hearing on the ICRP in September 2010 in Behchokq and the Agency gave a presentation. We said that when the mine closes and the open pits are filled with water, fish should be able to travel through them if the water is safe. BHPB should also work toward making the pit

lakes good for fish to live in again. For example, they should create shallow areas on the edges. Many others agreed, but BHPB argued they should not have to do this. The company also continued to say the WLWB did not have the power to make this decision.

In December 2010, the WLWB approved the ICRP but BHPB has to make some important changes. One of the conditions is that BHPB must make the pit lakes good for fish to live in and move through. See page 22 for details on these and other changes.

BHPB has met with WLWB staff to talk about the decision. The company is now changing the ICRP as directed. We expect the new plan in August 2011.

Agency Comments

The Agency is pleased with the WLWB's decision on the ICRP. It deals with most of the issues we

raised during this very long process. The new closure plan, when finished, should see the Ekati Mine site reclaimed in a responsible way. The area will become an active part of the natural environment again for plants, wildlife, fish and people.

In March 2011, BHPB asked us how

the Agency and the company can work together on the *reclamation* research plans. This is very important work that will help answer questions about the best ways to close the Ekati Mine. We continue to offer help to the company on this and other closure issues. ■

Revegetation area on waste rock pile.



BHP Billiton's 2008 Interim Closure and Reclamation Plan

Wek'èezhìi Land and Water Board Decision (December 2010)

BHPB must make the following changes to the plan before it is approved:

Closure Goals

Open Pits: Help start a healthy environment with good water quality in the pit lakes.

Fish Passage: Make the pit lakes and cell E of the Long Lake Containment Facility safe for fish to move through. Fish barriers may be needed to keep fish out of the pits until water

quality is good. Once everyone agrees it is safe for fish, BHPB must remove the barriers.

Soil Standards: Use a higher standard for cleaning up soils that have been contaminated by *hydrocarbons* (spills of oil products).

Wildlife: Set goals for how to make each part of the mine (waste rock piles, *tailings* areas, pit lakes, and other areas) safe for wildlife. This is a top priority.

Agency director and legal counsel at Wek'èezhìi Land and Water Board hearing on Interim Closure and Reclamation Plan.



Reclamation Research Plans

Creating Pit Lakes: When the mine closes, the empty pits will be filled with water. It will be pumped from Lac de Gras and other lakes in the Ekati area. The company will have to give more details on when this will happen, how much water will be taken from each lake, and if it will affect any fish living in those lakes.

Long Lake Containment Facility:

Do more research on how *processed kimberlite* freezes. Give more details on how *extra-fine processed kimberlite* (which does not settle very well) will be controlled after the mine closes. Make sure these results are available before any *processed kimberlite* is pumped into cell D. Update all timelines.

Plant Growth: Do more research on plants growing in the LLCF. How will we know whether these plants will survive in the long term? Do more research on plants for the pit lakes. What kinds of plants (above and below the water) are good for fish habitat? Will these plants survive without any help from people?

Other Changes

Security Deposit: BHPB has to provide a security deposit for the Ekati Mine. This money is held by Indian and Northern Affairs Canada (INAC). It will be used to make sure the mine is closed properly. BHPB, INAC and others need to work together to update the amount of money being held.

Annual Progress Report:

Once a year BHPB must write a report on the work it has done on closure planning and *reclamation*. The report will be reviewed by all interested organizations, including the Agency. These reports will help everyone understand how BHPB is planning to close the Ekati Mine and make sure *reclamation* is on track.

Next Update

Once all these changes are made, the plan will be given final approval. The next ICRP will be due three years from that time.

For the full decision, see:

http://www.mvlwb.ca/WLWB/Registry/BHP/W2009L2-0001/W2009L2-0001%20-%20ICRP%20-%20RFD%20-%20Board%20Directive%20-%20Email%20Dist%20-%20Dec%2010_10.pdf



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



WRRB approved management proposal for Bathurst caribou herd.



