TECHNICAL ANNUAL REPORT 2013-14

A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE

INDEPENDENT
ENVIRONMENTAL
MONITORING AGENCY

Ekati Diamond Mine

1 PIGEON STREAM DIVERSION
2 PIGEON PIPE
3 LONG LAKE CONTAINMENT FACILITY (CELLS A–E)
4 INCINERATOR
5 WASTE ROCK PILES
6 BEARTOOTH PIT
7 PANDA PIT
8 KOALA AND KOALA NORTH PIT
9 PANDA DIVERSION CHANNEL
10 MAIN CAMP
11 HAUL ROADS
12 AIRSTRIP
13 FOX PIT
14 MISERY CAMP
15 MISERY PIT
16 OLD CAMP

1:40,000

0 1,000 2,000

Metres

SATELLITE IMAGE 2010/BHP BILLITON CANADA INC.

Director Biographies

BILL ROSS APPOINTED APRIL 1997

Appointed by BHP Billiton, Government of the Northwest Territories and Government of Canada (in consultation with the Aboriginal governments).

Bill Ross has studied and participated in the professional practice of impact assessment for 35 years with a focus on cumulative effects assessment and follow-up studies. He has served as a director of the Agency since its inception and as its Chairperson since 2003. His goal for the Agency is that, when the Ekati Mine closes, DDEC will be recognized as having operated the best environmentally-managed mine in Canada's North.

TIM BYERS APPOINTED MAY 2001

Appointed by Akaitcho Treaty 8 First Nations (Łutsel K'e Dene First Nation and Yellowknives Dene First Nation).

Tim Byers is an independent consultant living in Manitoba who has been working on projects in the Canadian Arctic since 1980. He specializes in studies of fish, Arctic seabirds and marine invertebrates and has assisted Aboriginal communities in documenting their indigenous environmental knowledge. Tim would like to see more Aboriginal youth engaged in the environmental sciences and Traditional Knowledge used more effectively in environmental monitoring, research and impact assessments. Tim has served as the Agency's Vice-Chairperson since 2004.

JAIDA OHOKANNOAK APPOINTED DECEMBER 2003

Appointed by Kitikmeot Inuit Association.

Jaida Ohokannoak lives in Cambridge Bay, Nunavut and has lived and worked in small northern communities for 20 years. She is experienced in environmental assessment, renewable resource management, research and monitoring studies. Jaida believes mining can be conducted in an environmentally responsible manner that benefits both industry and local people. Jaida has served as the Agency's Secretary-Treasurer since 2004.

ARNOLD ENGE APPOINTED SEPTEMBER 2012

Appointed by North Slave Métis Alliance.

Arnold has 30 years of experience working in the North with the federal and territorial governments as well as Rio Tinto. Arnold is of North Slave Métis ancestry and represents the North Slave Métis on several boards monitoring the environmental impacts of northern projects.

LAURA JOHNSTON APPOINTED DECEMBER 2006

Appointed by BHP Billiton, Government of the Northwest Territories and Government of Canada (in consultation with the Aboriginal governments).

Laura Johnston retired from Environment Canada after 30 years of service, the last 15 in environmental protection in the Northwest Territories and Nunavut. Her expertise is in the fields of chemistry and geology with a focus on water-related issues, especially groundwater quality.

TONY PEARSE APPOINTED MARCH 1997

Appointed by the Tłı̨chǫ Government.

Tony Pearse is a resource planner specializing in planning and policy development for First Nations in areas related to treaty negotiation and land use.

KIM POOLE APPOINTED DECEMBER 2006

Appointed by BHP Billiton, Government of the Northwest Territories and Government of Canada (in consultation with the Aboriginal governments).

Kim Poole is an independent wildlife biologist with over 30 years of experience in the Northwest Territories, Nunavut and British Columbia in the areas of wildlife research and assessment of impacts due to forestry, mining and tourism.

Message from the Chair 2014

This past year has been one of great change. The sale of the Ekati Mine was completed and Dominion Diamond Ekati Corporation (DDEC) quickly applied for a major expansion of the mine, proposing to add the Lynx Pipe and then the Jay and Cardinal Pipes. The Jay and Cardinal additions would both extend the mine life by many years and create more adverse environmental effects.

In May 2014, the Agency and others were advised that the proposal had been changed to include only Jay Pipe, with significantly reduced adverse effects. Because this change happened after the year covered by this report, we refer to the Jay-Cardinal proposal in the rest of this report. That proposal will be the major focus of the Agency in the coming year.

These changes alone would be noteworthy but Devolution came to the Northwest Territories April 1, 2014 and with it, changes to regulation of Ekati. Many responsibilities formerly exercised by the Government of Canada became the responsibility of the Northwest Territories. With that came major proposed changes to the Environmental Agreement for the mine. The three signatories to the Environmental Agreement (DDEC and the two governments) have proposed that Canada cease being a party. The Agency engaged in a flurry of activities culminating with a special meeting of the Agency designed to enable our Aboriginal Society Members to better understand the changes proposed by the two governments and DDEC as well as to help shape those changes. Based on that meeting and on the input from our Aboriginal Society Members, we requested the signatories delay proposed changes to enable more input from Aboriginal Society Members and we requested that the Parties to the Environmental Agreement give full and serious consideration to Canada remaining a signatory and party to the Environmental Agreement. This was based on the views expressed by Aboriginal Society Members that the Environmental Agreement is part of a broader social contract for the Ekati Mine, an arrangement that included the participation of the Government of Canada. Changes to the Environmental Agreement have not been made at the time of writing this report.

Finally, changes have been made to federal legislation that will eliminate the Wek'èezhìı Land and Water Board (WLWB), returning its regulatory function to the Mackenzie Valley Land and Water Board. The loss of the very capable Wek'èezhìı Land and Water Board is unfortunate.

The financial security being held by governments is not adequate to close the mine in accordance with the approved Interim Closure and Reclamation Plan. This is unfortunate and should be quickly remedied.

I am pleased to report that most of the staff at Ekati remain in place and that DDEC has continued the good job of environmental protection at Ekati. The Agency will continue to work to ensure that this good environmental performance can be continued for the life of the mine.

The three major uncertainties we have before us are: Possible changes to the Environmental Agreement for Ekati, the fact that financial security held for the mine is not adequate (and that parts of it have not yet been determined) and how the environmental assessment for the proposed Jay-Cardinal expansion will unfold. ■

William A. Ross, Chairperson
March 31, 2014

Table Of Contents

Northwest Territories
Nunavut

Agency Recommendations 2013-14

Recommendation 1

The Agency recommends that the Government of the Northwest Territories ensure that the security posted by DDEC meets the requirements of the Water Licence no later than July 1, 2014.

Response: The GNWT is currently reviewing the security being proposed by DDEC to meet the requirements under the water licence. It is anticipated that the review and formal security documentation will not be finalized until end of summer 2014.

Recommendation 2

The Agency recommends that DDEC submit a proposal for the financial security review under the Environmental Agreement no later than July 1, 2014.

Response: DDEC has been working closely with the GNWT and AANDC to identify a process and timeline to review the security held under the Environmental Agreement. DDEC and the governments will work in consultation with the Agency as described in the Environmental Agreement.

Agency visit to the Narrows

Recommendation 3

The Agency recommends that DDEC develop a comprehensive road traffic management plan to reduce wildlife impacts (mortalities and sensory disturbance). The plan should include road design, speed limits, traffic volume caps, triggers for action, driver education, and monitoring and reporting.

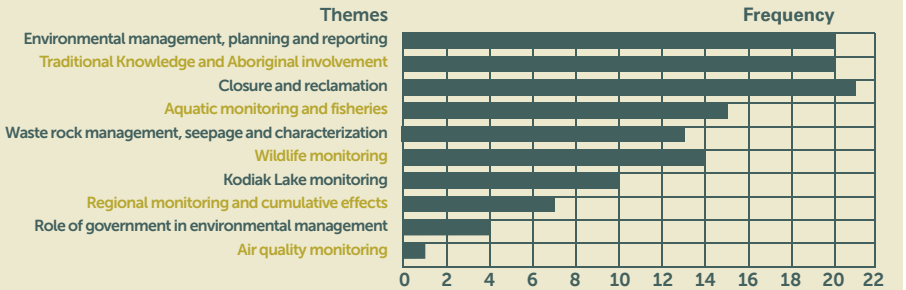
Response: A new land use permit was issued in April 2014 by the WLWB for the upcoming Lynx Project, and this Permit provides for WLWB approval of road design for caribou crossings and reporting to the WLWB on road traffic related to speed limits and other wildlife protection measures. This work for the Lynx Project can subsequently be used when considering road design and traffic reporting for other areas of the Ekati Mine.

