A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

Independent Environmental Monitoring Agency



2006-07 Technical Annual Report

Agency Recommendations for 2006–07

Recommendation 1:

Closure and Reclamation

BHPB should develop mine component-specific closure objectives as part of the *Interim Closure and Reclamation Plan*. The objectives for each mine component should be linked to the overall site closure goal, and lead to measurable closure criteria.

Response: BHPB provided draft closure objectives and criteria related to each mine component in the recent release of the *Interim Closure and Reclamation Plan* for the Ekati mine site. The Working Group, including representatives from DIAND, GNWT, the Department of Fisheries and Oceans (DFO), Environment Canada (EC), Aboriginal communities and the Agency, was set up by the Wek'èezhìi Land and Water Board (WLWB) to provide comments and suggestions on the *Interim Closure and Reclamation Plan*. These comments and suggestions were incorporated into the final objective and criteria tables to improve clarity and understanding. Input from Laura Johnston from the Agency and guidance from the WLWB were particularly useful in this process.

Recommendation 2:

Closure and Reclamation

Where information uncertainties exist in formulating objectives, options or criteria for any mine component, BHPB should explicitly identify the uncertainties in the text of the *Interim Closure and Reclamation Plan* and link them to that part of the reclamation research plan that addresses them.

Response: BHPB has always recognized that there will be a requirement for additional research in order to clarify the processes, techniques and plans to be employed in final closure of the mine site. While some of this research is currently underway other areas are in the planning stages and all these different areas of research were included in the research plan of the *Interim Closure and Reclamation Plan*. BHPB has provided improved connections and additional cross-referencing to outline the links with the reclamation research plans in the *Interim Closure and Reclamation Plan*. This was a result of input from the WLWB Working Group members during the recent meetings to review the Plan.

Recommendation 3:

Regional Monitoring, Cumulative Effects and Wildlife

There has been a lack of progress on regional and cumulative effects on caribou. The Government of the Northwest Territories and the Government of Nunavut should make greater efforts towards regional and cumulative effects monitoring and assessment, primarily as it relates to caribou.

Response: The GNWT remains committed to addressing cumulative impacts on barren-ground caribou as set out in the Department of Environment and Natural Resources' *Framework for Action,* the *NWT Barren-ground Caribou Management Strategy* and the *Bathurst Caribou Management Plan*. Although implementation of some initiatives has been delayed, the GNWT plans to convene a workshop on cumulative effects in the fall of 2007. The purpose of the workshop is to address potential cumulative effects assessment methodology and the links to regional and mine-specific monitoring programs. The GNWT intends to work with all stakeholders including, but not limited to, communities, Aboriginal Governments, industry, DIAND and monitoring agencies. A partnership approach will be necessary to address this important issue within the Slave Geological Province and in other areas experiencing increased levels of human activities.

Recommendation 4:

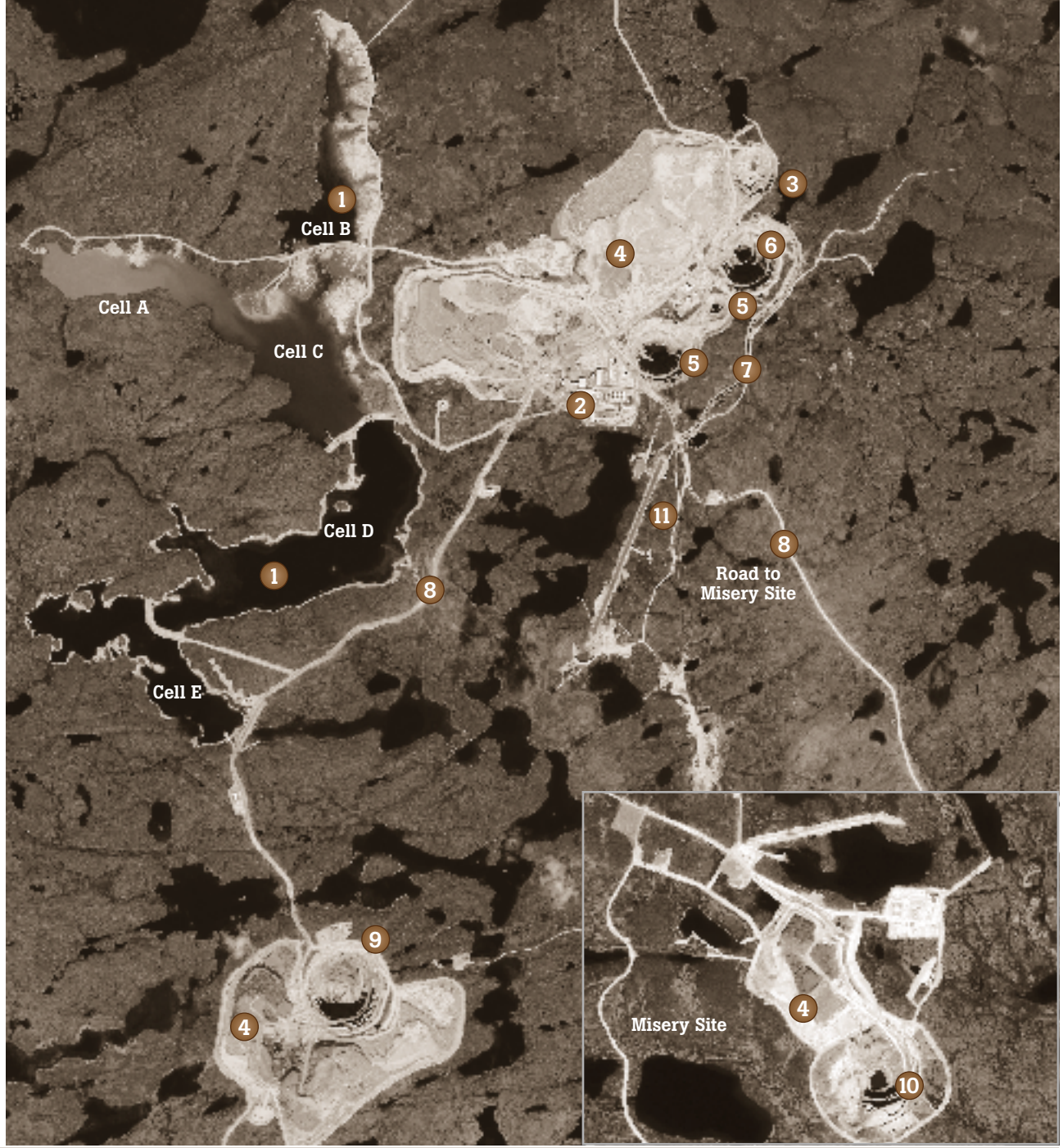
Assessment of BHPB

DIAND, GNWT and BHPB should amend the *Environmental Agreement* to set March 31st as the deadline for submission of the AEMP and WEMP annual reports.

Response: BHPB, GNWT and DIAND acknowledge that this year is a key date for review of the *Environmental Agreement*. It is expected that the signatories to the *Environmental Agreement* will consider a review of reporting requirements amongst other items in the Agreement.

Ekati Diamond Mine

1. Long Lake Containment Facility (Cells A – E)
2. Main Camp
3. Beartooth Pit
4. Waste Rock Piles
5. Koala and Koala North Pit
6. Panda Pit
7. Panda Diversion Channel
8. Haul Roads
9. Fox Pit
10. Misery Site
11. Airstrip



SATELLITE IMAGE 2006/BHP BILLITON DIAMONDS INC.

Agency Recommendations from 2005–06

The information below summarizes the responses of BHPB to the formal recommendations of the Agency from 2005–06.

Recommendation 1:

Tailings and Wastewater Management

BHPB's new *Wastewater and Processed Kimberlite Management Plan (WPKMP)* should:

a. **Contain a commitment to complete deposition into the north end of cell B by 2009 to allow pilot scale reclamation to begin**

b. **Omit use of cell D for deposition**

Response: BHPB must maintain the management flexibility as designed. While every effort will be made to minimize deposition in cell D, BHPB will continue to include cell D in its Long Lake Containment Facility deposition plans for the foreseeable future.

Recommendation 2:

Reclamation and Closure

BHPB should develop closure objectives, options and criteria and assess risk collaboratively with all interested parties in accordance with the advice offered by the Agency and the *Interim Closure and Reclamation Plan (ICRP)* Working Group members.

Response: BHPB has submitted an *ICRP* to the WLWB incorporating the closure objectives, options and criteria. The Working Group process currently in place will provide a forum for discussion of this over the next 12 months.

Recommendation 3:

Aquatic Effects Monitoring

BHPB should, through monitoring and additional analyses of data already collected, obtain the necessary information to explain changes in zooplankton community structure in relation to water chemistry changes.

Response: This work is in progress and includes changes to BHPB's annual Aquatic Effects Monitoring Program. BHPB is comfortable that the current analyses and reporting provides all the necessary information.

Recommendation 4:

Communications and Consultation

BHPB consultation and communication activities should adopt the principles suggested by the Agency and our Aboriginal Society members.

Response: BHPB continues to engage its stakeholders and is constantly trying to improve this process based on input from all parties. BHPB is currently developing a consultation strategy for the upcoming Sable, Pigeon and Beartooth Water Licence renewal and as a first step we are seeking input from all the community stakeholders on how they would like to be consulted. However, it must also be realized that BHPB cannot realistically satisfy everybody all of the time.

Recommendation 5:

Assessment of BHPB

BHPB should provide adequate resources to its Environment Department to ensure it can meet the obligations of its *Environmental Agreement*, water licences and other authorizations.

Response: Staff hiring will continue to be problematic as long as the regulatory process continues to take years to complete. The reporting and monitoring demands and expectations are continually increasing, resulting in increasing workloads with minimal net environmental improvements.

Message from the Chairperson

It is with pleasure that I present to you the technical version of the 2006–07 annual report of the Independent Environmental Monitoring Agency. The report summarizes the Agency's activities and offers recommendations for BHP Billiton (BHPB) and for the Governments of Canada and the Northwest Territories—recommendations we believe will contribute to continuing good environmental performance observed at the Ekati™ Diamond Mine.

One of the very positive changes for the Agency in the last year was the appointment of two new directors: Dr. Laura Johnston and Kim Poole. Kim and Laura were appointed late in 2006 and have already proved their worth. We welcome them and thank BHPB and the two governments for appointing them.

In partnership with the *Environmental Agreement* signatories, we are pleased to present responses to this year's recommendations, another positive development. These are located on the inside front cover of this report.

We believe that the environmental performance at Ekati continues to be quite good, although we have seen neither the Aquatic Effects Monitoring Program (AEMP) nor the Wildlife Effects Monitoring Program (WEMP) reports for 2006. This lack of timely availability of important monitoring reports is troubling.

The major focus of the Agency for this past year has, once again, been on closure and reclamation of Ekati. BHPB submitted a draft *Interim Closure and Reclamation Plan (ICRP)* in early 2007 and much of our efforts have been to participate constructively in contributing to the development of that plan and in reviewing it after its submission. We believe that our advice and ideas have helped make a better process and, hopefully, will make for a sound closure plan. The Agency offered both substantive and procedural recommendations. The process adopted by the Wek'èezhìi Land and Water Board (WLWB) for reviewing the proposed *ICRP* appears to be sound and rigorous. We are pleased with that and are hopeful it will lead to a good closure plan.

In addition, we have also been involved in aquatic effects issues: revisions to the AEMP and proposed criteria for limits on the release of chloride. As well, the Agency participated in the triennial Environmental Impact Report and in regional workshops discussing options for understanding and managing cumulative effects on caribou. We are also involved in another disagreement with BHPB regarding use of funds allocated for the Agency's involvement in regulatory processes that we hope to resolve in the coming year.

Our efforts to maintain community input this past year have again been valuable. We held a productive board meeting in Wekweti at the invitation of the Tlicho. We met with the WLWB staff there and had an extended discussion with the community regarding the Bathurst caribou herd. We greatly appreciate meeting with our Aboriginal Society members and look forward to more such meetings in the coming year. ■

William A. Ross, Chairperson
March 31st, 2007

1.0 Agency Activities and Assessing the Agency

Agency Activities

Agency activities over the course of 2006–07 reflected the approved Agency work plan, BHP Billiton (BHPB) consultation events and information sessions, and review of environmental reports and other submissions. Agency representatives participated in BHPB's process for developing its *Interim Closure and Reclamation Plan (ICRP*).

This Plan, considered by the Agency to be our highest priority for the coming years, required additional director time in Yellowknife and at Ekati and included the Agency's participation as part of the *ICRP* Working Group established by the Wek'èezhìi Land and Water Board (WLWB). For further information on our involvement in the *ICRP*, please see the section on Closure and Reclamation (page 14). ➤

The Agency board of directors and staff.

Agency outgoing correspondence

Over the 2006–07 period, we distributed 26 letters addressed to the following organizations and copied to all of our Society members:

Volume of Agency Outgoing Correspondence

Recipient	Number of pieces of correspondence distributed
WLWB	11
BHPB	8
DIAND	3
Aboriginal Society members	2
WRRB	1
GNWT	1

Subject of Agency Correspondence

Subject	Number
Closure and Reclamation Planning	6
Wastewater and Processed Kimberlite Management	4
Aquatic Effects Monitoring Program	3
BHPB Environmental Impact Report and Annual Environmental Report	2
Agency Communication Procedures	2
Metal Leaching and Geochemical Characterization	2
Waste Rock	2
Air Quality Monitoring	1
Caribou Concerns	1
Ekati Inspections	1
Road Watering	1
Wildlife Effects Monitoring Program	1

Directors also participated in the development process and review of the final Environmental Impact Report (EIR) (this report is produced every three years by BHPB to track trends and changes going back to the original baseline conditions and predictions made during the environmental assessment).

Agency incoming correspondence

128 pieces of correspondence were received from all parties and filed to the Agency public registry in 2006-07.

From	Number
BHPB	37
WLWB (or its consultant)	33
DIAND	22
Agency Aboriginal Society members	8
EC	8
GNWT	7
Other	5
DFO	3
DIAND and GNWT collaboratively	2
GNWT and EC collaboratively	2
WRRB	1

Subject	Number
Water Licence or Environmental Agreement Administration	37
Closure and Reclamation	25
Aquatic Monitoring	16
Wastewater	15
Waste Rock	12
Air Monitoring	6
Ekati Inspections	5
Other	5
Wildlife	5
Hydrocarbon Management	2

For further information on the EIR please view the section "Assessment of BHPB" (page 35).

Late in 2006, the Agency benefited from the appointment of two new directors. The board, with a full complement for the first time since October 2003, will be in a better position to provide solid technical advice and experience from the Agency. The new directors were able to attend two Agency meetings in early 2007 and have worked with the staff and other directors to quickly get up to speed on the Ekati Mine, related environmental matters, and the work of the Agency.

Individual director visits to communities decreased in 2006-07 compared to previous years. While some Aboriginal members had originally requested more frequent director visits, other resource development pressures in the communities resulted in fewer opportunities for Agency director visits.

It has been past Agency practice that directors require an invitation to meet with a community or its representatives. As well, the directors have traditionally visited Ekati each year as a group. This was not possible in 2006-07. However, two Agency directors were able to visit Ekati as part of other tours hosted by BHPB.