CIMP program hired new staff and funded community projects.



Exploration camp on Lac de Gras.

Regional Monitoring and Cumulative Effects

Activities 2010-11

We are still waiting for a report from the Government of the Northwest Territories, Department of Environment and Natural Resources (GNWT-ENR). It completed a pilot project to look at *cumulative effects* in the summer range of the Bathurst caribou herd. How do past, present and future land use activities impact caribou, especially when combined with natural factors? This is very important information as it could tell us more about how the mines impact caribou. It may also help give us more ideas about how to change wildlife monitoring programs. The report was supposed to be finished in spring 2009 but it is still not done.

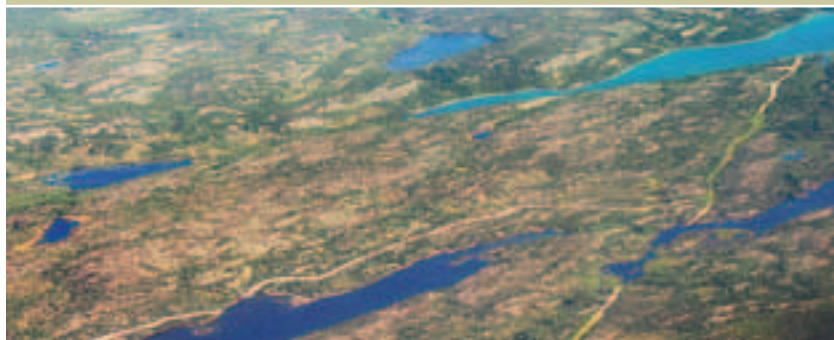
The Wek'èezhì Renewable Resources Board (WRRB) asked for a proposal on caribou management for the Bathurst herd. The Tłıchǫ and NWT governments sent it to the WRRB in May 2010. A public

hearing was held in August, and the WRRB released its decision in October. The decision says that Bathurst caribou numbers have dropped to very low levels. If major actions are not taken the herd might not recover. These actions include:

- No hunting by outfitters or non-Aboriginal people.
- Aboriginal hunters will not take more than 300 caribou (20% must be cows) until at least 2012-13.
- Double the wolf harvest.
- Use many different ways of monitoring to keep track of what is happening to the herd.
- A technical group with GNWT and Tłıchǫ people will check the monitoring results.
- A caribou committee in each Tłıchǫ community will do Traditional Knowledge research to provide more information.

The WRRB recommended that


Winter road portages.





Indian and Northern Affairs Canada (INAC) and GNWT-ENR work together to find ways to protect caribou, especially during and after calving. This would include looking at how fires impact the areas caribou use. Governments should also look at the impacts of exploration, mining and other human activities on the caribou range. The WRRB gave its recommendations to INAC in October 2010 and wrote a letter in January 2011. This work is very important but INAC has still not replied.


There has been some progress on the Cumulative Impact Monitoring Program (CIMP) under the *Mackenzie Valley Resource Management Act*. New INAC funding paid for three new staff and some community-based monitoring projects. A website will also be created later in 2011. It will be a main place to look for environmental information in the NWT. This new funding should help to better monitor and manage *cumulative effects* on the Bathurst caribou herd range, including the impacts of the Ekati Mine. ■




 *INAC still does good inspections but could have been stronger at the ICRP hearing.*

 *DFO did well in the ICRP hearing and gave helpful technical information.*

 *GNWT gave good advice on air quality but could have been stronger in the wildlife monitoring review.*

 *EC gave good advice on air quality but could make more comments on technical issues.*

 *WLWB performed well throughout the ICRP process. They need to do more work on developing guidelines.*

 *Regulators have performed well.*

Inter-Agency Coordinating Team site visit July 2010.

How Are the Government Regulators Doing?

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 doing a good job in making sure that BHPB runs the Ekati Mine in a way that does not harm the environment. We were pleased to see that all the regulators worked together well this past year.

Agency Meeting with Government of Nunavut Biologist.