Recommendation 4

The Agency recommends that DDEC investigate and report on the cause of the lack of freezing in the Fox and Misery Waste Rock Piles, identify any closure implications and develop appropriate contingency plans.

Response: In March 2014, the WLWB approved the Ekati Mine's 2012 'Waste Rock and Waste Rock Storage Area Seepage Survey Report'. In its approval, the WLWB required that DDEC provide more information to the WLWB about permafrost growth in the Ekati Mine waste rock storage areas and plans for the post-closure period. DDEC intends to provide this information to the WLWB by the end of September 2014 along with other related and requested information. All of that information will be available through the WLWB's public registry and from DDEC directly.

Figure 1: Agency Recommendation Themes 1997-2014



Recommendation Recipient	Recommendations
DDEC formerly BHPB	91
Government (GNWT, Government of Nunavut, Government of Canada)	16
Water Boards (NWT Water Board, MVLWB, WLWB)	9
Environmental Agreement signatories	3
Aboriginal Society Members and DDEC (formerly BHBB)	3
Aboriginal Society Members	1
All Agency Society Members	1
Total	124

2013 Agency Annual General Meeting

Highlights:

- Participation in the Lynx and Jay-Cardinal expansion projects.
- Four board meetings, the annual general meeting, the environmental workshop on wildlife and a community visit to N'Dilo and Dettah.
- Improvements made to internal communications and infrastructure upgrade.
- Site visits to Ekati Mine.
- Participation in the Bathurst Caribou Range Planning Workshops.

Agency Activities and Assessing the Agency

Activities 2013-14

This year, the Agency held four board meetings in Yellowknife, as well as our environmental workshop and annual general meeting in December 2013 (Table 3). Participants in our annual general meeting discussed environmental concerns such as the methods used to fish out Desperation Pond, fish sampling for toxins, the impact of power generators on air quality and the burying of garbage and its potential impact on the mine site after closure. Participants also discussed other matters such as the implications of Devolution on the Environmental Agreement (see text box on page 8, which has further details on the proposed changes and the Agency's views) and ensuring that there is adequate financial security to carry out the Interim Closure and Reclamation Plan (ICRP).

On March 25, 2014, the Agency held a special meeting of the Society Members to discuss changes proposed to the Environmental Agreement by the federal and territorial governments as a result of Devolution. The Government of Canada is proposing to withdraw from the Environmental Agreement.

The Agency visited the mine site in September 2013 to view areas such as the Pigeon Stream Diversion, the Panda Diversion Channel, Fox Pit, the pilot revegetation area and Cell B of the Long Lake Containment Facility. The Agency also took the opportunity to visit the area of the proposed expansion (Jay and Cardinal pipes) and stopped at an area called "The Narrows" between Lac du Sauvage and Lac de Gras – an area that is culturally significant and an important caribou crossing. Agency staff also visited the mine site in June 2013 as part of the Inter-Agency Coordinating Team (IACT).

Technical Reviews and Input

This year, the Agency has been involved in the review of the proposals to expand and extend the life of the Ekati Mine (further details are found in the Aquatic Effects chapter and the Jay-Cardinal and Lynx chapter). For the Lynx Project, the Agency was an intervenor in the land use permit and water licence process. The Agency is also a party in the Jay-Cardinal environmental assessment process. The Agency provided extensive comments throughout each of these processes (Tables 1 and 2 provide details on Agency correspondence for 2013-14).

Table 1: Agency Incoming Correspondence 2013-14	
Sender	**# of Pieces**
AANDC	16
Agency Society Members	1
DDEC	21
EC	0
EMAB and/or SLEMA	3
DFO	3
GNWT	8
WLWB	67
WRRB or others	6
TOTAL	**125**

Subject	**# of Pieces**
Administration	3
Air Quality	2
Aquatics, including AEMP, PSD, PDC widening and monitoring, SNP monitoring, pumping	17
Closure and Reclamation (including ICRP, draft guidelines and policies and financial security)	9
Community Engagement and Consultation	1
Environmental Agreement and Water Licence Annual Report, EIR	7
PK and Waste Rock Management, including WPKMP, WROMP, PK deposition plan and seepage reports	3
Traditional Knowledge	0
Water Licence (including inspections, approvals and renewals)	73
Wildlife (including WEMP, grizzly bear monitoring program)	8
Other	5
TOTAL	**128**

Table 2: Agency Outgoing Correspondence 2013-14	
Recipient	**# of pieces**
AANDC	5
Agency Society Members	1
DDEC	5
Other interested parties	1
GNWT	6
WLWB	16
TOTAL:	**34**

Subject	**# of Pieces**
Administration	3
Aquatic, including AEMP	2
Community consultation	1
Water licence renewal	7
Traditional knowledge	0
Wildlife	1
Waste rock management, including WPKMP and WROMP	3
EIR	0
Closure and Reclamation	10
TOTAL:	**27**

Visit to the Incinerator Building

Agency Directors at the Lynx Public Hearing

The Agency has also been involved in the review of the ICRP Annual Progress Report and the review of the financial security under the water licence and the Environmental Agreement.

The Agency made recommendations to the Wek'èezhìı Land and Water Board (WLWB) and Dominion Diamond Ekati Corporation (DDEC) to improve fish monitoring. The Agency would like to see a more flexible program to ensure that fish sampling deficiencies are addressed in the same sample season or the next opportunity, rather than waiting three years to address them in the next sampling cycle.

This year, the Agency also hired Dr. Chris Burn, of Carleton University, permafrost expert, to comment on the design of the proposed Pigeon Waste Rock Pile. DDEC proposed a thinner cap with till rather than the usual cap of clean granite. Dr. Burn raised concerns about the calibration of the thermal modelling and performance of the new design in light of climate change.

On the issue of wildlife monitoring, the Agency participated in several GNWT Environment and Natural Resources workshops held in October 2013 and February 2014 that dealt with guidance for wildlife monitoring programs and the development of a Bathurst Caribou Range Plan. The Agency will remain involved in the range planning process to provide technical assistance.

Agency Communications and Collaboration

On December 6, 2013, the Agency hosted an environmental workshop on wildlife. Several areas of wildlife monitoring were addressed, such as cumulative effects, the zone of influence on caribou surrounding the mine site, and wildlife deterrence. In attendance were members of the DDEC's environment department, GNWT staff and representatives from our Society Members such as Tłı̨chǫ Government, Akaitcho Treaty 8, North Slave Métis Alliance and Kitikmeot Inuit Association.

On March 12, 2014, the Agency visited the communities of Dettah and N'Dilo. The Agency began by holding a board meeting in the Yellowknives Dene First Nation council chambers and had a visit from Chief Edward Sangris. He mentioned that he was happy with the work of the Agency and that he was glad the Agency exists to monitor the Ekati Mine. In the evening, the Agency held a community open house at the N'Dilo Gym. Many members of the Land and Environment Committee attended. They provided the Agency with a lot of insight about the communities' concerns with Ekati Mine,

Continued on page 8

Agency staff at Panda Diversion Channel.

Agency Directors at Jay-Cardinal Scoping Session.