While we reported last year on a resolution to some on-going budget and work plan disputes with BHPB, we have experienced on-going disagreements with BHPB on use of funds and interpretation of the *Environmental Agreement* and *Resolution Agreement*. At press time two other matters are under dispute—allocation of the funding for the Agency's interventions in regulatory and other legal processes (e.g. when the WLWB makes decisions on submissions from BHPB); and, whether the Agency is authorized to solicit and accept outside funding. The Agency is of the view that it has conducted its affairs in strict accordance with the *Environmental Agreement* and *Resolution Agreement*. ➤

Agency Communication and Consultation Activities in 2006-07

Date and Location	Purpose	Main Issues
May 18, 2006 – Yellowknife	Parties to the *Resolution Agreement* met to discuss implementation of the *Environmental Agreement.*	• Presentations on communication responsibilities and the draft recommendations from the 2005-06 annual report. • BHPB believes reporting requirements are burdensome while the Agency believes that reporting should be done in a more collaborative fashion and focus on important matters. • Replacement of Agency Board members was discussed but there was no resolution.
June 24-26, 2006 – Yellowknife	NSMA Community Meeting, NSMA Board of Directors Meeting.	• Agency director discussed current activities at Ekati including the *ICRP* and closure planning.
July 31, 2006 – Yellowknife	NSMA Meeting.	• Agency director briefed NSMA representatives on *ICRP* workshop.
August 17, 2006 – Yellowknife	NSMA Membership Meeting.	• Agency director discussed community concerns regarding Ekati including dust suppressants and consultation processes.
August 19, 2006 – Yellowknife	NSMA Board of Directors.	• Ekati closure planning process and consultation process.
September 1, 2006	Agency Letter in Response to NSMA Letter of June 8, 2006.	• Letter states that the Agency will attempt to submit its comments in advance of regulatory deadlines to allow Aboriginal Society members to consider Agency comments in preparation of their own submissions. • Agency submits preliminary comments on BHPB's Adaptive Management Plan, comments on section 1 of the *ICRP* and other comments in advance of any regulatory deadline.
September 10, 2006 – Yellowknife	NSMA Environment Committee.	• Agency director provides update on Agency participation in Ekati events.
September 20-22, 2006 – Wekweti	Agency Board Meeting and Open House.	• Agency visited the Alexis Arrowmaker School and made presentations to the senior student class. • Agency met with the staff of the Wek'eezhii Land and Water Board. • Agency hosted an Open House in the community government office. Issues raised were mainly around the Bathurst caribou herd. • Follow-up letter sent on November 20, 2006 to Wek'eezhii Renewable Resources Board on the community's caribou concerns.

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Agency Communication and Consultation Activities in 2006-07 continued from previous page

Date and Location	Purpose	Main Issue
November 2, 2006 – Yellowknife	Annual General Meeting.	• Lutsel K'e First Nation, Tlicho Government, Kitikmeot Inuit Association, NSMA, DIAND, GNWT and BHPB in attendance. • Concerns raised over the Bathurst caribou herd and water quality, appointment of two replacement directors for the Agency, company's closure planning process. • General satisfaction with Agency performance. • BHPB stated that it remains committed to environmental excellence but has had difficulty recruiting staff.
November 9, 2006 – Lutsel K'e	Aurora College Environmental Monitoring Program.	• Agency Manager invited to speak to students, many issues about closure planning raised.
January 15, 2007 – Yellowknife	NSMA Environment Committee.	• Agency director discussed caribou and cumulative effects, dust and vegetation.
January 31, 2007 – Yellowknife	Parties to the *Resolution Agreement* met to discuss implementation of the *Environmental Agreement.*	• BHPB provided an update of operations at Ekati, GNWT reorganization to improve coordination on Ekati Mine issues, Agency presented work plans and budget for 2007-08, Agency's recommendations from the 2006-07 annual report were discussed. • A dispute arose over the Agency's allocation of Separate Fund activities and the ability of the Agency to seek and accept outside funding.
March 30, 2007 – Yellowknife	Parties to the *Resolution Agreement* Meeting met to discuss matters under dispute.	• Agency and BHPB agree to re-examine their respective positions on the use of the Separate Fund and ability of the Agency to seek and accept outside funding.
Multi-stakeholder Meetings December 4-6, 2006 – Bathurst Caribou Management Plan Workshop – Yellowknife January 23-26, 2007 – Caribou Summit – Inuvik	To discuss population status and management of barren-ground caribou including the Bathurst herd.	• Discuss reasons for declining caribou populations and implications for hunting communities. • Propose management strategies and information needs.

Our core activities included:

- hosting an Annual General Meeting; (AGM) with representatives from all of our Society members;
- board meetings;
- reviewing Ekati environmental management plans and monitoring reports;
- maintaining a website and library of Ekati related documents;
- producing an annual report and a summary brochure (mailed to all residential addresses in our Society Member communities); and,
- participating in regulatory or water licence related processes.

Assessing the Agency

Over the course of the year, we received compliments and critiques of our operations. ➤

Agency directors and youth at Wekweti community government office.

Highlights in Meeting Our Mandate Over the Last Year as a Public Watchdog for Environmental Management of Ekati:

Participation in the *Interim Closure and Reclamation Plan* Development and Working Group

Advice was provided to BHPB on how to consult with the Aboriginal members and Agency views on the scope and direction of closure planning. Directors closely reviewed and commented on the *ICRP* following its receipt in January 2007.

Wekweti Community Meeting

Agency directors held a board meeting in the Tlicho community of Wekweti, visited the office of the new WLWB, spoke to students at the Alexis Arrowmaker School and hosted an Open House.

Aurora College Environmental Monitor Training Course

Agency Manager attended a session in Lutsel K'e to contribute an Agency perspective on environmental monitoring at Ekati for students interested in community-based monitoring.

Environmental Impact Report

Agency participated in the BHPB consultation process and preliminary technical meetings leading to the release of the report (followed by stakeholder review).

Participation in the Caribou Summit and Bathurst Caribou Management Plan Workshop

Agency directors attended these events to discuss research and management actions related to declines in northern caribou herds.

1.0 Agency Activities and Assessing the Agency

Aboriginal representatives at the AGM provided favourable comments. The Kitikmeot Inuit Association (KIA) offered the Agency access to its Traditional Knowledge (TK) database during the AGM in a gesture of our continuing good relations. It was suggested that the Agency attempt to provide technical reviews to our Society members in advance of submission deadlines so that others could benefit from the Agency's expertise. We are pleased to report that, on several occasions, we were able to accomplish this task on major items such as the review of the *ICRP*.

WLWB staff suggested that Agency reviews of BHPB monitoring plans and reports would be more effective if the Agency offered constructive suggestions to resolve outstanding issues in our submissions. We are also pleased to report that according to WLWB staff our main submission on the *ICRP* achieved this at the end of the year.

We considered hosting an environmental workshop in late winter to summarize the results of BHPB's monitoring programs from the 2006 field season and requested feedback on this initiative from our Society members. After considering the likelihood of receiving reports from BHPB in time to obtain the review material, it was suggested by some that the workshop would not be particularly helpful. We continue to believe a collaborative environmental workshop is the best way to present information on how well BHPB is protecting the environment at Ekati and to discuss new directions. Renewing our effort to facilitate this event is something we plan for the coming year.

However timely or productive our commentary, we appear to have a diminished ability to influence BHPB and a continuing problem in eliciting responses from the company on much of our technical, and particularly process-related, correspondence. An important challenge for us in the current year is to work on better engaging BHPB.

We are committed to assisting all of our members and we welcome both compliments and constructive criticisms. We are not shy in our critique of the operations of the government regulators or BHPB! Please contact any of the directors or our office with your views on our success in monitoring the environment at Ekati or on ways we can improve. ■

2.0 Waste Rock Management

Activities in 2006–07

During the past year, mining at Ekati was carried out at Beartooth and Fox open pits as well as underground in the Panda pipe. A second underground operation at the Koala pipe was approved in June 2006. The Koala underground operation will cost approximately US $250 million to construct and is expected to produce 10.6 million tonnes of ore over 10 years.

Further exploration drilling was conducted at Sable and Pigeon pipes and at other locations.

In addition to placing some 16.5 million tonnes of waste rock on the Fox and Panda waste rock piles over the past year, BHPB continued to investigate the geochemistry and drainage properties of the waste rock types. Over the past year, BHPB submitted three reports to the Wek'èezhìi Land and Water Board (WLWB) relating to waste rock management at Ekati. ➤

Underground water management at Panda.

1. 2006 Waste Rock Storage Area Seepage Survey

The *2006 Waste Rock Storage Area Seepage Report* was submitted in January 2007. This report concluded that the monitoring program revealed no major issues with waste rock drainage and that performance for the most part was similar to previous years. The only anomaly was the seep draining northeast from the Panda waste rock pile into Bearclaw Lake, that showed elevated levels of nitrite, nitrate, calcium, manganese, uranium, and ammonia. Sampling there in September 2006 indicated that total nickel concentrations had doubled from the previously recorded high of a year earlier.

Drainage downstream of the coarse kimberlite rejects pile on the west side of the Panda/Koala dump showed that nickel, molybdenum and nitrate concentrations were at or near historical high levels in 2006. Total molybdenum levels at one location in September 2006 were approximately twice the concentrations observed in 2004 and 2005.

At Misery, while no mining occurred in 2006, seepage concentrations of copper and zinc increased, while cobalt and nickel concentrations remained at previously high levels. Elevated metal concentrations coincided with a lowering in pH. The cause of the increased metal levels is unknown.

Monitoring at Fox waste rock pile showed no drainage issues.

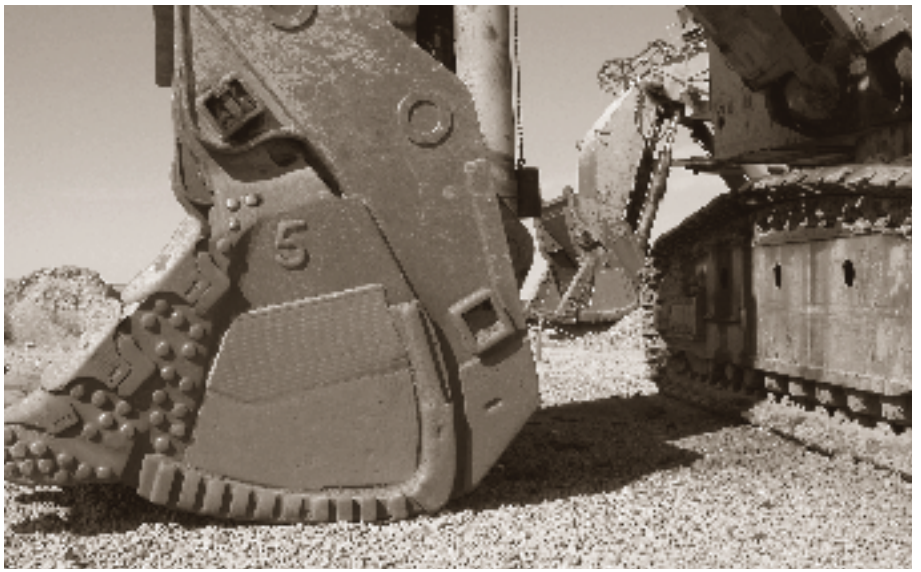
2. The Geochemical Characterization and Metal Leaching Management Plan

A requirement of the recently issued new water licence, the *Geochemical Characterization and Metal Leaching Management Plan* was submitted by BHPB in November 2006. This study on continuing investigations of the geology and geochemistry of the various rock types being excavated at Ekati included a review of some 2,000 blast-rock samples. The report found that while some rock types (kimberlite, schist and diabase) contain sufficient sulphur to generate acid rock drainage (ARD), none are doing so in the field.

Waters 'resembling ARD' have been found adjacent to coarse kimberlite reject stockpiles, but according to the report, their source is not the coarse kimberlite itself. The report hypothesizes that iron-rich drainage from the kimberlite generates acidity after it leaves the waste rock and comes into contact with naturally acidic tundra soils. Additional acidity is then generated by the release of iron under reducing conditions once contact is made with the soil. The report states that if sulphide oxidation were occurring within the kimberlite waste rock, the abundance of neutralizing minerals would offset any acidity generated. Consequently, even though acidic drainage is detected down slope from coarse kimberlite rejects, it argues that Ekati does not have an ARD problem.

To deal with the acidic waters appearing downstream of kimberlite placed directly on the tundra, the report notes that BHPB has modified its disposal methods so that kimberlite is placed on a pre-laid granitic pad.

The report also found that kimberlite is a source of neutral leaching of nickel and ➤



Demag loader bucket.

molybdenum, but the leaching mechanism and source minerals are unknown.

The report concluded that rock types and their geochemical behaviour are now well understood at the mine and as a result, "Ekati proposes to reduce waste rock sampling and analysis at all pits." In the future, monitoring will consist of visual classification of each rock type, random sampling from each blast, and quarterly sampling on coarse kimberlite rejects.

Drill core sample.

BHPB's cover letter for the report noted that several other relevant studies are being undertaken to improve the geochemistry knowledge of Ekati rocks.

Since the beginning of the project, the Agency has requested a mineralogical study to identify the carbonate mineral in kimberlite that determines the neutralization potential.

Other studies included: controlled field tests on waste rock to examine long-term physical and chemical weathering effects; investigation of causes of acidity in seeps at the toe of the Panda dump; and, further studies of pore water quality in cell B of the Long Lake Containment Facility (LLCF). The Agency is pleased to see BHPB commit to these investigations.

3. ***The Evaluation of the Performance of the Panda/Koala, Misery and Fox Waste Rock Storage Areas.***

The Evaluation of the Performance of the Panda/Koala, Misery and Fox Waste Rock Storage Areas was submitted in April 2006.

This report focuses on the temperatures inside of the various waste rock piles and how these are changing over time.

It concluded that the granitic waste piles are being 'super-cooled' as a result of cold air being drawn into the waste rock by convection during the winter months and that generally freezing conditions prevail.

Infiltration of water into the piles is lower than anticipated due to snow cover being largely displaced by wind before the spring thaw. The report also noted that some temperature cables indicate that convection is not occurring in some locations and internal dump temperatures are not as cold as expected.

Agency's Assessment

As we signalled in last year's annual report, we wrote to the WLWB in early April 2006 about concerns we had with BHPB's *2005 Waste Rock Storage Area and Seepage Report*. We recommended the report not be approved until missing critical information, including a discussion of the management implications of the results (as required by the water licence) and answers to questions raised previously by our independent expert reviewer, are provided by BHPB.

BHPB responded in June to our concern that the management implications of the seepage studies were not being discussed by the expert investigator.

The *Waste Rock Storage Area Seepage Report* "is a monitoring report and needs to be read along side the *Waste Rock and Ore Storage Management Plan* and Adaptive Management Plan", since these "contain the management alternatives sought by some of the reviewers", according to the company.

BHPB disagreed with us that it had not met Item 4(f) of Part F of the water licence by omitting discussion of the management implications. BHPB stated that "the responsibility for management decisions relating to waste management issues ultimately rests with the company."