Indian and Northern Affairs Canada (INAC)

We are still impressed with the high quality work done by the INAC inspector. We are very happy with the effort made to make sure that the Panda underground was closed properly.

INAC took part in the Wek'èezhii Land and Water Board (WLWB) hearing on BHPB's Interim Closure and Reclamation Plan (ICRP). The Agency believes INAC could have been stronger. INAC staff with more experience on the Ekati Mine should have been at the hearing.

Department of Fisheries and Oceans (DFO)

DFO also took part in the WLWB public hearing on the ICRP. Staff gave a strong performance. We are also happy that DFO is willing to work with BHPB to make sure the pits are reconnected to the surrounding environment in a way that allows for use by fish.

DFO staff are 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.

GNWT, Department of Environment and Natural Resources (GNWT-ENR)

GNWT gave helpful advice on air quality monitoring and the best ways for BHPB to sample snow at Ekati. The draft new *Wildlife Act* seems to be a major improvement over the existing *Act*.

We believe GNWT should make more comments on BHPB reports and plans. We were disappointed that GNWT did not participate in the ICRP process. We also think GNWT should have been stronger during the Diamond Mine Wildlife Monitoring Program Review.

Environment Canada (EC)

EC continues to give good advice to BHPB and the Agency on ways to

monitor air quality at Ekati. We were happy EC staff were involved in our air quality workshop. EC did not make as many comments on BHPB reports and plans as they used to.

Wek'èezhii Land and Water Board (WLWB)

The Agency still works well with WLWB staff. We are very pleased with the WLWB decision on the ICRP. We appreciate the new WLWB guidelines for managing water quality. We also look forward to more work on guidelines for *adaptive management* (learning from monitoring results to make changes and improvements). This work is very important because the Ekati water licence will be up for renewal in 2013. The new licence will probably last until the mine closes.

We think the WLWB should provide clearer direction when asking companies to make changes to management plans. ■



BHPB continues to operate Ekati in an environmentally sound way.



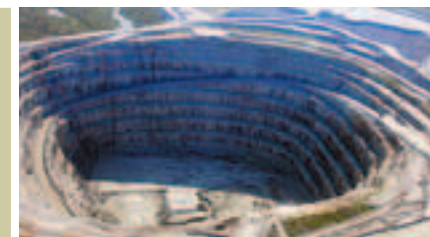
BHPB should make the new incinerator operational as quickly as possible.



Improvements to wildlife monitoring are needed.



BHPB will work with others to develop and carry out its reclamation research plans.



Fox Pit.

How Is BHP Billiton Doing?

BHP Billiton (BHPB) continues to run the Ekati Mine in a way that does not cause major harm to the environment. However, there is always room for improvement.

We continue to work well with the company and the Environment Department staff. We do not always agree on everything, but it is a good working relationship.

BHPB staff have worked hard to improve the Air Quality Monitoring Program. However, the company bought a new incinerator in 2006 but it is still not being used. We have recommended BHPB get the incinerator working to reduce air pollution at Ekati.

We supported the Diamond Mine Wildlife Monitoring Program Review. It was good that everyone worked together. However, we were not satisfied with the results (see the Wildlife section for more details). More work is needed.

Activities at Ekati are always changing. BHPB needs to make sure its environmental management plans are kept up to date. It would be very helpful if BHPB could make a list of all its management plans. The list should say when the plans were last updated and how often it will review the plans.

Our top priority is still helping to develop a high quality Interim Closure and Reclamation Plan (ICRP). We are pleased that BHPB is following the directions of the Wek'èezhìi Land and Water Board (WLWB) and is doing more work on the ICRP. BHPB also asked how the Agency can work together with the company on its *reclamation* research plans. This is a good approach. We believe this will lead to better results, an improved closure plan and good environmental management at the mine. ■

Waste rock trucking.



Agency Recommendations for 2010-11

►► Recommendation 1:

The Agency recommends that, before the end of 2011, BHPB make its new site incinerator operational.