Table 3: Main Agency Activities

DATE AND LOCATION	PURPOSE	MAIN ISSUES
MAY 23, 2013 Yellowknife	ICRP Progress Report Meeting	• DDEC presentation given in response to concerns with first progress report on implementation of the closure plan. Reviewers noted slippage in research schedule. • Agreement that restructuring of the reclamation research plans was helpful. Tracking to be made easier in future reports with rationale for delays.
MAY 23, 2013 Yellowknife	Environmental Agreement Implementation Meeting	• Agency and DDEC gave presentations on communications. • Agency presented an overview of 2012-13 Annual Report including recommendations. • There was some discussion of how the financial security review should be improved.
JUNE 12, 2013 Ekati Diamond Mine	IACT Site Visit	• Agency staff and regulators visited the Ekati Mine. Met new staff at site. • PDC, Beartooth and Fox pits, incinerator, and the LLCF visited. Some discussion of the Lynx and Jay-Cardinal Projects.
JULY 9, 2013 Yellowknife	Dioxins and Furans Teleconference	• Teleconference held with Agency, DFO, DDEC and Rescan to discuss the fish sampling results from 2012. • Agency concerned that not enough fish were sampled to understand whether there is contamination from dioxins and furans. No further sampling planned and issue is unresolved.
JULY 11-12, 2013 Łutsel K'e	Community Visit	• Agency Director met with Wildlife, Lands and Environment Committee members and staff. • Caribou, contaminants in wildlife, wildlife deterrence, aquatic monitoring, dust, use of Traditional Knowledge, and preliminary concerns with the Jay-Cardinal Project were discussed.
SEPTEMBER 10-12, 2013 Whitehorse and Faro	Northern Latitudes Mine Reclamation Conference	• Agency Executive Director attended mining reclamation conference. Various papers presented on reclamation, revegetation and soil amendments. A site visit was made to the Faro mine.
SEPTEMBER 16-17, 2013 Ekati Diamond Mine	Site Visit	• Agency Directors and staff visited Beartooth Pit, the incinerators, the PDC and the LLCF including the new revegetation plots. A helicopter tour was also given to the Jay-Cardinal Project area, including a stop at the Lac du Sauvage narrows.
OCTOBER 7, 2013 Yellowknife	Ekati Financial Security Meeting	• AANDC, GNWT, WLWB, DDEC and Agency meet to discuss financial security under the Environmental Agreement. • Agreement reached to use the process laid out in the Environmental Agreement where the company will prepare a proposal followed by further meetings with a target for December 2013 so the results could be reported in the Annual Progress Report.
OCTOBER 15, 2013 Yellowknife	Jay-Cardinal Project Technical Meeting	• Company hosted event. All interested parties invited. Little detailed information presented but helpful discussion of preliminary concerns and issues including alternatives.
OCTOBER 24, 2013 Yellowknife	IACT Meeting	• DDEC provided an update on upcoming projects including Pigeon waste rock pile design, Jay-Cardinal and Lynx projects, and other regulatory submissions.
NOVEMBER 4, 2013 Yellowknife	Ekati Financial Security Review	• DDEC, AANDC, GNWT, WLWB and Agency participated in a review of the Environmental Agreement to determine articles where obligations may arise that require financial security. • Agreement reached on articles and DDEC was to submit a full proposal within 10 days.
NOVEMBER 12-13, 2013 Yellowknife	Bathurst Range Plan Workshop	• Large multi-stakeholder meeting to discuss the organization and structure of a range plan for the Bathurst caribou herd. • Agreement to hold a second meeting with a clearer understanding of roles and responsibilities. All parties committed to work together.

DATE AND LOCATION	PURPOSE	MAIN ISSUES
NOVEMBER 26-28, 2013 Yellowknife	Regional Wildlife Monitoring Workshop	• Discussion of standardized protocols for wildlife monitoring to ensure consistency of approaches and coordination of data towards species management and cumulative effects management.
DECEMBER 3-4, 2013 Yellowknife	Lynx Project Technical Session	• WLWB sponsored meeting to discuss the Lynx Project water licence and land use permit applications. • Discussion focused on need for and effects of discharges into the Desperation-Carrie-Mossing watershed and wildlife impacts from road traffic and dust.
DECEMBER 5, 2013 Yellowknife	Agency Wildlife Workshop	• Presentations from IEMA, DDEC, GNWT biologists and Andy McMullen on current wildlife research, monitoring and deterrents at Ekati or in the region.
DECEMBER 6, 2013 Yellowknife	Agency Annual General Meeting	• Agency presentation on operations for 2012-13. Concerns raised and answered around fish health, power generator emissions, administrative changes to the Environmental Agreement due to Devolution, and financial security.
JANUARY 7-8, 2014 Yellowknife	Jay-Cardinal Project	• Scoping session held by the Mackenzie Valley Environmental Impact Review Board to discuss the draft Terms of Reference for the Jay-Cardinal Project. Discussion around the key lines of inquiry, alternatives analysis and cumulative effects.
JANUARY 17, 2014 Yellowknife	Environmental Agreement Implementation Meeting	• Agency presentation on recommendations and findings, and work plan and budgets. • DDEC presentation on operations for 2014-15.
JANUARY 24, 2014 Yellowknife	IACT Meeting	• DDEC provided an operational update. Winter drilling program, Jay-Cardinal alternatives discussion paper, and financial security discussed.
FEBRUARY 6, 2014 Behchokǫ̀	Lynx Project Public Hearing	• WLWB hearing on the Lynx water licence and land use permit applications. Concerns raised with the need for and effects of discharging pit sump water into Desperation Pond and on road and dust effects on wildlife habitat.
FEBRUARY 20-21, 2014 Yellowknife	Bathurst Range Plan Workshop	• Large multi-stakeholder meeting to discuss a process for developing a Bathurst caribou range plan. • Governments, industry and communities agreed to work together with technical working groups and a steering committee.
FEBRUARY 20, 2014 Yellowknife	EMAB Update	• Agency Executive Director provided an update to the EMAB Directors. SLEMA Executive Director made a similar presentation.
MARCH 12, 2014 Dettah and N'Dilo	Board Meeting and Open House	• Agency Board meeting held in YKDFN council chambers in Dettah. Chief Sangris greeted the Agency. • Agency sponsored Open House held in N'Dilo gym. Much discussion of concerns with the Jay-Cardinal Project and use of Traditional Knowledge in environmental management.
MARCH 13, 2014 Yellowknife	Environmental Agreement Changes Meeting	• AANDC, GNWT, DDEC and Agency meet to discuss proposed changes to the Environmental Agreement flowing from Devolution. • Agency believes that changes would adversely affect the Agency's ability to fulfill its mandate. Agency agreed to submit its comments in writing.
MARCH 19, 2014 Yellowknife	Presentation to Review Board	• Agency staff presented to the Review Board a short presentation on the mandate and background on the Agency.
MARCH 25, 2014 Yellowknife	Special Meeting of Society Members	• Agency called a special meeting of its Society Members to discuss the proposed changes to the Environmental Agreement. • GNWT and AANDC presented the changes and their rationale. Some Aboriginal Society Members expressed concerns over the proposed withdrawal of the federal government from the Environmental Agreement and agreed to provide comments in writing. Agency indicated it would provide additional comments in writing.

Chronology of Events—Proposed Changes to the Environmental Agreement

Nov. 27, 2013 Joint IEMA-EMAB-SLEMA letter to AANDC and GNWT on possible changes to Environmental Agreements as a result of Devolution.

Dec. 16, 2013 AANDC letter to parties to the Ekati Environmental Agreement indicating administrative changes are being contemplated.

Jan. 16, 2014 Agency letter to AANDC supporting the approach of only administrative changes and the continuing involvement of the federal government.

Jan. 30, 2014 AANDC letter to DDEC indicating the federal government wants a "mutual release of Canada from all future rights and obligations it may have under the Environmental Agreement starting from April 1, 2014".

Feb. 17, 2014 DDEC letter to AANDC indicating it has no objection to the proposed changes to the Environmental Agreement, pending a review of the actual release agreement.

Mar. 13, 2014 AANDC, GNWT, DDEC and Agency meet to discuss the proposed changes to the Environmental Agreement.

Mar. 17, 2014 Agency letter to AANDC, GNWT and DDEC on proposed changes to the Environmental Agreement. Agency Chairperson issues notice for a Special Meeting of the Agency Society members for Mar. 25, 2014.

Mar. 25, 2014 Special Meeting of Agency Society Members held to discuss the proposed changes to the Environmental Agreement. All Society Members, including Aboriginal governments attend. Government representatives agree not to proceed with changes to allow written comments from the Aboriginal Society members and the Agency.

Mar. 28, 2014 Agency letter to AANDC, GNWT and DDEC as a follow-up to Mar. 25, 2014 meeting. Agency supports a reasonable opportunity for the submission of written comments and suggests that a deadline be set. Agency supports position of the Aboriginal Society members that Canada should remain a party to the Environmental Agreement.

Apr. 1, 2014 Yellowknives Dene First Nation letter to AANDC, GNWT, IEMA, EMAB and SLEMA. YKDFN rejects withdrawal of the federal government from all the diamond mine agreements and suggests that administrative changes are acceptable.