We wrote again to WLWB in October stating that we had reviewed BHPB's response to our earlier comments. We maintain the view that there was little evidence in the report that the company had considered how the monitoring results might affect its management of waste rock or seepage.

We also noted that we fully supported the WLWB's rationale for amending the water licence—i.e., all monitoring programs require links to management programs if the environment is to be properly protected. As a result, we concluded that the *2005 Waste Rock Storage Area Seepage* ➤

Report did not comply with the water licence requirement to consider how the results might affect the *Waste Rock and Ore Storage Management Plan*.

The WLWB then contracted a consultant to undertake an independent review of the *2005 Waste Rock Storage Area Seepage Report* and related comments from reviewers. In the WLWB's October report, their consultant stated that monitoring results should be assessed for management implications by BHPB. Since the information at any rate had not been provided, the consultant then advised that BHPB provide this information in a cover letter or accompanying report.

In our view, this was poor advice. The topic being explored here is one of the most potentially serious issues any mine, including Ekati, will face in the long-term—the possibility of harmful mine drainage from the waste rock piles. BHPB contracted outside expertise to assist in accurately understanding the risks associated with waste rock storage. All aspects of the investigation, save one, were competently covered by the independent investigator—study design, sampling, data analysis, and observations. However, a discussion of what the results might mean for future management was missing—for example, whether existing mitigation measures in the *Waste Rock and Ore Storage Management Plan* are consistent with the findings of the expert investigator. The expert advice would be an excellent source of information on which to base management decisions. Unfortunately, in our view, the WLWB accepted the advice that the management implications should be provided by BHPB rather than the company's outside expert.

In December 2006, the WLWB approved the *2005 Waste Rock Storage Area Seepage Report*, although it noted that BHPB did not respond to many of the points raised by the Agency. The approval stated these could be dealt with in documents such as the *2006 Waste Rock Storage Area Seepage Report,* the *Geochemical Characterization and Metal Leaching Management Plan*, and the *Interim Closure and Reclamation Plan*.

As already noted, these reports are now available and there is no indication that the Agency's previous comments or the recommendations of our independent reviewer have been considered in them. While we think BHPB has done a good job so far in managing the waste rock piles at Ekati, we are increasingly disappointed that BHPB has not had its consultants properly address the issues raised by the Agency.

We are also concerned about the rising levels of a number of metals in waste rock seeps and in lakes downstream of the Long Lake Containment Facility (LLCF). For example, molybdenum levels have now reached the Canadian Council for Ministers of the Environment (CCME) level at the point of release of water from the LLCF to the receiving environment. BHPB indicates that it will continue to monitor this issue and we believe that it is important to do so. We urge BHPB to expand its geochemical fieldwork to determine the source and mechanisms of the increasing metal concentrations in waste rock seepage to help mitigate these effects.

We continue to believe that further work is needed to confirm BHPB's consultant's explanation for the acidity found in drainage down slope from the coarse kimberlite reject piles. While the consultant has provided a reasonable hypothesis other possible explanations have not been eliminated.

Finally, we are not convinced about the extent of permafrost development in some of the waste rock piles. The temperature data show clearly that while some internal portions of the piles remain at or slightly below the freezing point (e.g., two thermistors located in Koala kimberlite coarse rejects pile), some profiles indicate a warming over time (e.g. Misery thermistors WP#1 and WP#2). The Fox low-grade kimberlite storage pile reaches a temperature of 5ºC at over 20 metres below the surface. These anomalies and their implications are not discussed in the report and should be addressed in the near future. ■

Visitors touring Ekati.

3.0 Processed Kimberlite and Wastewater Management

Activities in 2006-07

We entered the year with a major review of BHPB's newly proposed plan for disposing of processed kimberlite tailings and minewater in the Long Lake Containment Facility (LLCF). As we noted in last year's report, a number of operational issues pertaining to storage capacity and water quality had arisen over the last few years. The new *Wastewater and Processed Kimberlite Management Plan (WPKMP)* recently submitted to the Wek'èezhìi Land and Water Board (WLWB) for approval, was designed in part to address these issues.

One significant operational problem is much of the processed kimberlite, mainly from the Fox pipe which contains higher portions of ultra-fine clays relative to the other pipes, is not settling to the bottom of the process plant and the pond, but remaining suspended in the water column. To counteract this, BHPB conducted trials that demonstrate the addition of calcium chloride to the mill process water significantly aids in settling Fox kimberlite. The company then applied to the WLWB for authorization to use chloride on a long-term basis as a mill processing agent.

Flagging tape on lines across the contaminated snow containment facility.

The proposal to add chloride in the processing plant was reviewed by the WLWB and permission was granted to use the material on a temporary basis. We supported the temporary application of chloride in the small volumes that BHPB proposed, but recommended that the results of two pending studies be reviewed prior to the WLWB granting permanent authorization for the use of calcium chloride.

Adding chloride to the water discharged into the LLCF has obvious implications for increasing the salinity of LLCF water and downstream. Careful review of limits and potential ecological effects should be required prior to permanent approval. A complicating factor is increased groundwater from the underground operation is expected to result in higher concentrations of chloride in the water. The short and long-term impact of increased groundwater on the chemistry of the LLCF and the environment need to be assessed.

Another key study we are waiting to review is an updated water quality model for the LLCF. While some preliminary results of this study were made available in April 2006, the final report has still not been submitted as we go to print. We believe this report is essential because it has up-to-date data and model results for present and future water quality in the LLCF, including information relevant to determining the use of chloride additions.

In August, the WLWB approved the use of chloride in the plant for one year ending August 31, 2007. As the board noted in its approval, a decision on the permanent use of chloride would be inappropriate until an adaptive management plan was in place and a chloride threshold level specified for triggering mitigation. The latter has been proposed for another portion of the mine, but comments recently received suggest less than full satisfaction with the suggested chloride discharge criterion. ➤

In September, the WLWB approved the new *WPKMP*. However, on the basis of comments received from ourselves and other reviewers (see below), the board requested that the company make some changes in the next revision of the plan, due March 2008.

Agency's Assessment

In May 2006, we submitted our review of BHPB's 2006 revised *WPKMP* to the WLWB. Our report identified 22 substantive deficiencies that led us to recommend against approving the revised plan in its present form. A major issue for us, as we signalled in last year's annual report, was the failure in the revised *WPKMP* to adequately address the closure implications of the reconfigured tailings deposition system. In our view, "designing for closure" means that each new or significantly modified activity carried out at the site should, during its review and approval by regulatory authorities, include a discussion of closure issues and describe a conceptually viable approach for decommissioning and reclaiming the affected mine component. In response to this concern, BHPB took the position that the *WPKMP* is an "operational" document and, as such, closure issues are better dealt with in other documents, such as the *Interim Closure and Reclamation Plan (ICRP)*.

We were disappointed to learn in September that the WLWB had subsequently approved the new *WPKMP,* which adopted BHPB's arguments that it is acceptable to consider closure issues elsewhere and at a later date.

In our view, this is an inherently flawed regulatory approach. It was precisely such a decision (i.e., not considering closure issues when approving construction and operation of the tailings impoundment) by the Northwest Territories Water Board that DIAND, the inheritor of the site, found itself with an environmental crisis on its hands with the closure of the Colomac Mine a few years earlier.

Another deficiency is two key studies relevant to LLCF water quality (Long Lake Water Quality Study and Chloride Toxicity Risk Assessment), had not been completed in time to inform the *WPKMP*.

These studies, still not submitted a year later, have implications regarding water quality changes that can be anticipated for the LLCF, including how any chloride additions ought to be managed. Preliminary predictions from BHPB indicated that groundwater inflow rates and chloride concentrations in the mines were increasing with depth to levels as high as 1100 parts per million (ppm). Such levels would be well above the British Columbia aquatic guideline of 150 ppm, which we believe to be an appropriate guideline.

We therefore recommended against authorizing the permanent use of calcium chloride as an additive to the milling process until the required information was available to reviewers and the WLWB.

We believe the WLWB made the right decision in approving a one-year only application of chloride. This will allow the information deficiencies to be addressed and an adaptive management plan to be developed. ➤

Tailings discharge into cell A of the Long Lake Containment Facility.

On another issue, we wrote to BHPB in October 2006 expressing surprise that the company had been discharging sump water from Fox Pit into cell D of the LLCF. We understood that the company had committed to avoid deposition of mine effluent into cell D for as long as possible so opportunities to retain this cell for polishing purposes and a buffer, prior to the release of LLCF water to the environment, could be maximized. The discharge also seemed inconsistent with the 2006 *WPKMP*, as well as the board's stated expectation that BHPB would avoid deposition in cell D for as long as possible. We asked the company to supply any information it had available respecting Fox Pit water quality, along with its rationale for the early use of cell D. As we go to print, we have not received a written response. ■

Tailings discharge point at cell A of the Long Lake Containment Facility.

4.0 Closure and Reclamation

Activities in 2006–07

As we went to print last year, we noted that a new round of planning for the revision of BHP Billiton's (BHPB) *2002 Abandonment and Restoration Plan* was underway.

When BHPB's water licence was renewed in the fall of 2005, the Mackenzie Valley Land and Water Board instructed the company to submit a new closure and reclamation plan for review by mid-January of 2007.

Recognizing the challenges faced in preparing and reviewing the new plan, the board also established a Working Group of regulatory reviewers, the Agency and Aboriginal organizations to assist in finalizing the terms of reference for the new *Interim Closure and Reclamation Plan (ICRP)*, and to review the draft plan when submitted in 2007.

Terms of reference for the new *ICRP* were finalized in early April 2006. By June, BHPB was well underway with its consultation program. A site tour of Ekati was held in early July, followed a couple of weeks later by an 'options evaluation' workshop for Aboriginal representatives and Working Group members in Yellowknife.

This exercise produced a list of "preferred" closure options for each mine component. In October, BHBP distributed a list of 'global closure objectives' for review and comment.

The draft *ICRP* was submitted to the Wek'èezhìi Land and Water Board (WLWB) and distributed for review in January 2007.

Review of the *ICRP* by members of the WLWB's Working Group has been on-going since that time. It is an iterative process, reviewing the draft plan in sections, and expected to take many months to complete.

Similar to previous years, little progressive reclamation work was undertaken at Ekati in 2006. Some inventorying of stockpiles and test plots for revegetation success were undertaken in several areas, as reported in BHPB's *2006 Environmental Agreement and Water Licence Annual Report*.

Agency's Assessment

Closure planning for Ekati is again the primary focus of the Agency's activities. An elaborate process of technical work and community consultation has been established, in part by the company and in part by the WLWB, to get the work done properly and in a way that benefits from community input. ➤

The WLWB has established a solid approach to the technical review of the *ICRP* by setting up the Working Group and dividing the review into a number of iterative steps that allow for collaborative discussion about resolving issues.

BHPB conducted its own internal work toward developing the closure plan and invested considerable effort in conducting a number of community consultation exercises over the past year. Unfortunately, our view of BHPB's efforts in this regard is mixed at best.

The Process

While BHPB invested significant effort in its consultations about the emerging closure and reclamation plan this past year, it largely ignored good advice given on several occasions by a variety of reviewers, including ourselves. The resulting draft plan submitted in January 2007 was, in our view, deficient in key areas.

As early as March 2006, the Agency provided the company with substantial advice on both process and content gleaned from the results of an internal workshop. These recommendations appear not to have been adopted by BHPB in the *ICRP*. The options we proposed for a number of the mine components were not responded to by the company. Despite receiving numerous comments from many reviewers on the proposed closure objectives, the draft plan simply repeats the same closure objectives that had previously raised concerns.

Again, at the end of March 2006, as BHPB was heading out to implement its community consultation program, we made several suggestions to the company how the program could be improved, as noted in last year's annual report. We believed that both the timing and order of the planned activities were problematic. We were concerned, for example, that BHPB's internal closure risk assessment exercise, to be conducted prior to the community evaluation of options, would "predetermine" the options available for community consideration. We recommended to BHPB that an initial round of community consultations to identify closure issues, especially mine component specific objectives from which the options would be determined, should properly be followed by a second round of consultations to identify options. This list of options could then serve as input to BHPB's internal risk assessment. We also recommended that the results of the risk assessment should then be brought to the communities in a third round of consultation to evaluate the options and produce a preferred option for each mine component.

We were not the only party to be concerned about BHPB's consultation program. On May 16, 2006, Department of Indian Affairs and Northern Development (DIAND) wrote to BHPB stating that the proposed schedule is "very compressed, with limited time to accommodate each community and ensure adequate consultation and participation from the impacted communities". DIAND strongly recommended that BHPB reassess its timing and manner of consultations. DIAND also suggested that, by conducting its internal risk assessment of closure options in advance of consultation and multi-party workshops, the company "may have prematurely narrowed the discussion on reclamation methods".

Unfortunately, BHPB listened to neither of us. The result was general dissatisfaction on the part of community participants in the mid-July "options evaluation" workshop. The options they had to work with were "pre-selected" and there was little information about how they were derived. Further, there were no mine component-specific closure objectives identified for each of the options, so participants did not know what they were trying to achieve for each mine component. BHPB structured the workshop strangely, limiting participation by the communities and isolating the company's technical consultants, the regulators, and community members. The result was not as satisfactory as it could have been.

We are not alone in this assessment. A joint letter from DIAND and GNWT following the workshop noted that:

> "a meaningful discussion related to reclamation objectives and outcomes was noticeably missing from the workshop agenda. The pre-requisite constructive discussions were also restricted due to the limited permitted attendance, the pre-determined reclamation options and lack of interaction between technical experts and Traditional Knowledge experts."

The two governments also noted that their participation in the workshop and comments made by their staff did not concur with the process to date and the outcome of the workshop, and would be without prejudice to subsequent reviews of the *ICRP*. ➤

BHPB Responses to Agency *ICRP* Recommendations from last year (2005-06)

Key Recommendations	BHPB's Response	Agency's Comment
Use early and effective consultation with Aboriginal communities.	BHPB developed a consultation plan and implemented it in a timely fashion.	While the consultation program was timely, it was not effective for a number of reasons as discussed in the text.
Use outside expertise at key stages and for complex issues.	External technical assistance in preparation of draft *ICRP*.	Some deficiencies resulted: e.g., reclamation issues related to the settling of clay slurries in Long Lake not incorporated into BHPB's risk assessment.
Open the internal risk assessment process to participation by affected parties.	BHPB kept the risk assessment internal.	The derivation of the closure options for the evaluation workshop was not transparent. There is a lack of confidence in the results by participants.
Provide a clear statement of closure objectives for each mine component.	Not provided.	*ICRP* needs clear objectives for each mine component.
Provide a Reclamation Research Plan as required by Water Licence.	A number of research activities are underway, but BHPB provided no Reclamation Research Plan which ties them together and describes how they fit with the *ICRP* objectives, options, or criteria.	A Reclamation Research Plan is still required which ties the various studies together and describes how they fit with the *ICRP* objectives, options and criteria.
A comprehensive study of metal uptake by plants is required.	This research is apparently underway; no study design available.	Awaiting BHPB Response.
Open pits should be reclaimed to allow for biologically productive lakes.	Since BHPB has paid for destroyed lake habitat, it is not obligated to do this.	This has nothing to do with the Fish Habitat Compensation Fund or fisheries authorization and everything to do with BHPB's stated goal of restoring mine components to functioning elements of the ecosystem. If BHPB believes this is impracticable, then it should provide evidence that this is so.
Clay slurries (Extra-fine Processed Kimberlite) in Long Lake should be redirected to an open pit at closure.	The draft *ICRP* proposes that these remain in place.	The long-term stability of the Extra-fine Processed Kimberlite is highly uncertain. BHPB remains silent about the closure challenges for these materials.
The *ICRP* needs to include contingency measures for the absence of a winter road to mobilize closure programs.	No response.	This issue will arise in the consideration of financial security.