BHPB Response: BHP Billiton plans to commission a new solid waste incinerator at the Ekati main camp that provides the most up to date technology for waste incineration and reduction of emissions. BHP Billiton has discussed this with technical staff from Environment Canada and the Government of the Northwest Territories. The incinerator is in place at Ekati. However BHP Billiton has encountered a number of frustrating operational issues that have prevented it from being put into use. Necessary physical modifications to the incinerator are underway and the facility will be commissioned as soon as it is ready.

GNWT Response: The GNWT fully supports IEMA's recommendation. Appropriate technology and operation are vital for responsible incineration waste management, especially at a facility the size of Ekati. The GNWT understands that BHP has been in possession of the noted incineration units since 2006, therefore, bringing them into operation by the end of 2011 is a welcome conclusion to the installation phase.

►► Recommendation 2:

The Agency recommends that BHPB implement in 2012 a monitoring program with the objective to determine the influence of mine related activities on the relative abundance and distribution of grizzly bears.

BHPB Response: BHP Billiton plans to conduct this program in 2012. Additionally, BHP Billiton is conducting a preliminary program in 2011. The 2011 program will utilize a smaller number of hair-snagging posts (12 posts in 2011 and an estimated 30 posts in 2012) to test the methodology and to collect preliminary data. The post locations will be selected with community input when possible and will be moved at least 3 times to assess the best locations. BHP Billiton is looking forward

to working with communities, the Government of the Northwest Territories and others on this program and will report the results of its 2011 program to provide experience and important lessons learned.

GNWT Response: The GNWT supports the continued monitoring of the influence of the Ekati Mine on the relative abundance and distribution of grizzly bears. The GNWT will continue to engage with BHPB and other mines on the preferred methods for this monitoring program. GNWT recommends that hair collected from the posts be identified to species and sex to confirm that the survey design is effective for monitoring grizzly bears. GNWT is prepared to provide some support for the analysis of hair samples pending a proposal and budget from BHPB.

Independent Environmental Monitoring Agency directors and staff.



►► Recommendation 3:

The Agency recommends that BHPB and GNWT-ENR agree to a regular (we suggest every three years) formal review of wildlife monitoring and management at the Ekati Mine.

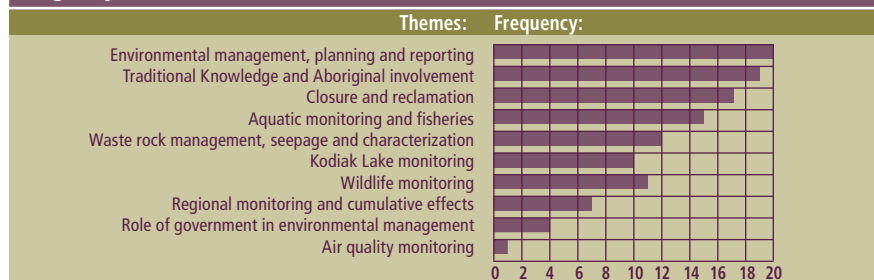
BHPB Response: BHP Billiton views the recent joint review of wildlife monitoring programs for the diamond mines as a progressive and positive experience that has set the stage for implementation of improved programs. This was a new approach that included community input and the timing allowed for the beneficial use of lessons-learned. BHP Billiton cautions that this level of in-depth review and change should not be undertaken too frequently because this could interrupt important continuity of data collected over successive years. BHP Billiton would be interested in working with communities, the Government of the Northwest Territories and others to develop a process and timeframe for future reviews of the Ekati wildlife monitoring program.

GNWT Response: The GNWT remains committed to reviewing wildlife monitoring programs for Ekati Mine as frequently as needed based on the implications of monitoring results. While a schedule may not be possible, a full review of the adequacy of wildlife monitoring should be possible after each three-year environmental impact review.

Agency site visit September 2010.