Apr. 2, 2014 Łutsel K'e Dene First Nation letter to AANDC that requests full consultation and accommodation on any changes to the three diamond mine Environmental Agreements.

Apr. 22, 2014 Tłı̨chǫ Government letter to AANDC and GNWT requests good faith negotiations on any changes to the three diamond mine Environmental Agreements. Preference for Canada to remain a party to the agreements.

No further correspondence at the time of writing (May 2014).

Continued from page 5

such as the size of the footprint of the Jay-Cardinal Project, how Traditional Knowledge is being used, and the amount of traffic that will be generated by the expansion.

Environmental Agreement Implementation Meetings are held biannually between the three signatories to the Environmental Agreement and the Agency. This year the meetings were held in May 2013 and January 2014. These meetings improve coordination and communication between the Agency and the signatories and provide each party with opportunities to give an update on its activities. The Agency also reports on financial expenditures and future plans, and signatories are offered an opportunity to respond to formal recommendations made by the Agency in its annual report.

In October 2013 and January 2014, meetings were held by IACT. IACT consists of the Agency and a group of government regulators, including the GNWT, AANDC, Fisheries and Oceans Canada (DFO) and Environment Canada (EC). This year, these meetings helped the Agency to understand how Devolution will unfold after April 1, 2014.

Assessing the Agency

One of the Agency's communications goals is to have informed parties, communities and public. A tool that we use to achieve this goal is a reference library located in our office. The Agency receives a number of information requests each year from the company, regulators and students. This year, the Agency worked with Tamarack Computers to improve the internal communications amongst directors and staff by installing a server and a tool to share documents over the web instead of constantly using e-mail. Now that a server has been installed, the Agency can begin to re-organize and digitize the reference library for easier access and use. These internal improvements will take some time but will prove to be beneficial for the public and our Society Members.

The Agency is currently exploring the use of social media. A Facebook account has been set up and can be viewed at www.facebook.com/monitoringagency. The Agency has used this account to notify the public about our events, and some of the initiatives that the Agency is currently involved in.

The Agency was pleased that we were able to host a board meeting and open house in the YKDFN territory, and due to the short-notice of the event we were unable to host a school visit. We look forward to including school visits as part of our community visit in 2014-2015.

In last year's annual report, the Agency reported that we were concerned that progressive reclamation at Ekati is slipping. We were pleased to see that our recommendation to begin reclamation of the Old Camp is finally being implemented with work scheduled at the site this summer under an approved plan. We were also happy to see some progress by GNWT on wildlife monitoring guidelines as we recommended last year.

In light of the limited efforts at consultation on the proposed changes to the Environmental Agreement, the Agency was very pleased with the attendance and discussion at our Special Meeting of Society Members. We look forward to further constructive discussions and a resolution of the concerns raised by our Aboriginal Society Members. ■

Haul Truck

Waste Rock and Processed Kimberlite Management

Highlights:

- New design for Pigeon Waste Rock Pile approved.
- No major problems with seepage.
- Some waste rock piles not freezing properly.

Activities 2013-14

Mining at Ekati in 2013 produced some 4.65 Mt of ore from the Misery and Fox pits (and another 0.9 Mt from underground), resulting in approximately 13.6 Mt of waste rock, 90% of it coming from Misery Pit. In addition, some 4 Mm^3 of processed kimberlite tailings were discharged into Long Lake Containment Facility (LLCF) and another 2 Mm^3 into Beartooth Pit.

Tailings Management

A revised 'Wastewater and Processed Kimberlite Management Plan' updated to include the new Pigeon Pipe operations was submitted to the Wek'èezhìı Land and Water Board (WLWB) in December 2013.

In mid-April 2014 the WLWB notified Dominion Diamond Ekati Corporation (DDEC) that the Plan was not ready for approval, and that additional information was required, particularly, about how existing and future water management would be done at the site, whether any in-pit minewater treatment would be needed and how sewage would be managed. A new version of the Plan had not been submitted at the time we went to press.

Waste Rock Management

Annual geochemical testing of the majority of granite waste rock at Ekati has been scaled back significantly from past years due to relative uniformity of results and the stabilizing of geochemical trends, now reasonably well understood.

The 2013 waste rock seepage survey results are generally consistent with previous years, with a few exceedances of effluent quality criteria, but with no increasing trends or otherwise significant environmental issues emerging. Six new seeps were detected and added to the survey.

Ammonia concentrations from blasting residues in the waste rock are lower than in previous years, likely a result of improved blasting practices. Hydrocarbons are still being detected in some seeps.

In December 2013, DDEC submitted an Addendum to its currently approved 'Waste Rock and Ore Storage Management Plan' (WROMP) to the WLWB, outlining its plans for mining the Pigeon Pipe. Notably, because of substantial inter-mingling of granite and metasediment in the Pigeon waste rock (making it difficult to manage these types separately), DDEC is proposing to manage all waste rock as potentially acid generating (PAG) (i.e., internally frozen cores covered with low permability insulating cover at closure).

Additionally, thermal modeling conducted by DDEC's consultant (EBA Engineering) led the company to propose the substitution of a 4 m thick combination of till and granite closure cover in place of the previously approved 5 m thick granite cover for Waste Rock Storage Areas (WRSA) in the Interim Closure and Reclamation Plan (ICRP).

The WROMP Addendum was distributed for comment and the Agency, along with other government agencies, responded, mostly requesting further information about the design of the proposed WRSA and the modifications being applied for the closure cover.

The WLWB approved the Addendum in March, 2014, and requested that the WROMP be properly updated to incorporate plans for Pigeon, along with an update on management strategies for co-disposing kimberlite waste with other waste rock at Misery WRSA.

In previous years, DDEC's consultant SRK had recommended follow-up investigations based on the annual seepage survey results. The first was that the low-grade kimberlite storage area in the Fox WRSA be investigated to determine why increasing concentrations of Ca, Mg, Na and Mo were occurring at sampling stations down-gradient. The second was to determine the source of the hydrocarbon concentrations showing up in some seeps adjacent to the Coarse Kimberlite Rejects Storage Area (CKRSA). DDEC followed up on these suggestions in 2013.

Kimberlite Degradation Study

Following up on the SRK's recommendation, DDEC examined the weathering of the low-grade kimberlite stockpile at Fox Pit during 2013. The breakdown and resulting increase in particle surface area is likely responsible for elevated sulphate, total Ca, total Na, and total Mo compared to background and other seeps at Fox—all indicative of kimberlite leaching.

Thermal Monitoring

Thermal monitoring of the Panda/Koala/Beartooth WRSA shows that it continues to be in a permafrost condition with a 2-4 m thick active layer. The interior of the Misery WRSA now appears to be in a permafrost condition, although the active layer reaches to a depth of 14 m in zones of schist, with temperatures up to 14°C.

Also, as we have noted in previous years, large portions of the Fox WRSA continue to be unfrozen. EBA observed internal temperatures up to 5.3°C, and an active layer up to 6 m thick. Similarly, the interior of the low-grade ore stockpile at the Fox WRSA remains unfrozen, allowing leaching of kimberlite to take place with potential effects to downstream water quality.

Agency's Assessment

DDEC's regular monitoring and reporting responsibilities on those aspects of waste rock and ore storage management at Ekati continue to be generally of high calibre. The Agency is pleased to see that some of the recommended further studies (by SRK and the WLWB) were tackled by the company in 2013, with more work to come.

The Agency is satisfied with the quality of DDEC's revised WPKMP submitted to the Board, but there was inadequate information provided for the Pigeon Pit waste rock management Addendum.

DDEC's response to the request for a more rigorous evaluation of the potential options for handling Pigeon waste rock was, in our view, unsatisfactory. We had expected to see a systematic and comprehensive analysis of the feasible options that included costs, scheduling and geochemical concerns, but the reasons provided were superficial only, with no substantive analysis to support them.

One example we raised was the issue of using more of the excess glacial till in the closure cover for the Pigeon WRSA. DDEC's response was that the "double-handling costs would be greater than the incremental cost to haul till to the Panda/Koala WRSA." Maybe, but adopting a particular closure measure just because it is cheaper than another option is not a sufficient reason on its own to dispense with an examination of alternatives.