In last year's report (2005–06) we identified a number of key recommendations about the process BHPB should use in developing the draft *ICRP*. The table on page 16 reports on how some of these suggestions were handled by the company.

The Issues

As we go to print, we have had an opportunity to review BHPB's draft *ICRP* released for review in January 2007. We have identified several deficiencies and have conveyed our concerns to BHPB several times over the past year.

The most serious problem is the lack of component-specific objectives and usable criteria for measuring reclamation outcomes. Despite a number of discussions over the past two years with the company about the necessity of having clearly stated closure objectives for each part of the mine, the *ICRP* did not deliver. Without such objectives, the choice of what options to use for reclaiming any particular mine component cannot be made logically. BHPB's stated closure objectives were a confusing mix of corporate goals and operating principles. For example, one stated closure objective is "to ensure that the reputation of BHP Billiton as a responsible corporate citizen is maintained." While this may be an appropriate goal for the company in completing its reclamation work, it does not constitute a closure objective that generates closure options or criteria for someone reclaiming the site.

In a letter sent to BHPB in March 2007, we set out our concerns about the absence of mine component-specific objectives, the lack of detailed criteria for measuring whether the objectives were achieved or not and the lack of clearly defined links to a research plan to address any uncertainties in identifying sound criteria.

Additionally, a number of key closure issues are still not properly addressed in our view. If BHPB's reclamation goal is to restore the site, wherever practicable, to a viable, self-sustaining ecosystem (a goal that the Agency supports), then why are pit lakes not slated to be returned to productive aquatic habitat? BHPB's current plan is to install fish barriers to the lakes, so that the natural aquatic ecosystem cannot be fully re-established. And why would we not plan to pump processed kimberlite into available pits (like Beartooth–assuming enough processed kimberlite exists to fill most of the pit) to produce shallow lakes, avoid the need to establish meromixis (permanent stratification of the water column) and help restore aquatic life to the pits? Similarly, BHPB's plans to leave roads to revegetate naturally may not be the best means of promoting the early re-establishment of plant life.

These are examples of options that have been selected by BHPB which are not consistent with the overriding reclamation goal and for which supporting evidence as to why they should be adopted has not been presented.

In summary, some progress has been made towards the development of a new *ICRP*. BHPB has made considerable ➤

Enclosed revegetation test plot on cell B.

efforts in pulling material together, but the product has been undermined through incomplete consultation and inadequate incorporation of useful input from reviewers and communities in the early stages of planning. The lack of specific and coherent closure objectives for each mine component at this stage of the process is worrisome, although we understand that BHPB has agreed that such objectives will soon be inserted into the draft *ICRP*. While BHPB is in the process of addressing these deficiencies, we feel it is necessary to stress the desired responses through formal recommendations in this year's annual report. ■

Closure and Reclamation:

Recommendation 1

BHPB should develop mine component-specific closure objectives as part of the *Interim Closure and Reclamation Plan*. The objectives for each mine component should be linked to the overall site closure goal, and lead to measurable closure criteria.

Closure and Reclamation:

Recommendation 2

Where information uncertainties exist in formulating objectives, options or criteria for any mine component, BHPB should explicitly identify the uncertainties in the text of the *Interim Closure and Reclamation Plan* and link them to that part of the reclamation research plan that addresses them.

5.0 Aquatic Effects Monitoring Program

BHP Billiton's (BHPB's) Aquatic Effects Monitoring Program (AEMP) is a requirement under its water licence and the *Environmental Agreement*. The AEMP is designed to detect any changes that occur in the aquatic ecosystems downstream of the mine to enable effective environmental management.

The AEMP measures physical, chemical and biological features of the local aquatic environment that serve as indicators of change. Where appropriate, follow-up actions are to be taken by BHPB to minimize or correct any adverse effects that have been identified. In addition to monitoring the aquatic environment, BHPB is required to control water effluent quality and volumes at a number of regulated stations specified by its water licence.

Habitat protection sign at site.

There were no values above water licence limits for regulated parameters in 2006.

Outline of Monitoring

The monitoring frequency for water quality, hydrology, limnology, lake benthos, and stream benthos is every year; every three years for sediment quality; and every five years for fish communities. BHPB monitors phytoplankton and zooplankton annually in August.

The year 2006 was the ninth year of post-baseline data collection within the Koala drainage and the sixth of post-baseline monitoring within the King-Cujo to Lac du Sauvage drainage at the Misery site. Monitoring also occurs in three reference lakes and outflow streams (Figure 1).

Winter sampling under ice (lakes only) occurs in April when no water is being discharged from the Long Lake Containment Facility (LLCF). Winter dissolved oxygen concentrations are measured monthly except at Kodiak and Cujo lakes, which are measured weekly.

Open water sampling occurs during July, August and September after discharge has resumed. Sampling of streams includes water quality, stream benthos, and stream flow. ➤

Inputs to the Aquatic Receiving Environment

Processed kimberlite, treated sewage and pit water are discharged into two of the upper cells (A and C) of the LLCF. Water released from the LLCF enters the receiving environment of the Koala watershed through Leslie Lake, flowing downstream through Moose Lake, and eventually entering Lac de Gras.

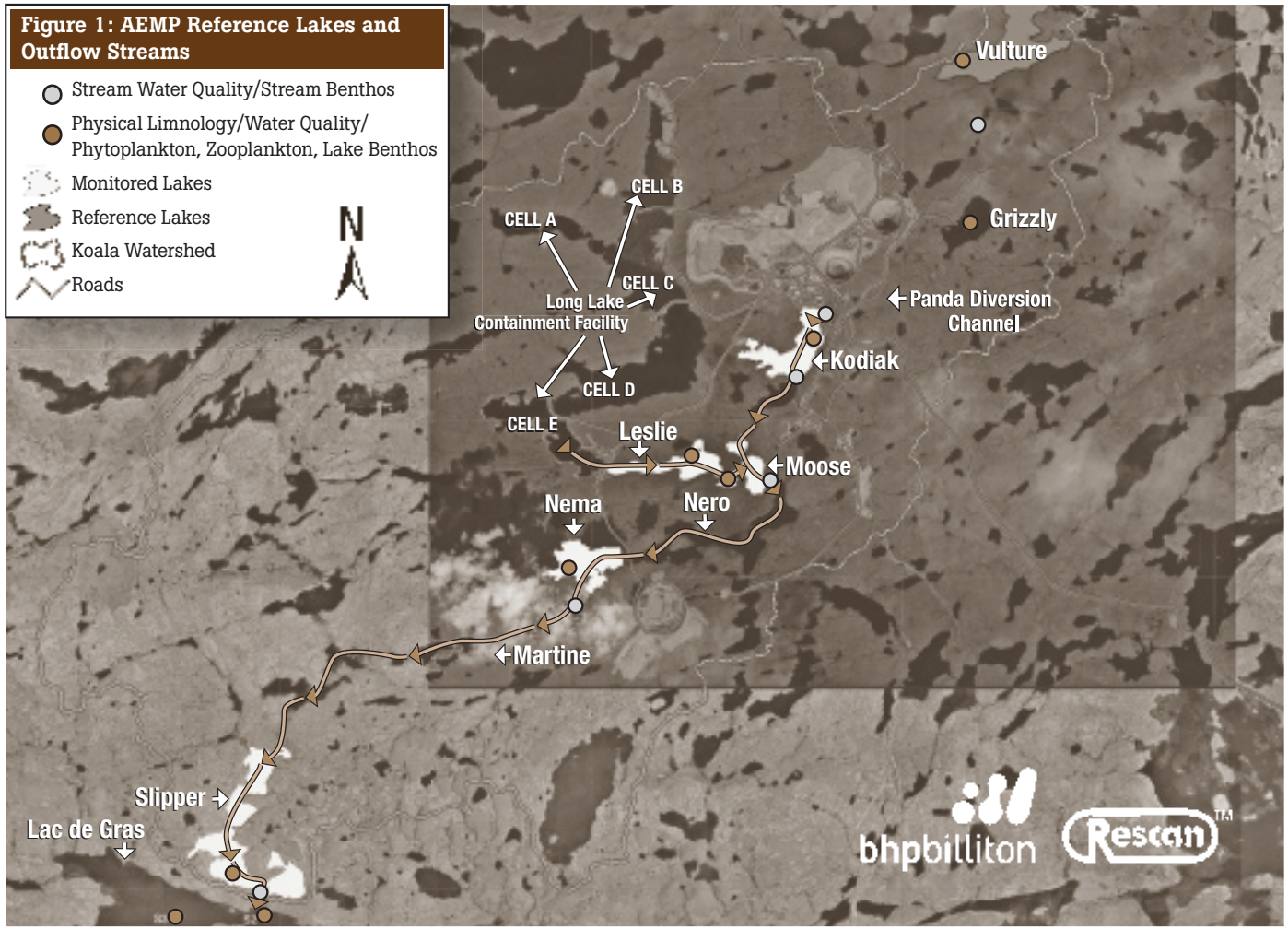
Water was pumped from cell E to Leslie Lake from June to December 2006. Water was discharged into Cujo Lake from King Pond from July to September 2006.

Results

The Agency is unable to evaluate the 2006 AEMP report as it was unavailable at press time. The only information for 2006 was a brief summary of AEMP results contained in BHPB's* Environmental Agreement and Water Licenses Annual Report *released in May 2006.

BHPB stated there were no problems with oxygen levels in any of the lakes. As well, the quality of all water pumped out of the LLCF and out of King Pond in 2006 was within water license compliance limits. ➤

Figure 1: AEMP Reference Lakes and Outflow Streams



Downstream of the LLCF and King Pond, variables elevated above baseline were reported as those indicated in Figure 2.

BHPB stated that only nitrates were above Canadian Council of Ministers of the Environment (CCME) guidelines for protection of aquatic life in AEMP lakes. However, molybdenum will likely be above the CCME level in 2007 in Leslie Lake and possibly Moose Lake, as surveillance network program (SNP) data showed molybdenum levels reached the CCME guideline value (0.073 mg/L) in September 2006 outflow from the LLCF.

AEMP Re-evaluation

As required by the new water license, BHPB conducted a re-evaluation of the Ekati AEMP. As stated in a letter from the Agency to BHPB, the re-evaluation was hampered by not having access to the results of the LLCF water quality study, an investigation begun in 2004 by the company. The Agency expects that the study results would yield information critical to better understand and manage the quality of water flowing downstream from the LLCF.

BHPB did a commendable job in conducting multivariate analysis on water quality data to: (a) determine which variables are most likely responsible for overall changes in water quality in lakes downstream of the LLCF (principal component analysis); and, (b) link water quality changes to changes in the biota, most notably the Cladocera population decline in Moose Lake.

The multivariate analysis determined that there were greater water quality changes over time in exposure lakes than in reference lakes. It identified Total Dissolved Solids (TDS) and related variables (including hardness, conductivity, calcium and chloride), alkalinity, antimony, barium, and nickel as the variables contributing most to this change.

However, it must be pointed out that nitrates and molybdenum, both important variables of concern in AEMP lakes, were not included in the analysis due to a small percentage of usable data points (more than 40% of data missing or below detection limit). ➤

Figure 2: Mining effects on water quality flowing through the Koala and King – Cujo Watersheds

	Parameters elevated in Koala watershed Long Lake Containment Facility ⇒ Lac de Gras					Parameters elevated in King-Cujo watershed: King Pond ⇒ Lac du Sauvage	
Parameters monitored	**Leslie**	**Moose**	**Nema**	**Slipper**	**Lac de Gras**	**Cujo**	**Lac du Sauvage**
pH	▲	▲	▲	▲	▲	▲	
Sulphate	▲	▲	▲	▲	▲	▲	
Potassium	▲	▲	▲	▲	▲	▲	
Total Disolved Solids	▲	▲	▲	▲	▲	▲	
Chloride	▲	▲	▲	▲	▲	▲	
Total Ammonia	▲	▲	▲	▲		▲	
Nitrate	▲	▲	▲				
Nitrite	▲	▲	▲				
Ortho-Phosphate							
Total Phosphorus							
Aluminum							
Arsenic	▲	▲	▲	▲	▲	▲	
Copper							
Molybdenum	▲	▲	▲	▲	▲	▲	
Nickel	▲	▲	▲	▲		▲	
Zinc							

▲ Levels elevated above baseline.
⇒ Flow from effluent source to ultimate receiving lake in watershed

The Agency encourages BHPB to explore ways to incorporate these two variables into the analysis.

The analysis also determined that Cladocera population declines in Leslie and Moose Lakes, first identified by the Agency, are attributable to changes in the quality of water (mostly water hardness) flowing from the LLCF.

Concerns with study design and statistical treatment of AEMP data were raised during the re-evaluation. Questions of pseudoreplication (water samples erroneously considered replicates from multiple lake sites but are actually subsamples of the same within-lake site) brought to light in earlier reviews of the AEMP were discussed. This is an important question as it can mistakenly cause us to inflate the validity of a statistical finding about the effect of the mine on lake water.

Also, there are no generally accepted site-specific thresholds for determining statistical effect size. That is, what magnitude of water quality and biological change is to be deemed acceptable (i.e. no mitigation or compensation measures are required) in the affected water bodies? To address these concerns BHPB has committed to: (a) sample from more than one site in at least two different lakes to evaluate intra-lake variability; and, (b) determine the effect size needed to evaluate acceptable thresholds of change in impacted fresh-water bodies. On the latter point, it would be prudent for BHPB to seek stakeholder input into the appropriate effect size, not simply use those proposed or implied from BHPB's *Environmental Impact Statement.*

2005 AEMP

During the preparation of last year's annual report the Agency had to rely solely on a summary document of the 2005 AEMP. We will now highlight some of the more significant results from the full 2005 AEMP report.