Agency Recommendation Themes 1997-2011



Recommendation Recipient	Frequency of Recommendations
BHPB	86
Government (GNWT, GN, Government of Canada)	14
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	116

Glossary

Adaptive Management -

Learning from environmental monitoring results, and using results to change and improve operations and monitoring.

Benthos - The sediments and mud on the bottom of rivers, lakes and ponds that can contain tiny bugs called benthic invertebrates. These bugs are an important food source for small fish.

Cumulative Effects - The environmental changes or impacts from past, present and future human land use activities (e.g. exploration and mining) combined with natural factors (e.g. fires, climate change).

Dioxins and Furans - Chemicals that are released into the air when garbage is not burned properly. They can settle into the

water and build up in plants and animals. In high amounts they can cause cancer in humans.

Environmental Agreement -

Created in 1997 to provide environmental monitoring for the Ekati Diamond Mine that was not covered by other licenses and permits. The Agreement was signed by BHP Billiton and the governments of Canada and the Northwest Territories. Akaitcho Treaty 8, Kitikmeot Inuit Association, Tłıchǫ Government, and North Slave Métis Alliance were involved in the negotiations.

Extra-fine Processed Kimberlite -

Very tiny particles of crushed kimberlite mixed with water. This type of processed kimberlite can take a long time to settle.

Fry - A baby fish that is fully formed, usually less than six months old that has absorbed its yolk sac.

Hydrocarbons - Elements made of only hydrogen and carbon. Hydrocarbons are found in oil products.

Kimberlite - A rare type of rock rich in iron and magnesium, and which sometimes contains diamonds. Created deep below the Earth's surface, kimberlites are usually found in long pipe-shaped forms.

Nitrate - A nutrient, like a fertilizer, formed from nitrogen. Nitrate can affect the growth of baby fish.

Phytoplankton - Tiny plants that live in the water. They are an important food source for zooplankton.

Processed Kimberlite - The crushed rock and water mixture that is left over after the mill removes the diamonds. Also called "tailings".

Reclamation - The process of returning areas of land and water to healthy ecosystems after being disturbed by human activities, including mining.

Tailings - See "Processed Kimberlite".

Zooplankton - Tiny bugs that live in the water. Zooplankton eat phytoplankton, and are themselves an important food source for small fish.

Directors at Nero-Nema bridge.



Acronyms

AEMP	Aquatic Effects Monitoring Program	INAC	See DIAND
AQMP	Air Quality Monitoring Program	LLCF	Long Lake Containment Facility
BHPB	BHP Billiton	MVLWB	Mackenzie Valley Land and Water Board
CIMP	Cumulative Impact Monitoring Program	NWT	Northwest Territories
DFO	Department of Fisheries and Oceans	PDC	Panda Diversion Channel
DIAND	Department of Indian Affairs and Northern Development (also known as Indian and Northern Affairs Canada or INAC)	PK	Processed Kimberlite
DNA	Deoxyribonucleic Acid	TK	Traditional Knowledge
EC	Environment Canada	TSP	Total Suspended Particulates
EIR	Environmental Impact Report	WEMP	Wildlife Effects Monitoring Program
ENR	GNWT's Department of Environment and Natural Resources (previously known as RWED or Resources, Wildlife and Economic Development)	WLWB	Wek'èezhì Land and Water Board
GNWT	Government of the Northwest Territories	WPKMP	Wastewater and Processed Kimberlite Management Plan
IAC	Inter-Agency Coordinating Team	WRRB	Wek'èezhì Renewable Resources Board
ICRP	Interim Closure and Reclamation Plan		
IEMA	Independent Environmental Monitoring Agency ("the Agency")		





PLAIN LANGUAGE



INDEPENDENT
ENVIRONMENTAL
MONITORING AGENCY

A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

ANNUAL REPORT

2010-11



All photos by the Agency unless
otherwise noted.

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1:00 p.m. — 5:00 p.m.

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KEVIN O'REILLY

Executive Director

MONICA KRIEGER

Communications and Environmental Specialist