This is an important issue. It is fast becoming a best practice in the mining industry to conduct a type of failure risk assessment (termed a Failure Modes and Effects Analysis) on specific mine components when planning and selecting closure strategies that have to be environmentally viable in the long-term.

Unfortunately the WLWB did not agree with our view that such an analysis of options was necessary. We take some comfort that (despite the approval of the Addendum) the WLWB has contracted an independent expert to review the waste rock cover systems at both Ekati and Diavik Diamond Mine in the coming months, and that the matter may be revisited by the WLWB in the future.

On a final note, it is apparent at this point in the mine life that two rock types pose potential drainage problems for the future. These will require on-going monitoring to effectively understand and manage any water quality issues that may arise in the years ahead.

First, there is no doubt that leaching of kimberlite stored on the surface (as either low-grade ore on the Fox WRSA, or as Coarse Kimberlite Rejects on the Panda/Koala WRSA) is having an effect on downstream seep water quality through increasing concentrations of Na and Ca in seepage from the site (particularly noticeable now that increasing proportions of smectite-rich Fox kimberlite is being mined).

Second, for the case of Misery, and soon, Pigeon Pipes there are significant volumes of schist or metasediment being excavated and placed in the WRSAs. These are PAG, and are being managed by interlayering non-PAG granites during waste rock deposition, and engineering the dumps such that permafrost conditions can develop in the interior of the piles. However, thermal monitoring data so far indicate that parts of the Misery waste rock pile are not freezing reliably, and that the active zone can reach to depths of 14 m or more. This has serious implications for closure planning, and we expect to see this issue more effectively dealt with in the next year. ■

Recommendation 1

The Agency recommends that DDEC investigate and report on the cause of the lack of freezing in the Fox and Misery Waste Rock Piles, identify any closure implications and develop appropriate contingency plans.

Agency visit to Cell B of the LLCF pilot study area.

Highlights:

- Very large gap in financial security still outstanding.
- Old Camp Closure Plan submitted.
- Limited progressive reclamation with continued slippage in reclamation research.

Reclamation and Closure

Activities 2013-14

Reclamation Work in 2013

Monitoring of previously reclaimed sites continued in 2013, including:

- Koala Topsoil Storage;
- Fred's Channel;
- South Airstrip Esker;
- Culvert Camp; and
- Pigeon Stream Diversion (PSD).

Results showed that these sites were stable and that plant cover continued to develop. Soil samples were taken to characterize soil substrate at all five sites.

Seeded grasses in the topsoil top-dressed areas of the PSD were well established. Willow cutting survival in the topsoil topdressing and rock crush (on level ground and on the bank slope) was high (in the range of 85 to 90%). First growing season survival of the cranberry seedling (108 in total) was also high – approaching 100%.

Four areas in the Koala underground were reclaimed in 2013, by removing materials and installing barricades to control access.

The Old Camp Closure and Reclamation Plan was submitted to the WLWB in December of 2013 for review and approval. The plan outlines the remaining reclamation activities for the site including reclamation of the Phase 1 tailings containment area, removal of the remaining hydrocarbon-contaminated material, and landscaping of the camp pad area. As outlined in the plan the scheduling of the reclamation activities is constrained to the summer season and it is planned that progressive reclamation of the Old Camp Area will commence in the summer of 2014.

Research Planning Activities

DDEC reported that it had completed the following reclamation research tasks in 2013:

- An analysis of the Panda and Koala pits that concluded the pits and underground should be allowed to flood (no hydraulic plugs) and establish a natural pond surface;
- Water quality predictions for each of the future pit lakes during the infilling process and post-infilling;
- Review of alternatives to Lac de Gras for source water for flooding;

Revegetation along the Pigeon Stream Diversion

- Reduction of capping depth to 1 m for landfill materials;
- Winter investigations to characterize Fine Processed Kimberlite (FPK) and porewater concentrations in cell B of the Long Lake Containment Facility (LLCF) and extra fine PK in Cell E.
- Bench study and field trial plots of PK amendments in preparation for LLCF Pilot Study;
- Preparation of the PK surface with fertilizer in the Pilot Study area; and.
- Community workshops on vegetation.

LLCF Pilot Study

The final landscape for the kimberlite beaches in the LLCF is to be a stabilized cover of rock and vegetation that will allow for safe access by wildlife. The beaches will surround a few residual ponds which will collect surface runoff, and direct overflow through spillways constructed in the various dykes of the facility. One of the key research needs for DDEC is to determine how to most effectively establish the vegetated zones on the beaches and have the vegetation remain self-sustaining in the long-term.

DDEC reports that, since about 2004, a native northern alkali grass (goose grass) began colonizing the LLCF beaches from the adjacent tundra. While this species is able to grow in relatively higher salt content soils, its long-term viability in kimberlite is not known.

In 2012 an 8 ha pilot study was commenced in the LLCF, with the objective of identifying a long-term cover design for the kimberlite tailings beaches that would be viable for the entire facility. Field investigations in Cell B had taken place since 2000 to evaluate various plant cover treatments, plant species, soil amendments, etc., and we have summarized the results of these in previous annual reports.

In 2013 DDEC submitted a detailed plan of its pilot study for further reclamation research tasks in LLCF to investigate the geotechnical and substrate conditions at the selected study site at the northern end of Cell B. The concept is to test various configurations of rock placement (grid, windrows, boulder fields) on the beach zones to test for endurance and viability of plant growth in between the rock berms.

Soil preparation, seeding and fertilizing in two plots was completed in 2013. Alfalfa green, fertilizer, fall rye seed, and alkali grass were applied in various parts of the pilot study area.

In addition, a geotechnical investigation was carried out comprising seven boreholes in Cell B to collect site-specific soil and hydrogeologic data for informing the constructability aspects of the cover design. Results are pending, although it is now known that the entire kimberlite profile is frozen from surface down to the lake bottom.

Rock cover placement was to be conducted in winter of 2013-14, and monitoring of the pilot study area progress is scheduled for summer of 2014.

Financial Security

Water Licence

WLWB set the financial security for the water licence at $263 million in July 2013. The company is required to post this amount of security as a term and condition of the water licence but has not yet done so as we go to print. The company submitted a proposal on the form of the security to AANDC and GNWT in December 2013.

The Agency wrote to the Ministers of AANDC and GNWT ENR on January 21, 2013 regarding our concerns with the current significant shortfall (more than $137 million) in financial security.

The response received from AANDC Minister dated March 3, 2014 stated that DDEC's proposal was being considered and would be reviewed in consultation with GNWT and in light of federal policy on mine site reclamation. No response has been received from GNWT as of yet.

Prior to Devolution, the Agency was told AANDC held $126 million in financial security through Irrevocable Letters of Credit for Ekati Mine. As a result of devolution, GNWT now has responsibility for handling security, including setting the form of the security.

Environmental Agreement

The Environmental Agreement sets out a process for the review of financial security under the Environmental Agreement which requires consultation with the

Continued on page 14

Financial Security

A closure and reclamation plan is intended to ensure that a mining operation can be effectively closed and reclaimed to an agreed upon end use. Estimating the costs of these closure activities is a key part of the closure plan.

To ensure that proper reclamation can be achieved at any point in a mine's life and that the public is not required to assume the expense of properly closing a mining operation, governments typically require the operator to provide financial assurance. The security is based on the estimated reclamation costs, such that the money required to implement the closure plan is available when needed.

For the Ekati Interim Closure and Reclamation Plan (ICRP), financial security is held under the Class A Water Licence. The WLWB sets the financial security for what it would cost a third party to carry out the work in the Ekati ICRP.

Under various articles of the Environmental Agreement, financial security may be held for matters related to compliance with obligations as set out in the Agreement, as shown below.

Environmental Agreement Obligations

- Interim closure period costs to respond to non-performance and to plan for final closure
- Continued operation of the Agency in the event of an unanticipated closure
- Annual Report and Environmental Impact Report preparation and review costs including public meetings
- Management plans that may need to be updated
- Additional future studies, monitoring and research required for closure but not provided for in the WLWB's financial security
- Future serious and imminent threats to the environment as identified through worst case scenarios
- Cost variance and progress reviews of closure planning are to be done every two years and may require additional security

The Environmental Agreement also requires a $20 million guarantee from the parent company that is in addition to the Security Deposit required for performance of obligations under the Agreement.