In Winter 2005, nitrate levels in Leslie and Moose lakes, and copper in Kodiak Lake (near the bottom of the lake) were above CCME guidelines for the protection of aquatic life. Oxygen in Cujo Lake returned to levels essential for fish at mid-depths. BHPB's consultant recommended continuing aeration of the lake over the winter in order to prevent further oxygen depletion due to increase in zooplankton biomass in 2005. ➤

Figure 3: Antimony: Moose Lake (August)

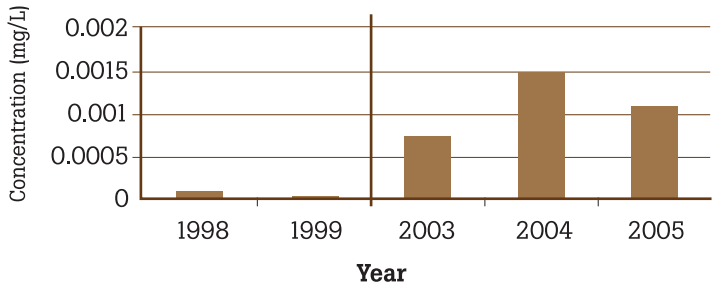
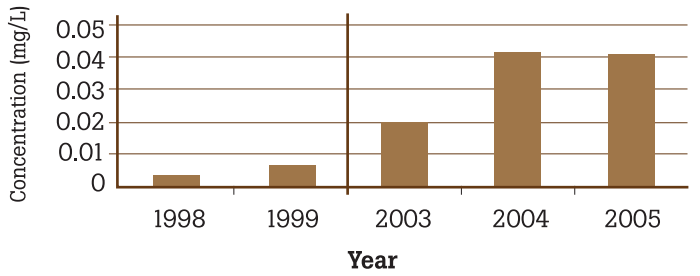


Figure 4: Barium: Moose Lake (August)



It is worthy of note that the trend for increasing levels of some metals in downstream lakes is also evident in metals that are measured but not evaluated in annual AEMP reports, as seen in Figures 3–5. Antimony was more than 10 times greater than reference lakes in 2004 and 2005. Barium was 17 to 24 times greater than reference in 2004; 20 to 30 times greater in 2005.

Strontium was more than 20 times greater than reference lakes in 2004; 30 times greater in 2005. While these metals are elevated above background and increasing, the Agency has no reason to believe that any of them are approaching levels that can have harmful effects on aquatic life or on human health.

As seen in the 2006 multivariate analysis discussed earlier, antimony and barium were among the variables whose increasing concentrations were found to contribute most to water quality change in lakes downstream of the LLCF. For this reason, a more detailed evaluation of these metals is warranted in future years.

Finally, the decline in cladoceran populations in Moose and Nema Lakes that the Agency has tracked for the previous four years was still evident in 2005 (Figure 6). ➤

Figure 5: Strontium: Moose Lake (August)

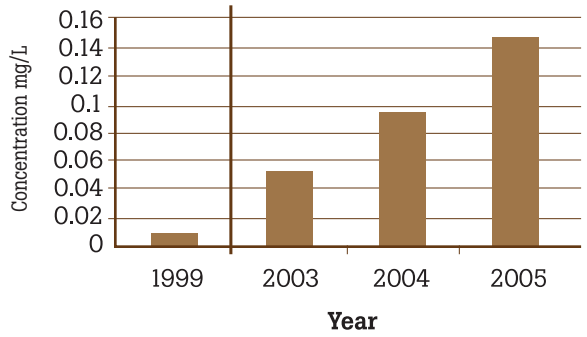
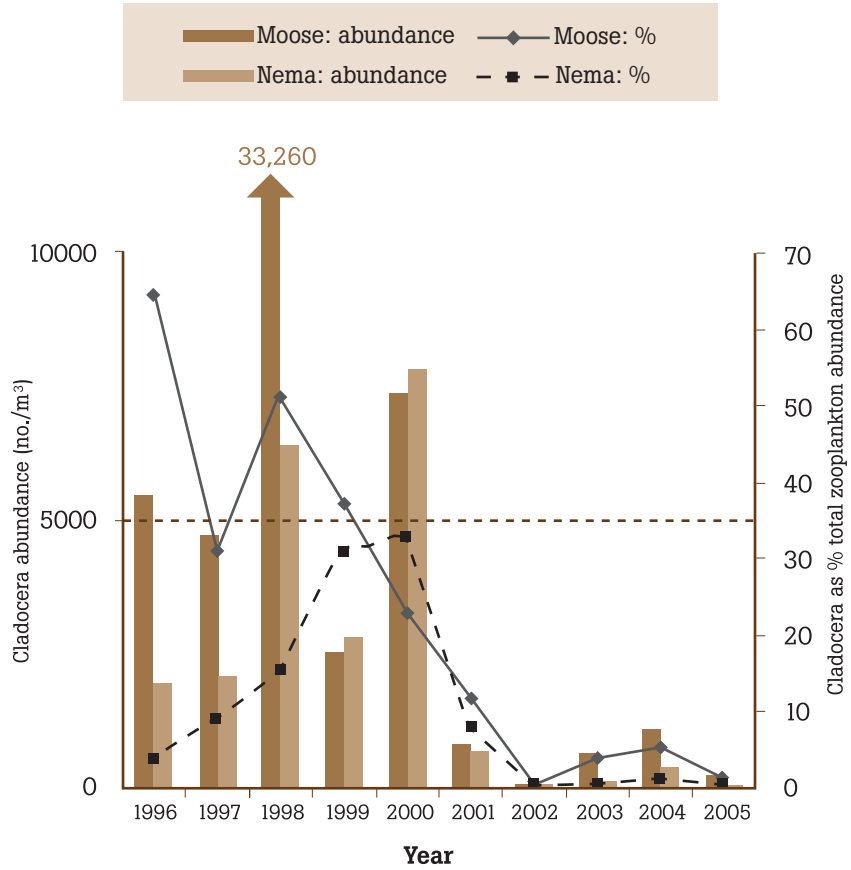


Figure 6: Cladocera Abundance in Moose and Nema Lakes



Agency's Assessment:

Water Quality

We believe that the AEMP results should feed into an Adaptive Management Plan, which requires tiered thresholds to trigger mitigative actions.

We are disappointed that a molybdenum risk assessment report, anticipated since summer of 2006, has not yet been provided. The Agency believes that this risk assessment would give stakeholders an understanding of how the ever-increasing molybdenum levels in AEMP lakes may affect aquatic life. Also, BHPB would be wise to raise the metals antimony, barium and strontium to the status of evaluated variables in next year's AEMP report whereby additional analysis is performed and presented.

Fish Palatability

BHPB proposes to deal with the mandated fish palatability study by conducting a monitoring program (DELT – Deformities, Eroded fins, Lesions and Tumors) relying more on examining fishes' abnormal external morphology. Aboriginal experts would conduct this monitoring.

We believe that BHPB should discuss the fish palatability testing methods directly with Aboriginal communities to seek consensus on a suitable fish palatability study. ■

Water discharge into Leslie Lake.

Adaptive Management Plan

- An Adaptive Management Plan (AMP) is required under the new water licence.
- Chloride risk assessment and LLCF water quality studies are critical to informed discussion on the AMP.
- We encourage BHPB to identify all water quality variables to be monitored (contaminants of interest).
- We encourage BHPB to identify thresholds that will trigger further studies (early warning indicators) and what studies would be triggered at those levels.
- These early warning indicators should be protective of the downstream environment and should respect the precautionary principle.
- We encourage BHPB to identify thresholds that will trigger more significant actions such as water treatment or shutting down water outflows.
- We encourage BHPB to identify the types of management responses (mitigation measures) and to incorporate them into appropriate management plans.

6.0 Panda Diversion Channel

***As the 2006 Panda Diversion Channel (PDC) monitoring report was unavailable at press time, we have only a limited amount of information from a brief summary of highlights contained in BHPB's* 2006 Environmental Agreement and Water Licenses Annual Report.**

This is especially unfortunate, as we had hoped to have a report on the results of recovery of fin-clipped grayling. These now sexually mature fish were marked as juveniles (by clipping the adipose fin) in the PDC in 2003. They should now be returning to the PDC if they survived in Kodiak Lake. We have been advised by BHPB that fish with clipped fins have been seen in the PDC, but have not seen the report with the required details.

The PDC continues to provide good fish habitat for spawning, rearing, feeding and inter-lake migration. Six fish species–arctic grayling, burbot, slimy sculpin, lake chub, lake trout and round whitefish-use the PDC.

Of 187 adult grayling captured in the PDC in 2006, 59% (110) were spawners, down from 266 last year. Most spawners were 7 to 9 year-olds. Most if not all of the spawners younger than 9 years old are believed to have been hatched in the PDC and survived in Kodiak and North Panda Lakes for 6 or 7 years until sexual maturity.

According to BHPB, egg hatching, alevin (newly-hatched fish with yolk sac still attached to its body) emergence from spawning beds and fry migration out of the PDC occurred earlier than in the three previous years due to an earlier spring. Physical condition of outmigrant fry did not differ from the two reference streams (Pigeon and Polar-Vulture streams) and fry growth rates were higher than in 2005 in all three streams. Other welcome news is the results of a new component of the grayling monitoring: lipid content of outmigrant fry. BHPB reports that lipid content of fry did not differ between the PDC and the reference streams. As well, lipid content seems to increase as fry size increases. All this suggests that grayling are physiologically equipped to survive their first winter in Kodiak Lake.

Fry production in the PDC was the lowest ever estimated (Figure 7), continuing a yearly downward trend since 2003. BHPB stated that production was underestimated due to earlier than expected outmigration occurring before monitoring equipment was in place. ➤

Figure 7: Annual Fry Production (gm/m^2 per year)

Stream	2003	2004	2005	2006
PDC	0.28	0.12	0.10	0.042
Pigeon	0.75	1.43	0.004	0.18
Polar-Vulture	0.11	0.0	0.002	0.047

Fish box in the Panda Diversion Channel.

In May, ice buildup at an outlet of Blip Lake caused sediment-laden water to move through the PDC. This pulse should have moved through the channel well before grayling began moving into the PDC in early June. Surveillance network program data taken at the PDC inlet (1616-12) and outlet (1616-13) on June 1 bear this out as total suspended solids (TSS) were at 3.8 mg/L (it had been 57.8 at 1616-13 on May 11). BHPB plans to mitigate this in future, by removing ice and snow from culverts at Blip Lake in Spring before freshet.

BHPB's draft *Interim Closure and Reclamation Plan (ICRP)* proposes keeping the PDC intact after all the mine pits are closed and reclaimed.

As a result, water will continue to flow from North Panda Lake to Kodiak Lake through the PDC rather than being routed through Panda and Koala Pit lakes. BHPB wants to retain the PDC as a grayling stream that will require a minimum of human maintenance after mine operations cease. The plan is to recontour the deep "canyon" stretch of the lower PDC so that rockfalls that could block the channel and ice buildup resulting in high TSS loadings through the PDC at freshet would not occur. Erosion control modifications on side slopes, such as riprapping with rock, will be built. The culverts under roads crossing the PDC will also be removed. ■

The Panda Diversion Channel.

7.0 Air Quality Monitoring

A number of operations at the mine affect local air quality and, consequently have the potential to affect water quality and vegetation important to wildlife. Sources of airborne contaminants include the diesel electricity plant, diesel powered heavy equipment, incinerator operations, blasting in pits, road traffic and waste rock and tailings dust from the Long Lake Containment Facility (LLCF).

BHPB's Air Quality Monitoring Program Results.

The Agency received BHP Billiton's (BHPB) *2005 Air Quality Monitoring Program* (AQMP) report in October 2006. The AQMP results are only reported every three years and the report presented and interpreted only the results from 2002-2005. There was no comparison to any previous results collected since 1998. ➤

Haul trucks generate dust.

BHPB's current air quality monitoring program consists of:

- Air emissions and greenhouse gas (GHG) calculations;
- High Volume Air Sampling (HVAS);
- Snow sampling;
- Lichen sampling; and
- Vegetation distribution surveys.

BHPB's report concluded that:

- emissions of nitrogen dioxide, sulphur dioxide and GHG emissions increased due to increased activity at the site;
- emissions of particulate matter decreased over the same period;
- total suspended particulates (TSP) concentrations were well below Canadian Air Quality Objectives;
- snow samples showed winter loading of TSP and a number of metals likely associated with fugitive dust and fine particulates in a zone of approximately 18 km around the Ekati Mine footprint;
- gaseous emission and blasting (NO_3, SO_4, NH_3) showed no trend with distance from mining operation suggesting that they are quickly advected out of the region; and,
- lichen samples were collected for a single species and concentrations of 10 metals were higher near the mine infrastructure than at background stations and showed a zone of influence of approximately 18 km around the Ekati Mine footprint.

Agency Assessment of Air Quality Report

To help the company better adjust its air quality monitoring program, the Agency commissioned an independent consultant to review the *2005 Air Quality Monitoring Report* and a modelling report (the model used is known as "CALPUFF").

It is the Agency's view that there are some fundamental problems identified in the results presented for the air quality modelling (CALPUFF) and the monitoring program. Furthermore, the AQMP needs to be reviewed by BHPB, Environment Canada (EC), and Environment and Natural Resources (ENR) of the Government of the Northwest Territories (GNWT) and revised to ensure that data are collected correctly and are useful for producing a reliable picture of air quality impacts at Ekati. Our greatest concern is with suspended particulates deposited on lichens, which in turn may be eaten by caribou.

The Agency is in the process of considering the technical review we commissioned and hopes to discuss it with BHPB and others. The results will be covered in our next annual report.

The Agency is increasingly disappointed to not have a reliable air quality monitoring program in place at Ekati after 10 years. In addition, as we have suggested in previous annual reports, we see a need for BHPB to work collaboratively with EC and ENR, GNWT air quality officials in designing and implementing air quality modelling and the monitoring programs.

The Agency's primary concern continues to focus on the levels of total suspended particulates and dust deposition around Ekati. BHPB has indicated in its results that snow and lichen samples have elevated (above background) levels of metals–such as aluminium, chromium, cobalt, lead, molybdenum, titanium, iron, nickel and magnesium–likely associated with fugitive dust and fine particulates. ➤

New air quality monitoring station at Grizzly Lake.

These are detectable above background levels in a zone approximately up to 18 km around the Ekati Mine footprint. These elevated levels may extend farther than 18 km, but spatially appropriate sampling to examine dust deposits at gradients outside the mine footprint is lacking.

Over the years, we have heard from Aboriginal Elders and participants at caribou workshops and have expressed many times ourselves concerns about the possible effects on caribou from exposure to dust from eating vegetation or from direct ingestion of soils near the mine. The Agency would like to see BHPB investigate and clearly report on the potential linkages among the different monitoring programs and attempt to link dust deposition and ambient air quality effects on lichen with potential effects on caribou.

We recommend that BHPB improve the AQMP with the analysis of faecal pellets from caribou for possible evidence of exposure to dust and metal uptake.

BHPB's Activities in 2006

The Agency would like to commend BHPB: (a) for its emission mitigation efforts, including the Energy Smart Program, which has resulted in a significant decrease in fuel consumption: and, (b) for its proposal to install wind generators. Both initiatives show the company is serious about reducing its greenhouse gas emissions. We note that BHPB has constructed a new, more efficient incinerator west of the main camp and a new HVAS station at Grizzly Lake. The Agency supports both of these initiatives to improve air quality and monitoring.

Last year, the Agency suggested that as part of the five-year fish sampling program, fish should be analyzed for organochlorines. Such sampling should determine whether there have been any effects in Kodiak Lake compared to other lakes as a result of deposition from incinerator-burning of plastics. We were pleased to see that the company will implement this new monitoring and analysis in the future. ■

8.0 Wildlife Effects Monitoring

The Agency participated in the Bathurst caribou herd workshop in Yellowknife in December 2006 and the Caribou Summit in Inuvik in January 2007. The continuing decline of the Bathurst caribou herd was confirmed in 2006 and is of vital concern to our Aboriginal members. For example, Wekweti community members raised concerns during our fall community visit.