Discharge jetty in the LLCF

Continued from page 12

Agency. Two meetings were held to discuss these requirements for security in October and November 2013. To date, the company has not submitted a proposal (as it is required to do) for financial security under the Environmental Agreement.

Pit Lake Water Quality Predictions

DDEC completed a study which produced water quality predictions for each of the future pit lakes during and after the in-filling periods. Once filled, water from the surface of the pit lakes will overflow into downstream catchments which comprise the receiving environment and, hence, will be required to meet receiving water quality objectives.

A main issue addressed was whether any of the pit lakes will become meromictic such that full mixing between upper and lower layers of the water column will not occur.

The key general conclusions were:

- Pumping of fresh water improves the quality of water in the pit lakes;
- Pit lakes with larger upstream watershed are likely to have better surface water quality than those with smaller watersheds;
- Pits with more reactive wall rock (Misery and Pigeon) or groundwater inflows (Panda, Koala/Koala North and Fox) should have infilling started as soon as possible to improve water quality;
- Only pits with groundwater inflow have the potential for meromixis; and
- Pit wall runoff is the main source of long-term loading to full pit lakes.

Overall, the report concludes that the quality of water in the surface layer will likely be below current Water Quality Benchmarks, unless certain conditions arise for selected pit lakes:

- Sable and Fox – good;
- Beartooth – good, as long as a significant proportion of underground water and FPK supernatant is pumped out prior to infilling;
- Panda and Koala/Koala North – potential exceedances for chloride, nitrate and sulphate due to groundwater inflows unless additional measures are taken; and
- Misery and Pigeon – potential exceedances caused by high loadings from exposed meta-sediments in the pit walls.

Revegetation Workshops

One of the highlights of 2013 with respect to the company's effort in planning for closure was a series of workshops on revegetation involving participants from the communities of Kugluktuk, Łutsel K'e Dene First Nation, Yellowknives Dene First Nation, North Slave Métis Alliance, and Tłı̨chǫ Government.

Agency's Assessment

Since the approval of the current Interim Reclamation and Closure Plan, DDEC's main effort associated with closure planning is the conduct of an array of research projects aimed at informing the ultimate closure plans for the site. Progress on this front was mixed in 2013. We found a general lack of progress in 2013 on most of the reclamation research projects, as well as on progressive reclamation work.

However, for some of the research activities, DDEC made notable progress. These include the pilot revegetation study in LLCF, and the predictive studies for water quality at closure. The overall study design submitted in 2013 for the LLCF pilot study looks comprehensive and appropriate, and we are optimistic that a dedicated effort to following through with this work will produce useful results in determining a viable cover for the beached areas of the LLCF at closure.

Progressive Reclamation

Progress on progressive reclamation was better than before with the PDC work and a good plan for Old Camp having been developed for quick implementation (as we recommended last year). We were pleased that the company completed the PDC widening.

We have recommended in previous years

Panda Diversion Channel 2014

the need to complete the reclamation of Old Camp, as this is a long dis-used area of the Ekati Mine, and could serve as a good example of progressive reclamation in action. DDEC did produce a Closure and Reclamation Plan for Old Camp in 2013, and this appears to present a satisfactory approach for this long overdue work. We look forward to some action on this front in 2014.

Modelling of Water Quality

In the Agency's view, the Modelling Predictions of Water Quality for Pit Lakes is a useful document. The model uses observed data from Ekati which is very important. Many of the assumptions of the model are conservative although the long-term nature of the predictions creates uncertainty in the predictions. Nonetheless, the study makes reasonable predictions of water quality in future pit lakes based on the closure concepts developed in the Interim Closure and Reclamation Plan. That said, the predictions do raise a number of concerns about the future quality of these lakes.

Slippage in Reclamation Research

There is serious slippage for many of the research tasks that DDEC is required to conduct in accordance with the approved Reclamation Research Plans. Of the 112 tasks shown, 32 are delayed from the schedule in the previous progress report. We wrote to the WLWB in March 2014 and expressed our increasing concern that this work will not be done in time for the anticipated closure of Ekati in 2019, just five years away.

Recommendation 2

The Agency recommends that the Government of the Northwest Territories ensure that the security posted by DDEC meets the requirements of the Water Licence no later than July 1, 2014.

Recommendation 3

The Agency recommends that DDEC submit a proposal for the financial security review under the Environmental Agreement no later than July 1, 2014.

Financial Security

The Agency continues to advocate for a collaborative and efficient process to set and post financial security under both the Water Licence and the Environmental Agreement. In previous Annual Reports we noted our disappointment with the slow pace of getting adequate security in place.

It is very problematic that there remains a significant gap in what is legally required for financial security under the Water Licence ($263 million) and what is currently held by the government. This gap puts the public at serious financial risk.

While the Agency has no reason to believe that financial security would be needed in the immediate future, we wish to be able to reassure our Society Members and the general public that there is adequate financial security to properly close the mine, should it be required.

There is no apparent reason why the process to set financial security under the Environmental Agreement has been stalled since November 2013: no reasons have been publicly provided by the company for this lack of progress. This situation is also unacceptable and compounds the risk to both the environment and the public purse.

If the recommended deadline for submission of a proposal is not met by DDEC then we urge the governments to invoke dispute resolution process to get this matter resolved as quickly as possible. ■

Pigeon Steam Diversion

Highlights:

- Some major ions, nutrients and metals were elevated downstream of mine.
- Start of pumping Fine Processed Kimberlite (FPK) into Beartooth Pit.
- Pigeon Stream Diversion inlet and outlet construction completed.
- Sampling of two new sites (S5 and S6) as part of the AEMP is recommended to improve the ability of detecting effects in Lac de Gras.

Aquatic Effects

Each year Dominion Diamond Ekati Corporation (DDEC) carries out a number of programs and studies to determine if changes in the aquatic environment downstream from its operations are occurring as a result of mining activities. There are two separate watersheds (Koala-Lac de Gras and King-Cujo) into which regulated mine effluent is released, and water bodies in these two systems, as well as background sites, are sampled. The Aquatic Effects Monitoring Program (AEMP) collects information on any changing trends in water and sediment quality, benthic macroinvertebrate communities, zooplankton and phytoplankton, as well as fish populations and fish tissue. Four separate studies were undertaken as part of the Special Effects Studies and Monitoring Programs.

Activities 2013-14

Processed kimberlite, treated sewage and pit water were discharged into the Long Lake Containment Facility (LLCF) and comprise the main sources of potential contaminants entering the downstream environment. Effluent was released from the LLCF from June to November 2013, entering the receiving environment of the Koala watershed through Leslie Lake, being diluted as it flows downstream through Moose Lake, and eventually entering Lac de Gras (Figure 2). Mine water continued to be pumped into Beartooth Pit.

The Beartooth Fine Processed Kimberlite slurry pipeline (from the process plant to the mined out pit) was completed in early 2013. Process plant discharge was deposited into the LLCF in all months of 2013 with significant quantity diverted to Beartooth Pit.

A second source of potential contamination is effluent discharge from the Misery site. Water from the Waste Rock Dam was discharged into King Pond Settling Facility (KPSF) mainly in July 2013.

Panda Diversion Channel

No water was pumped from Misery Pit in 2013. From May to September, water was released from the KPSF to Cujo Lake from where it eventually flows into Lac du Sauvage.

Water from Desperation Pond was pumped to Carrie Pond in June 2013. A fish removal program was carried out in Desperation Pond in July and August prior to infilling half of the pond with waste rock (See 'Fish' section).

The inlet and outlet section and related fish habitat features of the Pigeon Stream Diversion (PSD) were completed in winter 2013. The original Pigeon Stream was kept flowing in 2013 and the completed PSD flushed to remove excess sediment. Following some minor construction this winter, the PSD is expected to be operational in 2014.

Changes to Evaluation of Effects following the 2012 AEMP Re-evaluation

Changes were made to the evaluation of effects beginning in 2013:

- The evaluated water quality variables were altered to include total barium, boron, cadmium and vanadium while total dissolved solids, ortho-phosphate-P, total aluminum, iron, and zinc were removed for both watersheds. In the Koala watershed, Total Organic Carbon (TOC) was added and total copper removed from the list.
- Now that four years of data are available, Leslie-Moose Stream was analyzed using the same approach as for other water bodies.
- Several statistical steps were taken to better distinguish natural variation from potential mine effects.

Figure 2: AEMP Reference Lakes and Outflow Streams

- To provide a more streamlined discussion on linkages between physical variables and biotic and trophic effects, the phytoplankton, zooplankton and benthos sections were merged into a single biology section.
- Other changes involve a number of statistical approaches and are described in detail in the AEMP.

AEMP Monitoring Results

Water Quality Sampling and Results

Each year DDEC reports the results of its AEMP to the Wek'èezhìı Land and Water Board (WLWB) and provides the highlights in its Environmental Agreement and Water Licence Annual Report.

This is the 16th year of monitoring for the Koala – Lac de Gras system and the 13th year for the King-Cujo system. The AEMP reference lakes and outflow streams are shown in Figure 2. The mining effects on water quality in the Koala and King-Cujo watersheds are shown for selected variables in Table 4. This table is adapted from the AEMP report with additions resulting from the Agency's review of the monitoring results: the legend has been modified from last year's report.

TOC concentrations in lakes downstream of the LLCF have changed over time relative to reference lakes but there is no clear downstream spatial gradient. The evaluation of changes is complicated given analytical challenges and the lack of baseline data making it difficult to determine whether these represent a mine effect or natural changes. In contrast, TOC concentrations are elevated, relative to reference lakes in Cujo Lake, Cujo outflow and the Christine-Lac du Sauvage stream with concentrations decreasing with downstream distance from the KPSF, probably indicating a mine effect.

Pigeon Stream Diversion

As in previous years, oxygen concentration in Cujo Lake was less than Canadian Council of Ministers of the Environment (CCME) guideline (6.5 mg/L) throughout most of the water column. This was partially mitigated by clearing snow on the lake to enhance O_2 production by phytoplankton. Because deeper waters of reference lakes (Counts in particular) are less than the CCME guideline, DDEC takes this as evidence that low under-ice O_2 in Cujo is not a mine effect. This may or may not be a correct conclusion as low O_2 levels in Counts began at 4 to 6 m depth, not at 1 to 2 m as in Cujo. DDEC does suggest that elevated organic carbon may be driving under-ice O_2 declines in Cujo. DDEC indicated that a number of variables had reached relative stability in the Cujo system in recent years, likely as a result of the suspension of open pit mining in Misery Pit in April 2005, although discharge from KPSF continued. The implications for this system will require careful attention now that mining has resumed in Misery Pit and mining is scheduled to commence in Lynx Pit, once the necessary permits are in place.

Under ice temperature seems to be cooling in all lakes downstream of the LLCF as far as Nema Lake although the cause is unclear. There is also a cooling trend in two of the reference lakes suggesting this may reflect natural climatic variability rather than mine effects. A warming trend was detected in Kodiak Lake along with a corresponding decreasing trend in dissolved oxygen. These changes began in the first year in which aerators were no longer used (2007) and likely represent undisturbed conditions. Grizzly Lake is showing some degree of thermal stratification, with cooler surface temperatures. The cause is unclear although thermal stratification was also observed in Vulture Lake (the reference lake as deep as Grizzly). Given that this change may have implications for the biological community, the company assessed the biological communities as part of the 2013 AEMP sampling program (see special study section).

Other notable changes include:

- Potassium mean concentrations exceeded the Site Specific Water Quality Objectives (SSWQO) (41 mg/L) in Leslie and Moose Lake during the ice covered season;
- Arsenic levels continue to be elevated in Leslie and Moose lakes; and
- Total ammonia-N concentrations have returned to baseline concentrations in recent years with no mine effects detected since 2012.

Biota Sampling and Results

Plankton

As reported in last year's annual report, there continues to be shifts, caused by mining activity, in the composition of phytoplankton communities of lakes downstream of the mine. Blue-green algae are displacing diatoms in lakes below the LLCF as far downstream as Lac de Gras.

Zooplankton community composition continues to show signs of being impacted downstream from the LLCF as far as Nema Lake. Copepod density is increasing while cladocerans and rotifers are

Continued on page 20

TABLE 4: Mining effects on water quality flowing through the Koala and King-Cujo Watersheds

- → Flow from effluent source to ultimate receiving lake in watershed
- ● Increased over time in comparison to reference lake/stream or different from a constant
- ■ Elevated but not changing through time
- ✦ Upper bound of 95% exceeded the SSWQO, water quality benchmark, or CCME guidelines during ice-covered or open water season
- ▲ Indicates observed mean exceeded the SSWQO, water quality benchmark or CCME guideline during ice-covered or open water season was less than the lower CCME guideline value
- ◆ The lower bound of the 95% confidence limit was less than the lower CCME guideline value for pH during ice-covered or open water season

	Parameters elevated in Koala watershed									Parameters elevated in King-Cujo watershed			
	Long Lake Containment Facility → Lac de Gras									King Pond → Lac du Sauvage			
Parameters Monitored	Leslie	Leslie-Moose	Moose	Moose-Nero	Nema	Nema-Martine	Slipper	Slipper-Lac de Gras	Lac de Gras	Cujo	Cujo Outflow	Christine-Lac du Savage	Lac du Sauvage
pH	●	●	●	●	●	●	●	●	●	●	●	●	◆
Alkalinity	●	●	●	●	●	●	●	●		●	●	●	
Hardness	●		●	●	●	●	●	●	●	●	●	●	
Total Dissolved Solids	●	●	●	●	●	●	●	●	●	●	●	●	
Chloride	●	●	●	●	●	●	●	●	●	●	●		
Sulphate	●	●	●	●	●	●	●	●	●	●	●	●	
Potassium	● ▲	●	● ▲	●	●	●	●	●	●	●	●	●	
Total Ammonia	●					●							
Nitrite	●	●	●	●									
Nitrate	●	●	●	●	●	●	●						
Total Phosphate - P	● ✦		● ✦		✦		✦		▲	✦			✦
Total Organic Carbon *										■	■	■	
Antimony		●	●	●							✦		
Arsenic	●	●	●										
Barium *	●		●	●	●	●	●	●	●	●	●	●	
Boron *	●	●	●	●	●	●	●			●	●	●	
Molybdenum	●	●	●	●	●	●	●	●	●	●	●	●	
Nickel	●	●	●	●	●	●							
Strontium	●	●	●	●	●	●	●	●	●	●	●	●	
Uranium	●	●	●	●	●	●							

** New variable added for evaluation (Total Organic Carbon, Barium and Boron) in 2013*

Mine Water discharge into Beartooth Pit

Continued from page 18

decreasing. It is not yet known if the cause is inter-specific competition in responding to increased nutrients or toxicity to some species from increasing concentrations of certain elements in the water.

Fish

In light of the failure of the 2012 AEMP to address a potential fish impact from dioxins and furans due to inadequate sampling, the Agency made a recommendation to the WLWB designed to prevent this type of methodology-caused failure in future. Specifically, the fish sampling protocol that was separately approved by the WLWB could be improved by mandating what should occur when a minimum fish sample size for a species is not met. Ideally, an additional sampling attempt should be made later that same season or the following year. Also, fish species appropriate to specific AEMP objectives should be selected. For example, sculpins should be the preferred species for testing exposure to lake sediment contamination.

As noted earlier, a fish removal program was carried out in Desperation Pond in July and August 2013. The fish-out was done using seines, minnow traps and gill nets (2.0", 1.5", and 0.5" mesh panels). All gill nets were attended throughout the average 43 minutes they were set and none were in the water over night. Eighty-two percent of 693 Arctic Grayling removed from Desperation Pond were released alive into Mossing Lake; 38 of those were mature, the rest juveniles. All of the mortalities were juveniles.

It is not reported whether other fish species were caught.

Special Effects Studies

In 2013, four special effects studies were undertaken:

- Lac de Gras Water Quality Monitoring Stations;
- Nero-Nema Stream Water Quality;
- Grizzly Lake Biological Communities; and
- Hydrocarbon Exposure to Fish.