BHP Billiton's (BHPB) Wildlife Effects Monitoring Program (WEMP) documents wildlife impacts resulting from mining activities and assesses the effectiveness of wildlife mitigation and management efforts. The WEMP at Ekati is in its 10th year.

Over the past three years, the release of the WEMP by BHPB has occurred later each year and, at the time of writing this report, the 2006 WEMP was not available for review. ➤

Caribou on-site.

***This has severely limited our ability to assess the wildlife monitoring program and report back to stakeholders. This review is based solely on a four page summary of the 2006 WEMP provided in the* 2006 Environmental Agreement and Water Licence Annual Report.**

In 2006, the WEMP focused on caribou, grizzly bears, wolverines, wolves, falcons, and upland breeding birds (these animals are considered as Valued Ecosystem Component species or VEC's). Monitoring techniques included aerial surveys, ground behaviour observations, snow tracking and compilation of incident reports and visual observations. The caribou study area was expanded in 2006 from 2,800 km^2 to 6,300 km^2 to provide better coverage of caribou presence over a larger area.

Wildlife Incidents

BHPB has worked hard to improve its waste management practises to reduce attractants at landfills, including increased educational efforts and incentives. Other efforts to reduce wildlife incidents include an eight-strand electric fence around the airstrip and use of inokhok to keep wildlife away from high traffic areas. No VEC wildlife was reported destroyed at Ekati in 2006. Nine vehicle-related animal mortalities were reported, none involving large mammals or VEC species. Nine non-vehicle related wildlife mortalities were observed on site, involving five caribou, two birds, a wolf, and a muskrat. Incidental observations of grizzly bears (63) and wolves (47) were documented during 2006, with deterrents used in 8 and 4 instances respectively.

Caribou Monitoring

BHPB spends considerable effort to document caribou abundance, distribution and behaviour relative to the mine, including a suite of aerial and ground-based surveys. The aerial surveys provide data to assess distribution and habitat use relative to distance from mine infrastructure. Building on work conducted by BHPB in 2005, the 2006 WEMP summary and recent research by independent biologists using data from both collared caribou and aerial survey results have suggested: (a) the abundance of caribou has declined in proximity to mine infrastructure; and, (b) that groups with calves were less likely than non-nursery groups to be found closer to mine development. Snow track surveys and road monitoring suggested that higher snow banks and heavy truck traffic decrease the chance that caribou will cross roads. Caribou did not appear to habituate to roads in place for a long time. Studies showed that distance from the mine does not influence the behaviour of caribou, but that response to a stressor (such as the blast from a pit or a truck passing) was greater with decreased distance to the stressor or if calves were present.

About 37,000 caribou were counted within the Ekati study area in 2006, with a peak in numbers around July 8–9 and in late September. Data since the late 1990s have shown a decreasing trend in the number of caribou in the Ekati area during the northern migration, but no trend in numbers during post-calving migration. The Ekati Caribou and Roads Traditional Knowledge (TK) project continued, with the objectives to involve Aboriginal communities in monitoring caribou interactions with roads and mine infrastructure and to develop a means of effectively implementing TK within the wildlife monitoring program. A report on the 2005 work was released in 2006. Recommendations derived through on-site observations by Elders and a workshop held in Kugluktuk in January 2006 included various options to enhance the deterrence of caribou from hazardous areas (e.g. pits, airstrip). Based on this workshop, a temporary snow fence was erected on the east side of the Beartooth Pit and inokhok were bolstered at the airstrip and Pigeon and Fox pits. This program represents an excellent example of incorporating TK into environmental management at the mine.

Wolverine Monitoring

BHPB has continued with efforts to reduce incidents with wolverines, including waste management, building inspections, reinforced skirting around buildings and use of escalating deterrents. ➤

Wolverine.

Perhaps as a result of these efforts, the number of incidental wolverine observations decreased from 128 in 2005 to 23 in 2006. In 2005 and 2006, BHPB and three other mining developments participated in a regional wolverine Deoxyribonucleic Acid (DNA) sampling program operated and coordinated by the Government of the Northwest Territories (GNWT) Environment and Natural Resources (ENR). Results of the DNA sampling program have not yet been released, although we are optimistic that the study will provide useful results. No wolverine snow tracking was conducted in 2006.

Bird Monitoring

Surveys for upland breeding birds at Ekati continued in 2006. Common ravens, peregrine falcons, rough-legged hawks, and gyrfalcons have attempted to nest on pit walls at Ekati. Birds and/or nesting activity were identified in every pit in 2006 and two peregrine falcon chicks fledged from the Beartooth Pit. Raptor surveys have documented a continued decline of gyrfalcons at breeding sites relative to peregrine falcons, likely related to natural cycles and prey (ptarmigan) abundance.

Wolf track at the Long Lake Containment Facility.

Dust and Vegetation Reporting

Participants at past environmental workshops, as well as at the 2006 caribou workshops, raised the issue of dust deposition on the land and vegetation that may affect both caribou use of habitat near development and caribou health directly through ingestion of contaminants. BHPB released a report in 2006 detailing its air quality monitoring program. Although positive advances have been made in monitoring design in recent years, a number of concerns have been raised, including the requirement for more extensive and spatially appropriate sampling to examine dust deposits at gradients outside the mine footprint. For more information see Air Quality Monitoring Section page 25.

Agency Assessment

We commend BHPB for instituting in 2006 a revised design and expanded study area for aerial caribou surveys. The expansion in study area was primarily to incorporate areas of low probability of effect of mine development and to better calculate a zone of influence of the development on caribou. Because of the proximity of the Diavik Mine and Ekati infrastructure (the Misery Pit is located seven km from the Diavik Mine site), caribou monitoring and assessment need to reflect infrastructure at both developments. It is our understanding that Diavik has not adjusted its caribou aerial monitoring study area, resulting in lower compatibility of programs between mines and greater uncertainty in assessing potential effects of Ekati on caribou. Caribou monitoring programs among mines should be compatible and facilitate use by others for cumulative impact monitoring and assessment.

In the *2005 Environmental Agreement Annual Report* and during various public meetings (e.g., the December 2006 Bathurst caribou workshop), BHPB has claimed "there have been no on-going negative effects from the mine on caribou." Analyses conducted by BHPB's own consultants in 2005, in the 2006 WEMP summary and by other researchers have shown that the probability of observing a caribou decreases closer to the Ekati footprint. Research indicates that the Misery Road acts as a semi-permeable barrier to caribou movement. We suggest that BHPB acknowledge that Ekati affects caribou; continued statements to the contrary diminish the excellent efforts the company makes at mitigating impacts.

The *2006 Environmental Agreement and Water Licence Annual Report* states that the residual effect of "alteration of caribou distribution" has increased in magnitude from negligible in 2003 to moderate in 2006. BHPB states that this is "unavoidable", whereas other residual effects are subject to compensation, management or mitigation. Given the importance of caribou in the North, we find this is not a satisfactory conclusion and encourage BHPB to assess the impact more fully, identify the mechanism for displacement and assess further mitigation and management options. This is, of course, especially important in the context of *Interim Closure and Reclamation Plan (ICRP).* ➤

BHPB's efforts to reduce incidents and attractants to wolverines are commendable. However, because of agreement among participating mines (including BHPB) and ENR, no data and no results from the wolverine DNA sampling program conducted at Ekati in 2005 and 2006 will be released until a final paper is completed and approved by all parties, likely sometime in late 2007. No rigorous snow tracking surveys have been conducted since 2004 (snow tracking in 2005 consisted of limited effort).

We are frustrated that no results pertaining to the mine's impact on wolverine distribution or relative abundance will be made available for a three-year period. We urge BHPB to consider releasing preliminary data or a summary of the results from the DNA sampling program or, alternatively, to maintain some consistency in the monitoring, e.g. conduct further DNA inventory collections at minimum for two 1-year intervals.

Regional Caribou Monitoring and Cumulative Effects

Regional caribou monitoring has been a focus of the Agency's comments for a number of years. The changes to the BHPB caribou monitoring program, primarily to a larger study area around mine infrastructure, will enable better mine-specific assessment of effects and can better contribute to regional monitoring.

We remain, however, disappointed by the lack of progress made by others on regional and cumulative effects assessment and monitoring of caribou. Participants at the December caribou workshop echoed these sentiments. Despite clear action plans and strategies laid out in GNWT's *Barren-ground Caribou Management Strategy* and the *Bathurst Caribou Herd Management Plan*, little concrete work has been conducted to date. One of the high priority action items of the *Bathurst Caribou Herd Management Plan* was to prepare and implement site-specific monitoring and mitigation programs to detect and address impacts of industrial development projects on caribou behaviour and movements, and ensure these programs be developed and implemented using standardized monitoring protocols linked to cumulative effects monitoring programs. Strategy #10 of the *Barren-ground Caribou Management Strategy* proposes to develop models to assess the cumulative effects of human and natural impacts on caribou, including use of a workshop approach to incorporate mine-based monitoring of caribou activity with demographic and environmental information to model cumulative effects. To date, little progress has been made furthering cumulative effects assessment on the Bathurst caribou herd.

The responsibility for this work clearly lies with GNWT and Government of Nunavut (GN). A regional dust monitoring program* or modeling of cumulative impacts on caribou are examples of programs that could be instituted in order to assess cumulative effects at larger scales.

Dust monitoring at the mine-specific regional study area scale is being conducted by BHPB; government agencies should address this issue at larger scales across the landscape.

Although the Agency has a special role to play in providing oversight for the Ekati-specific monitoring programs, we and the other independent monitoring bodies also share responsibilities for the consideration of each mine's contribution to the cumulative effects on the Bathurst caribou herd. Monitoring programs should be coordinated, compatible, reflect best practices, and provide the necessary information for improved cumulative effects assessment and management. ■

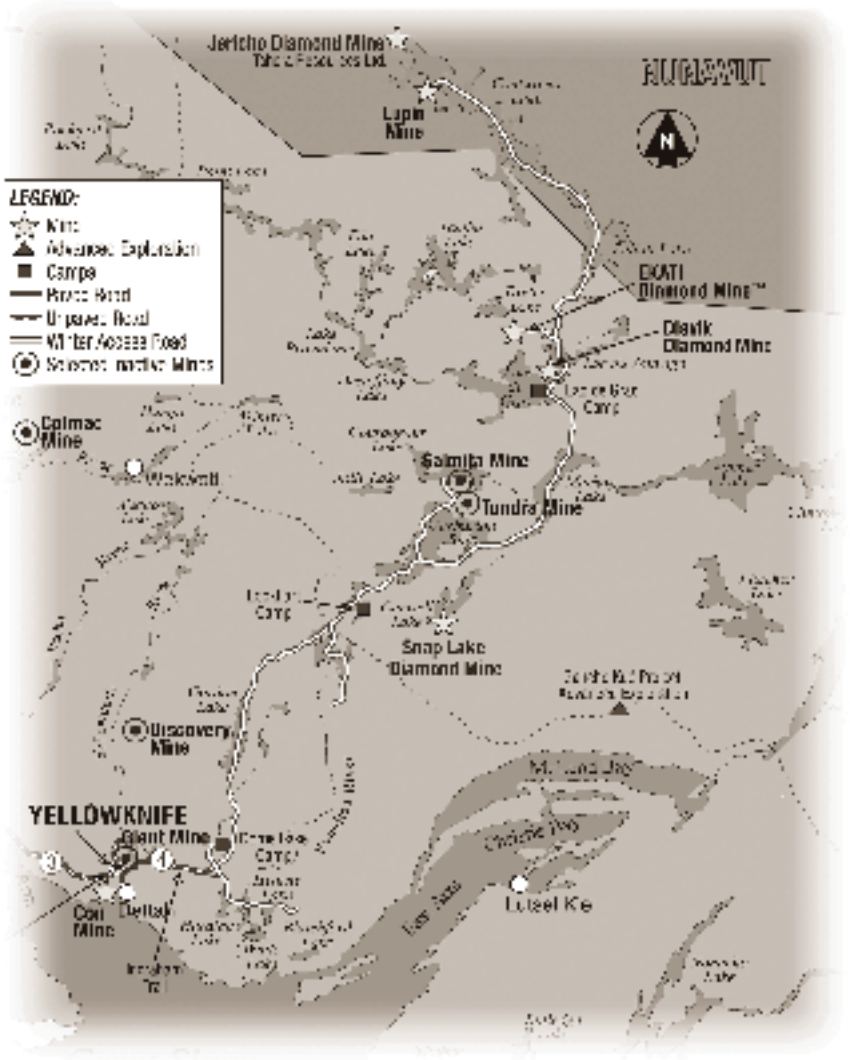
* Through faecal pellet (ash content, an indication of ingested dust) or lichen monitoring (to examine metals and contaminants on vegetation).

Regional Monitoring, Cumulative Effects and Wildlife:

Recommendation 3

There has been a lack of progress on cumulative effects on caribou. GNWT and GN should make greater efforts towards regional and cumulative effects monitoring and assessment, primarily as it relates to caribou.

9.0 Regional Monitoring and Cumulative Effects



The Agency's most significant involvement in regional and cumulative effects this year has been in encouraging more effective cumulative effects monitoring of the Bathurst caribou (see Wildlife Effects Monitoring section page 27). We have done this following our meeting in Wekweti, where we heard a lot about the importance of the herd to the Tlicho and, in collaboration with other monitoring agencies (the Environmental Management Advisory Board for Diavik and the Snap Lake Environmental Monitoring Agency for the Snap Lake Mine). In addition, there has been more progress made toward the implementation of the Multi-Project Environmental Monitoring Agency (MPEMA), which is intended to replace the three existing monitoring agencies in order to achieve better regional and cumulative effects coverage (among other things). The Agency has contributed advice on how to make MPEMA more effective when asked to do so. Last year, Agency representatives provided advice on financial planning and internal operations of the Agency to a consultant assisting the MPEMA steering committee in drafting a budget.

In addition there has been some debate over the meaning of cumulative effects and the responsibility for managing cumulative effects in the Northwest Territories. This has come about in the context of an observed decline in the health and numbers of the Bathurst caribou herd. It is the Agency's view that cumulative effects are the effects of a project (for the Agency, this project is the Ekati Mine) in combination with the effects of other human activities.

The approach of viewing cumulative effects as the total effects of a single project is very weak. It is crucial to examine all impacts of all human activities on the herd. This is what should be meant by cumulative effects. It is clearly the total (cumulative) impact that must be properly managed.

In the context of responsibility for cumulative effects management, the Agency continues to follow the implementation of the Cumulative Impact Monitoring Program and the Cumulative Effects Assessment and Management Framework and Strategy.

We suspect that lack of adequate funding for these programs has limited the amount of information available to set the context for assessing BHPB's contribution ➤

(and the contributions of others) to cumulative effects in the Lac de Gras area.

We understand that the responsibilities for managing cumulative effects is a shared responsibility and we will be further pursuing efforts to have responsible governments develop more effective approaches to monitoring, reporting and managing data. These can then be used more effectively for regional cumulative effects management by BHPB and others. ■

Diamond drill rig at Pigeon Pipe.

10.0 Traditional Knowledge

Under the *Environmental Agreement*, BHP Billiton (BHPB), the Government of the Northwest Territories (GNWT) and the Department of Indian Affairs and Northern Development (DIAND) agreed to fully consider both Traditional Knowledge (TK) and other scientific information when dealing with environmental matters at Ekati.

The Agency congratulates the Kitikmeot Inuit Association (KIA) and BHPB on the successful completion of the Naonaiyaotit Traditional Knowledge Project (NTKP).

The Agency was pleased to have KIA and BHPB make a presentation outlining the project at our Annual General Meeting last year. We were privileged to be shown the NTKP paper products (reports and maps). The project offers KIA and others the opportunity to contribute to more effective and acceptable development by using the carefully recorded TK collected over the years as part of this project.

The Agency was also pleased to see BHPB continue with the Caribou and Roads Project with the Elders Advisory Group from Kugluktuk. This is a good example of how BHPB is using TK in managing the environmental effects of the Ekati Mine. The Elders visit the site and not only monitor caribou interactions with roads and mine infrastructure but spend time with youth from the communities, mine managers and environmental staff, providing for an exchange of scientific and TK.

This exchange of information has resulted in recommendations that were acted on by BHPB (e.g. use of inokhok and snow fencing) to deter caribou and other wildlife from coming near mine infrastructure. These recommendations were carried out by BHPB. ➤

Aboriginal Elders visit Ekati.

The Agency commends Helen Enogaloak of Kugluktuk (the Elders' assistant and interpreter) for working with the Elders Advisory Group and encouraging them to have discussions with other Elders in the community. Her work with the project assisted BHPB in hosting a successful workshop in Kugluktuk to obtain TK and recommendations from other Elders in the community on wildlife issues at the site, as well as a forum to obtain feedback on new projects that the company is considering; for example, the wind turbine project.

Lutsel K'e visitors at Ekati.

While the Elders Advisory Group from Kugluktuk has been working well, BHPB could benefit from incorporating TK from all people who traditionally have used the Ekati area.

The Agency recommends that BHPB set up a program that involves Elders from all affected communities and that a workshop be held where the information and observations collected can be shared with all interested parties.

The Agency also continues to express our concern that BHPB needs better documentation to explain how TK is being used in other operations at the mine site. For example, the *2006 Environmental Impact Report* stated that the company is monitoring vegetation based on TK to indicate changes in permafrost. A better description of this monitoring and the contributions of TK should be provided in a report. In addition, it would be useful to know how TK from Aboriginal employees, the NTKP and other community and Elder site visits have improved environmental management at Ekati. ■

11.0 Assessment of the Regulators

The Regulators and Our Mandate

As a public watchdog for environmental management at Ekati, our mandate includes assessing not only the performance of BHP Billiton (BHPB) but also of the federal and territorial government agencies and other organizations set up to provide the regulatory oversight of the mine. The following are comments from the Agency regarding Ekati regulators' performance.

Agency's Assessment

In 2006-07 regulators involved in monitoring the environmental effects of Ekati, issuing licences or authorizations and conducting inspections included Department of Fisheries and Oceans (DFO), the Department of Indian Affairs and Northern Development (DIAND), Environment Canada (EC), the Government of the Northwest Territories (GNWT) and the Wek'èezhìi Land and Water Board (WLWB).

In our view, the regulators were effective in ensuring that BHPB remains in compliance with its permits and authorizations and operates in a manner protective of the environment. The following are some comments on individual government agencies and their performance in 2006-07.

Department of Fisheries and Oceans

Last year, we suggested DFO take a more active role in providing guidance to BHPB in the *ICRP* development process on the potential for mine components, such as pit lakes and water diversion channels, to become fish habitat when mining ceases. In our view, DFO has satisfactorily engaged in a dialogue with the company on this topic. We have noted that repeated staff changes at DFO have led to a loss of 'corporate memory' available at DFO and urge the Department to increase its effort to address this challenge and fill permanent staff positions next year. We also encourage DFO to continue to use its southern technical expertise on an "as needed" basis.

Department of Indian Affairs and Northern Development

Last year, we commented on a recurring problem at DIAND – its inability to assign a full-time inspector to the Ekati file. We believe the Ekati operation, as the single largest industrial development in the Northwest Territories, requires a full-time inspector. We are pleased to report that this position was filled in 2006 and regular inspections have since occurred. ➤

In 2006–07, the Agency observed a strong and, at times, outstanding performance by DIAND's Water Directorate in its frequency and quality of technical reviews of matters related to environmental management at Ekati. DIAND's consistent and reasonable advice related to consultation, policy and reclamation guidelines were evidence to us that it is taking its responsibilities seriously toward ensuring that Ekati is properly closed. DIAND's use of technical expertise to assist in preparing comments on aquatic monitoring and mine reclamation is appreciated.

Government of the Northwest Territories

Over the past year GNWT–Environment and Natural Resources (ENR) has provided substantial comments on BHPB's environmental performance. GNWT's review of the annual environmental and three–year environmental impact reports, dealing with wildlife claims and with air quality, resulted in 'Minister Reports' being issued for the first time under the *Environmental Agreement*. Although some progress was made by BHPB in addressing these comments, GNWT's concerns regarding unsubstantiated conclusions remain outstanding. GNWT provided detailed comments to BHPB on management of hydrocarbon materials and coordinated wolverine Deoxyribonucleic Acid (DNA) monitoring at Ekati within a larger regional study area. We would like to see ENR maintain an active involvement in the *ICRP* process, particularly with regard to development of reclamation objectives for wildlife safety (where ENR can play an essential role) and end land use at Ekati.

Environment Canada

Environment Canada has continued with on–going regulatory reviews of management plans and reports with a focus on water and air quality. EC's main contributions over the last year focused on review of the proposed revisions to the Aquatic Effects Monitoring Program (AEMP), participation in the *ICRP* Working Group and working with BHPB and the GNWT to improve air quality modelling and monitoring.

Wek'èezhìi Land and Water Board

2006–07 marks the first full year of WLWB jurisdiction over Ekati's water licences and land use permits. Carryover of key personnel and operating procedures has resulted in a smooth transition from the Mackenzie Valley Land and Water Board. We have observed the WLWB advance its capacity to manage multi–stakeholder reviews of key Ekati projects. The establishment and guidance given to the *ICRP* Working Group best exemplified this. The WLWB staff have provided us with beneficial advice on how best to shape our submissions to the WLWB and we appreciate this guidance. We feel the staff have been doing a commendable job and we have observed an increased effort by the board to make its decisions more timely and clear. One area for potential improvement within the WLWB is its ability to access the right technical expertise to obtain the information it needs to make complex decisions. ■

BHPB staff tour Ekati with visitors.

12.0 Assessment of BHPB

As we have reported in previous years, the on-site environmental performance of BHP Billiton (BHPB) remains good. This fact must be tempered by the observation that we have, at the time this report was printed, seen neither the Aquatic Effects Monitoring Program (AEMP) nor the Wildlife Effects Monitoring Program (WEMP) reports for 2006. Preliminary results are available from BHPB's annual environmental report and form the basis for the preliminary observations indicated elsewhere in this report.

BHPB has developed and implemented an energy conservation program at the mine site. This program has been very successful, reducing energy use by over 1.5 million litres of diesel fuel in the year ending June 2006 and over three million litres since 2002 when the program began and, of course, reducing emissions correspondingly. BHPB is to be commended for this initiative.

BHPB committed substantial resources to development of an updated *Interim Closure and Reclamation Plan (ICRP*) and in our view this was a positive effort by the company to progress on closure and reclamation planning at Ekati. However, the disinclination of the company to put forward mine component-specific objectives, which would have allowed reviewers to evaluate various options for reclaiming mine components at Ekati, was a serious oversight. BHPB received advice repeatedly on this subject from various government departments, Aboriginal groups and ourselves throughout the consultation process. Our report this year contains two recommendations to BHPB to assist it in developing a better closure plan capable of guiding reclamation at Ekati. For further information please see the 'Closure and Reclamation' section at page 14.

The three-year Environmental Impact Report (EIR) is an important document under the *Environmental Agreement*.

Dialogue at the Fox Pit.

The report contains a discussion on long-term effects of the project compared to baseline conditions (what the site was like before the mine), the results of environmental monitoring programs and the performance of Ekati compared to the impacts predicted in the original *Environmental Impact Statement*.

BHPB held an extensive consultation process and hosted a site visit to discuss the contents of the *2006 EIR*, which included technical meetings with its consultants. We found this to be a beneficial approach. These technical meetings ➤

Agency director speaking with BHBP staff.

arose out of concerns raised by the Aboriginal Society members at the Agency's 2005 Annual General Meeting. In our review of the report we suggested that BHPB could better distinguish between adaptive environmental management and standard management practices and that the results of some monitoring programs do not allow for significance determinations or conclusions. We also noted a variety of minor issues for BHPB to consider in the 2009 report. GNWT was of the view that the *2006 EIR* was not satisfactory due to the insufficient information to support the statements that air quality and wildlife monitoring show that effects were minor. For the first time under the *Environmental Agreement*, DIAND issued a Minister's Report (a tool used to compel BHPB to correct deficiencies).

A second Minister's Report was issued with regard to BHPB's 2005 annual report as a result of similar concerns expressed by GNWT. As we go to print, progress has been made on these issues; BHPB provided additional air quality monitoring information and the parties are working towards a resolution.

Last year, one of our recommendations was that BHPB should provide adequate resources to its Environment Department to allow it to meet the obligations under the *Environmental Agreement* and regulatory instruments.

We understand that the company continues to experience difficulty in staff retention and recruitment. In our view, there has been little progress as reports continue to be delayed.

For several years now, we have observed that a number of annual environmental monitoring reports [AEMP, WEMP and Panda Diversion Channel (PDC)], which used to be available as early as December of the current year, are becoming available later and later (into the summer of the following year). This is affecting our ability and the ability of others including the regulators to review the previous year's environmental performance and to report on the results in this annual report. It also prevents the Agency and others from providing meaningful input into improving the monitoring programs prior to the next year's field season. We are currently tasked with reviewing BHPB's *2006 Environmental Agreement and Water Licence Annual Report*. We are unable to effectively comment on the findings contained in BHPB's report due to the absence of the key environmental monitoring program reports mentioned above.

We also observe that this is the tenth anniversary of the *Environmental Agreement* and thus, it is the second opportunity to revise the *Environmental Agreement*. We recommend that the *Environmental Agreement* be amended to set March 31 as a firm deadline for submission of the AEMP, the WEMP and any other regular monitoring program reports (e.g. the air quality monitoring program carried out every three years).

Last year, we reported on the resolution of an on-going dispute with the company regarding the Agency workplan and budget. With those issues behind us, we are disappointed to report that two new issues flowing from the interpretation of the mediation *Resolution Agreement* have arisen. They relate to use of funds for Agency participation as an intervenor in regulatory and other legal processes and the authority of the Agency to solicit and receive outside funding without BHPB's approval. As we go to print, we are likely headed toward more mediation and we hope an additional agreement can be reached in a timely manner. ■

Assessment of BHPB:

Recommendation 4

DIAND, GNWT and BHPB should amend the *Environmental Agreement* to set March 31st as the deadline for submission of the AEMP and WEMP annual reports.

Financial Statements March 31, 2007

Management's Report

The management of the Independent Environmental Monitoring Agency is responsible for the integrity of the accompanying financial statements. The financial statements have been prepared by management in accordance with the accounting principles disclosed in the attached notes. The preparation of the financial statements necessarily includes some amounts which are based on the best estimates and judgments of management.

To assist meeting its responsibility, management maintains accounting, budget and other internal controls. These controls provide reasonable assurance that transactions are appropriately authorized and accurately recorded, and that assets are properly accounted for and safeguarded, in order that the integrity of the financial records is maintained.

The financial statements have been audited by the independent firm of MacKay LLP, Chartered Accountants. Their report to the directors of Independent Environmental Monitoring Agency, stating the scope of their examination and opinion on the financial statements, follows.

Jaida Ohokannoak
Secretary-Treasurer

May 21, 2007

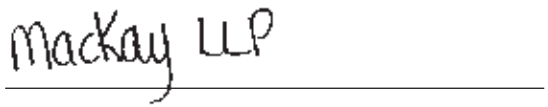
Auditors' Report

To the directors of Independent Environmental Monitoring Agency

We have audited the statement of financial position of the Independent Environmental Monitoring Agency as at March 31, 2007 and the statements of operations and changes in net assets and cash flows for the year then ended. These financial statements are the responsibility of the Agency's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Agency as at March 31, 2007, and the results of its operations and cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.



Chartered Accountants

Yellowknife, Northwest Territories
May 21, 2007

Statement of Operations

For the year ended March 31,

	2007	2006
Revenue		
BHP Billiton Diamonds Inc. – core funding	$ 577,891	$ 531,201
Administration fee	–	701
Contributed services (Note 10)	–	31,891
Interest income	6,119	2,647
Mediation	–	21,891
	584,010	588,331
Expenditures		
Accounting and auditing fees	17,607	15,973
Advertising and website	1,662	6,394
Amortization	3,966	3,723
Board support		
– honoraria	162,750	133,317
– travel, meals and accommodation	68,364	57,784
– payroll deductions on honoraria (Note 4)	21,547	–
Community consultation		
– annual general meeting	10,547	8,858
– annual report	45,081	57,476
– community visit	13,695	6,688
– reclamation workshop	–	10,212
– other	2,411	10,955
Consultants	17,294	24,982
Contributed services (Note 10)		
– equipment lease	–	3,491
– office rent	–	26,480
– other	–	2,600
Equipment lease	871	–
Insurance	6,256	2,821
Mediation	–	19,588
Office rent and maintenance	30,030	–
Office supplies	5,887	11,206
Postage and freight	588	654
Professional development	450	4,400
Staff travel	6,377	2,343
Telephone and fax	8,157	7,386
Wages and benefits	154,936	150,136
	578,476	567,467
Excess revenue before the following	**5,534**	20,864
Contribution repayable (Note 7)	**(7,867)**	(20,867)
Repayment of prior year surplus	**–**	(1,957)
Loss on disposition of capital assets	**–**	(233)
Excess expenditures	**$ (2,333)**	$ (2,193)

Statement of Changes in Net Assets

For the year ended March 31,

	2007	2006
General Operating fund, beginning of the year	$ -	$ 1,957
Excess expenditures	**(2,333)**	(2,193)
Transfer to investment in capital assets fund	**2,333**	236
General operating fund, end of the year	$ -	$ -

Statement of Financial Position

As at March 31,

	2007	2006
Assets		
Current		
Cash	$ -	$ 74,433
Short term investments (Note 3)	175,881	-
Receivable from directors (Note 4)	18,543	-
Accounts receivable	-	4,897
Prepaid expenses	3,143	4,650
	197,567	83,980
Capital assets (Note 5)	**9,874**	12,208
	$ 207,441	$ 96,188
Liabilities		
Current		
Bank indebtedness (Note 6)	$ 53,945	$ -
Accounts payable and accrued liabilities	135,755	63,113
Contributions repayable (Note 7)	7,867	20,867
	197,567	83,980
Net Assets		
Investment in capital assets fund (Note 8)	**9,874**	12,208
General operating fund	**-**	-
	9,874	12,208
	$ 207,441	$ 96,188
Contingent liabilities (Note 9)		

Approved on behalf of the Board

William A. Ross – Director

Jaida Ohokannoak – Director

Statement of Cash Flows

For the year ended March 31,

	2007	2006
Cash flow sources (used for)		
Operating activities		
Funding received	$ 528,764	$ 501,303
Paid to suppliers	(324,781)	(369,671)
Paid to employees	(154,848)	(150,136)
	49,135	(18,504)
Financing activity		
Investment in GIC	**(175,881)**	–
Investing activity		
Purchase of capital assets	**(1,632)**	(3,720)
Change in cash position	**(128,378)**	(22,224)
Cash position, beginning of the year	**74,433**	96,657
Cash position, end of the year	**$ (53,945)**	$ 74,433

Notes to Financial Statements

March 31, 2007

1. Organizational Purpose

The Independent Environmental Monitoring Agency ("the Agency") is a not-for-profit organization incorporated under the Societies Act of the Northwest Territories. It is exempt from income tax under Section 149(1) of the *Income Tax Act*.

The mission of the Agency is to oversee environmental management at the Ekati Mine site in the Northwest Territories.

2. Significant Accounting Policies

The following is a summary of the significant accounting policies used by management in the preparation of these financial statements.

(a) Financial instruments

All significant financial assets, financial liabilities and equity instruments of the Agency are either recognized or disclosed in the financial statements together with available information for a reasonable assessment of future cash flows, interest rate risk and credit risk. Where practicable the fair values of financial assets and financial liabilities have been determined and disclosed; otherwise only available information pertinent to fair value has been disclosed.

(b) Fund accounting

The general operating fund accounts for current operations, programs and general operations.

The investment in capital assets fund reports the assets, liabilities, revenues and expenses related to capital assets.

(c) Capital assets

Equipment purchases are recorded on the balance sheet at historical cost less accumulated amortization. Amortization is calculated by the declining balance method at the annual rates set out in Note 5. In the year of acquisition, amortization is taken at one-half the annual rates.

(d) Revenue recognition

The Agency follows the deferral method of accounting for contributions.

Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and its collection is reasonably assured.

(e) Contribution Repayable

The unused contribution is repaid to BHP Billiton Diamonds at the end of the fiscal year.

Notes to Financial Statements (continued)

March 31, 2007

2. Significant Accounting Policies (continued)

(f) Use of estimates

The preparation of this financial information in conformity with Canadian generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial information and the amounts of revenues and expenditures during the period. Actual results could differ from those estimates.

3. Short Term Investments

Short term investments consists of guaranteed investment certificates that earn interest at 3.75% per year. The certificates are transferrable on demand to the Agency's bank account.

4. Payroll Deductions On Honoraria

During the year, the Agency was assessed employee and employer portions of Canada Pension Plan relating to honoraria paid to directors for calendar years 2004, 2005, and 2006. The impact of this assessment was reported as a current year expenditure as the liability giving rise to the expenditure was not known until Canada Revenue Agency assessed the amount.

The Agency expects to recover the employee portion from the directors who are currently serving on the board.

Year	Employee	Employer Portion	Total Portion	Non Recoverable Assessed	Total Expensed Employee Portion	Recoverable Employee Portion
2004	$ 7,587	$ 7,587	$ 15,174	$ 1,219	$ 8,806	$ 6,368
2005	4,089	4,089	8,178	283	4,372	3,806
2006	5,040	5,040	10,080	–	5,040	5,040
	$ 16,716	$ 16,716	$ 33,432	$ 1,502	18,218	15,214
2007 expense					3,329	3,329
					$ 21,547	$ 18,543

5. Capital Assets

	Rate	Cost	Accumulated Amortization	2007 Net Book Value	2006 Net Book Value
Office equipment	20%	$ 14,939	$ 9,150	$ 5,789	$ 6,058
Computers	30%	13,580	10,895	2,685	5,850
Computers	45%	2,370	1,262	1,108	–
Computer software	100%	2,518	2,226	292	300
		$ 33,407	$ 23,533	**$ 9,874**	$ 12,208

6. Bank Indebtedness

Bank indebtedness consists of outstanding cheques written in excess of the bank balance. Bank indebtedness is covered by transfers from the guaranteed investment certificate.

7. Contributions Repayable

	2007	2006
BHP Billiton Diamonds Inc.	$ 7,867	$ 18,564
Government of Canada – Indian Affairs and Northern Development	–	2,303
Total contribution repayable	**$ 7,867**	**$ 20,867**

Notes to Financial Statements (continued)

March 31, 2007

8. Investment in Capital Asset Fund

	2007	2006
Balance, beginning of year	$ 12,208	$ 12,444
Purchase of capital asset	1,632	3,720
Disposition of capital assets	–	(233)
Amortization	(3,966)	(3,723)
Balance, end of year	**$ 9,874**	**$ 12,208**

9. Contingent Liabilities

As part of mediation of the Agency mandate, work plan, budget process, and core budget for 2006 – 2007, the Agency received $40,000 annually which is to be held in a Separate Fund. This amount is not separated from the Agency's core funding neither is it held in a separate bank account. The use of this funding is solely for the Agency's participation as an intervenor in regulatory and other legal proceedings respecting environmental matters pursuant to Article IV.2(d) of the Environment Agreement.

During the current fiscal year, the Agency allocated $40,000 relating to intervenor activities. BHP Billiton Diamonds Inc. disputes the allocation of these expenditures to the Separate Fund. In the event that the expenditures are found not to be consistent with the Mediation Resolution Agreement, the Agency would incur an excess of expenditures amounting to $40,000.

Subsequent to the year end, a mediator has been appointed to resolve whether the allocation to the Separate Fund is eligible.

10. Contributed Services

In January 2006, a Mediation Resolution Agreement was agreed upon whereby a mediator had been appointed concluded that the contributed services that the Agency received from BHP Billiton Diamonds Inc. relating to rent of office space, office cleaning, and photocopier lease became a part of the core funding arrangement. As a result, these amounts were paid directly by BHP Billiton Diamonds Inc. and reported as part of core funding.

11. Economic Dependence

The Agency receives contribution funding from BHP Billiton Diamonds Inc. Management is of the opinion that operations would be significantly affected if the funding was substantially curtailed or ceased.

12. Financial Instruments

Financial instruments consist of recorded amounts of accounts receivable, short term investment, and receivable from directors which will result in future cash receipts, as well as accounts payable and accrued liabilities and contributions repayable which will result in future cash outlays.

The Agency is exposed to the following risks in respect of certain of the financial instruments held:

(a) Credit risk
Credit risk arises from the potential that a customer will fail to perform its obligations. The Agency is exposed to a concentration of credit risk as the majority of the contributions receivable are due from one source. This risk is managed as this major customer is governed by law to collect and remit payments to the Agency.

(b) Fair value
The Agency's carrying value of cash, accounts receivable, short term investments, receivable from directors, accounts payable, accrued liabilities, and contributions repayable approximates its fair value due to the immediate or short-term maturity of these instruments.

13.0 Summary of 2007–09 Work Plan and Core Budget

The work plan is based upon the direction and feedback received from our Society members at our Annual General Meeting in November 2006 and the Agency's own initiatives.

With the *Resolution Agreement* from the mediation, the Agency's core budget is now fixed at $560,000 per year as of April 1, 2005 with automatic increases tied to the Consumer Price Index (CPI) for Canada. For 2007–08, BHPB will contribute approximately $590k to the Agency and, in 2008–09, approximately $605k (assuming a 2.5% increase in CPI).

The second year of the work plan will be refined and modified based on direction received during next year's Annual General Meeting of Society members and any changes or modifications to the project.

Major Activities

Board Meetings, Conference Calls

The major means of fulfilling our mandate is through board meetings that are held approximately every two months. Board meetings provide an opportunity for directors to discuss, review and make recommendations on recent, on-going and anticipated initiatives. Guests are invited to meetings to provide updates and receive input on their specific activities. BHP Billiton (BHPB), Wek'èezhìi Land and Water Board (WLWB) staff and the Department of Indian Affairs and Northern Development (DIAND) inspector are regular guests.

Proposed Activities:

Annually, five board meetings (one in a community) and four conference calls.

Review of Reports, Plans and Programs, and Implementation of the *Environmental Agreement*

Directors review and make recommendations on the major reports, programs, studies and plans required under the *Environmental Agreement*.

Proposed Activities:

The Agency expects to deal with the following in 2007–08: Aquatic and Wildlife Monitoring Program Reports for 2006; the regular environmental monitoring reports for 2007 if received in time (Aquatic Effects Monitoring Program (AEMP), WEMP, Air Quality, and Panda Diversion Channel (PDC)); Long Lake water quality predictions; revised air quality management and waste management plans; and, the Annual Environmental Report. There are also now two new meetings for BHPB, Government of the Northwest Territories (GNWT), DIAND and the Agency to better coordinate implementation of the *Environmental Agreement*. The same workload is expected in 2008–09.

Separate Fund Activities

As a result of the recent mediation, the *Resolution Agreement* sets out that the Agency is to receive $40,000 to place in a separate fund for the purposes of interventions in regulatory and other legal processes. The allocation of expenses to this Fund are headed to mediation at the time this report was written.

Proposed Activities:

For 2007–08, the Agency expects the following:

- Participation in the WLWB Ekati Closure Planning Working Group;
- Completion of the review and approval of the *Metal Leaching and Geochemical Characterization and Management Plan;*
- Completion of the review and approval of the *Hydrocarbon Contaminated Materials Management Plan;*
- Adaptive Management Plan;
- Review of a revised *Wastewater and Processed Kimberlite Management Plan;*
- Quality Assurance/Quality Control Plan;
- *Spill Contingency Plan*; and
- Windfarm Pre-Screening Report. ➤

Activity	Forecasted 2006-2007	Proposed 2007-2008	Proposed 2008-2009
Board Meetings	81,562	130,000	132,500
Review of Documents	28,605	32,800	24,440
Separate Fund	64,511	39,200	45,200
Communications	146,202	124,000	168,520
Outside Contracts	4,536	10,000	10,000
Mgmt and Admin	204,900	207,594	211,746
TOTAL	530,316	543,594	592,406
(approved)	534,243	543,594	559,122

For 2008–09, the Agency expects the following:

- *Interim Closure and Reclamation Plan* (*ICRP*) public hearing;
- Amendments to the Sable, Pigeon and Beartooth water licence public hearing; and
- Review of other regulatory documents submitted pursuant to the water licence.

Consultation and Communication

Consultation and communications with northern communities and the general public is an important part of the Agency's mandate.

Proposed Activities:

The Agency will maintain its visits to communities, host one board meeting and open house a year in a community and host the environmental workshops. The Agency will continue to attend workshops and meetings relevant to its mandate. The Agency will continue maintenance of its website and public registry. The Agency will continue to host annual environmental workshops in the years where BHPB does not.

The Agency will continue to produce two Annual Reports, one in plain language and one technical. The same activities are anticipated in 2008–09.

Outside Contracts:

On occasion, the Agency turns to other experts to help analyze reports, studies and plans.

Proposed Activities:

It is difficult to predict what, if any, outside expertise the Agency may commission but aspects of closure and reclamation may require some outside expertise.

Management and Administration:

The Agency provides the majority of its management and administrative services through its Yellowknife office and staff of one manager and one environmental analyst. BHPB provides office rent and photocopier rental. These costs are deducted from the semi-annual payments from the company.

Proposed Activities:

Maintain current staff and benefit levels. ■

Glossary

Acid Rock Drainage
Occurs when minerals containing sulphide and sulphur are exposed to the weathering effects of oxygen and water and the resulting acidity is carried away in water.

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

Benthos
The bottom of rivers, lakes and ponds that can contain living organisms.

CALPUFF
A modelling system that simulates the dispersion of atmospheric pollutants.

Cladocera
Very small animals (Zooplankton) that live in water; for example, a water flea.

Consultation
(i) The provision, to the party to be consulted, of notice of a matter to be decided in sufficient form and detail to allow that party to prepare its views on the matter;
(ii) the provision of a reasonable period of time in which the party to be consulted may prepare its views on the matter, and provision of an opportunity to present such views to the party obliged to consult; and,
(iii) full and fair consideration by the party obliged to consult of any views presented.

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

Design for Closure
Modifying or designing mine operations to incorporate mine closure and reclamation considerations.

Emissions
The process of sending out or releasing contaminants into the air.

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, Akaitcho Treaty 8, Kitikmeot Inuit Association, North Slave Metis Alliance and Tlicho Government.

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

Geochemistry
The chemistry of the earth and its rocks and minerals.

Hydrology
The scientific study of the movement, distribution and quality of water below the ground, at the surface and in the atmosphere

Inukhok
Innuinaqtun word meaning "looks like a person" and used to describe a pile of rocks constructed by people to direct caribou or to serve as a landmark.

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.

Limnology
The study of the physical, chemical and biological characteristics of lakes.

***Metal Leaching**
The extraction of soluble metals by percolating solvents, including acid water.

Meromixis
A lake that is chemically stratified with incomplete circulation. In a meromictic lake, the two layers do not mix.

Mineralogy
The scientific study of minerals.

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

Phytoplankton
Microscopic plants, such as algae, found in freshwater and ocean environments.

Pit Water
Water found within the pit containing wastes from mining practices.

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

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

Reclamation
The recovery 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.

*From *Guidelines For Metal Leaching and Acid Rock Drainage at Minesites in British Columbia*, William A. Price and John C. Errington, Ministry of Energy and Mines, August 1998.

Acronyms

AEMP	Aquatic Effects Monitoring Program
AMP	Adaptive Management Plan
AQMP	Air Quality Monitoring Program
ARD	Acid Rock Drainage
BHPB	BHP Billiton
CCME	Canadian Council of Ministers of the Environment
DELT	Deformities/Eroded Fins/ Lesions/Tumours
DNA	Deoxyribonucleic Acid
EFPK	Extra Fine Processed Kimberlite
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ICRP	Interim Closure and Reclamation Plan
IEMA	Independent Environmental Monitoring Agency ('the Agency')
KIA	Kitikmeot Inuit Association
LLCF	Long Lake Containment Facility
MPEMA	Multi-Project Environmental Monitoring Agency
NSMA	North Slave Metis Alliance
NTKP	Naonaiyaotit Traditional Knowledge Project
PDC	Panda Diversion Channel
SNP	Surveillance Network Program
TDS	Total Dissolved Solids
TK	Traditional Knowledge
TSP	Total Suspended Particulates
TSS	Total Suspended Solids
VEC	Valued Ecosystem Component
WEMP	Wildlife Effects Monitoring Program

Regulators

DFO	Department of Fisheries and Oceans
DIAND	Department of Indian Affairs and Northern Development
EC	Environment Canada
ENR	GNWT's Environment and Natural Resources (previously known as RWED or Resources, Wildlife and Economic Development)
GN	Government of Nunavut
GNWT	Government of the Northwest Territories
MVLWB	Mackenzie Valley Land and Water Board
WLWB	Wek'èezhìi Land and Water Board
WRRB	Wek'èezhìi Renewable Resources Board

A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE™

Independent Environmental Monitoring Agency

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2006-07 Technical Annual Report