Lac de Gras Water Quality Monitoring Stations

In 2012, mine effects were detected downstream of the LLCF as far as site S3 in Lac de Gras for eight water quality variables. As site S3 marks the downstream extent of the AEMP for the Koala watershed, a sampling program was undertaken down the length of the north arm of Lac de Gras beyond S3 to determine if a new station is required. Analysis of water quality variables suggests the mine effects now extend beyond site S3 (Figure 2). For eight variables (pH, alkalinity, hardness, chloride, sulphate, total potassium, total molybdenum, and total strontium) concentrations at site S4 are comparable to those at site S3. Results suggest that effects may have extended as far as sites S5 and S6 for five of these variables (chloride, hardness, potassium, sulphate and strontium). Site S6 is located at the mouth of the north arm, more into the main body of Lac de Gras.

Given that there are other direct influences on Lac de Gras such as other mine operations, it is possible that these differences, especially at site S6, may not be entirely due to Ekati. As concentrations at site S4 are comparable to those at site S3, the company suggests that sampling at both sites S5 and S6 would improve the ability to detect effects of Ekati in Lac de Gras and that these sites should be included in future AEMP sampling.

Nero-Nema Stream Water Quality

As part of its decision on the 2012 AEMP re-evaluation, the WLWB requested that a study examining possible differences in dilution among water quality variables, including hardness, be completed during the 2013 open water season. Weekly water quality sampling was conducted at Nero-Nema Stream during effluent discharge from the LLCF to investigate differential dilution between hardness and water quality variables with hardness dependent benchmarks. Weekly sampling conducted in the LLCF discharge as part of the Surveillance Network Program was used for comparative purposes.

Results indicated that, downstream of the LLCF at Nero-Nema Stream, most water quality variables with hardness dependent benchmarks are likely being diluted at the same rate or faster than water hardness

Cell B of the LLCF

itself. The only exceptions were copper and manganese, which are not included as part of the AEMP Evaluation of Effects. The report suggests that results should be considered with caution since it was not possible to monitor hardness decline due to the continued discharge from the LLCF during the study.

Grizzly Lake Biological Communities

Phytoplankton, zooplankton and benthic invertebrates were sampled in Grizzly Lake in August to assess if communities have been altered following observed changes in the under ice temperature profiles in 2011 and 2012. The only metric that seems to have been affected was zooplankton community structure.

Rotifer density has increased over time, coinciding with a decreasing relative density of copepods. This is in reverse to the trend in lakes downstream of the LLCF where rotifers have decreased while copepods have increased. While this latter change in community structure is attributed to increases in macronutrients, particularly nitrogen and phosphorus, this is not the case in Grizzly Lake. There has been no change in nutrient availability over time. Instead, Grizzly Lake's zooplankton community change has been attributed to warming temperature in the water column. A similar trend was not seen in the downstream lakes.

Hydrocarbon Exposure to Fish

As reported in last year's annual report, an enzyme in fish which indicates possible exposure to hydrocarbons or organochlorines, was detected in higher levels in fish closer to the LLCF compared with reference lakes. The company is investigating a possible link between mining activity and hydrocarbon releases since the source is unknown. This study is ongoing and results will be submitted in a separate report.

Other Reports Submitted to the WLWB for Review

During 2013/14, a number of reports were submitted to the WLWB for review:

1. 'Modeling Predictions of Water Quality for Pit Lakes' (See Reclamation and Closure chapter);
2. 'Aquatic Effects Response Framework';
3. 'Nitrogen Response Plan';

The 'Aquatic Response Framework' is intended to be integrated into the AEMP design. The objective is to link the results of the AEMP with actions necessary to ensure that project-related effects on the receiving environment remain within an acceptable range through adaptive management. The results of the AEMP will be incorporated into an early warning system with defined action levels that will allow the company to monitor and respond to changes in the receiving environment prior to significant environmental impact occurring. The response framework includes:

- Definitions, with rationale, for Significance Thresholds and tiered Action Levels applicable to biotic (plankton, benthos and fish) and water quality parameters monitored in the aquatic receiving environment;
- Each action level will include:
  - The rationale including a consideration of the predictions and conclusion of the environmental assessment and AEMP results;
  - How exceedances of action levels will be assessed; and
  - The types of actions that may be taken if these levels are exceeded.
- Guidelines for timely reporting any exceedances of action levels to the WLWB; and
- A timetable for the development, review, updating, and amendment of a response plan.

Pigeon Stream Diversion

Nitrogen Response Plan

The 'Nitrogen Response Plan' is a requirement of Water Licence WL2012L2-0001. The objective of the plan is to minimize the amount of nitrogen entering the receiving environment at the Ekati Mine. The plan includes:

- A description of the current nitrogen sources and management practices, including storage and transportation of ammonium nitrate;
- An expert assessment of the current blasting practices; and
- The development of an implementation plan to address the recommendations from both the current assessment and an earlier assessment conducted in 2008.

Agency Assessment

Our review of the 2013 reports indicates that the company is generally doing a good job of protecting the aquatic environment at the mine site, although there are still a few challenges. The AEMP continues to be comprehensive in scope and has the ability to detect small changes in the sampled variables that can alert managers to emerging problems. We still have concerns with some metals that continue to increase downstream from the mine (Table 4).

It is not yet known whether fish will be adversely impacted by changing communities of zooplankton downstream of the LLCF. The Agency will be keeping track of how zooplankton changes proceed until the next trout and whitefish sampling year of 2018.

Four special effects studies were undertaken in 2013. The Agency supports the recommendations from the Lac de Gras study that two new sites be added to the AEMP in order to improve the ability of detecting potential effects from the Ekati Mine farther out into the main body of Lac de Gras.

The Agency has some reservations about the results of the Nero-Nema stream monitoring study. While it appears reasonable that water quality variables with hardness dependent benchmarks are being diluted at the same rate or faster than water hardness downstream of the LLCF, the caveats attached to this conclusion suggest that further work may be required to confirm this initial conclusion.

In the Agency's view, the 'Aquatic Response Framework' appears reasonable for water chemistry but further work should be done to develop Action Levels and Significance Thresholds for sediments, zooplankton (biodiversity and composition), and fish health. The Agency also would have liked to have seen better consideration of lead times to implement any actions deemed necessary and more specific actions identified if Action Levels are exceeded.

In the Agency's view, the 'Nitrogen Response Plan' indicates an overall improvement in blasting practices from 2008 to 2013 although there are still areas where improvement can be made. The Agency provided specific comments to the WLWB. In general, the plan tends to focus on the use-protection approach where current nitrogen levels are deemed to have no significant adverse environmental effects. The Agency supports a more balanced approach of pollution prevention and waste minimization as found in the Mackenzie Valley Land and Water Board policy on 'Water and Effluent Quality'. The Agency recommended that the 'Nitrogen Response Plan' deal more explicitly with opportunities for waste minimization and have a more detailed implementation plan that includes performance monitoring and public reporting. ■

Panda Diversion Channel

Incinerator Building

Highlights:

- **DDEC improving and correcting problems with ambient air quality sampling program.**
- **Incinerators operational and stack testing done.**

Air Quality

The Ekati Air Quality Monitoring Program (AQMP) is comprised of the following components: meteorological monitoring (daily); air emissions and greenhouse gas calculations (annually); Total Suspended Particulate (TSP) measurements through high volume air sampling (HVAS) (every six days); continuous air monitoring (CAM) (NOx, SO_2, TSP and $PM_{2.5}$) (24 hour); dustfall monitoring (summer months); snow chemistry sampling (every three years); and lichen tissue sampling (every three years). Results are reported on every three years in concert with the snow and lichen sampling program; scheduled for 2014. The last AQMP report was issued in June 2012 for the 2009-2011 reporting period.

Activities 2013-14

The Ekati Mine manages its food and paper waste on site by burning in an incinerator; currently 1000 kg daily. Two new waste incinerators were commissioned during 2012 that are easier and safer to operate, and will ensure complete combustion of waste and reduce emissions. In 2013 they were fully operational and DDEC implemented an incinerator emissions monitoring program, including incinerator stack testing. This testing was conducted from June 19 to 27, 2013 to establish how effectively the incinerators were running and identify any remaining issues. Contaminants tested included those covered by the Canadian Council of Ministers of the Environment (CCME) Canada-Wide Standards for incinerators including standards for dioxins, furans and mercury. The company submitted the results to the Wek'èezhìı Land and Water Board (WLWB) in March 2014 (Table 5).

Results of the testing indicate that complete combustion is being achieved in both incinerators and that they are operating correctly. Differences in the two incinerator test results were most likely due to the variation in the waste stream being fed to them during the testing which did not occur simultaneously. The operational specifications of the incinerator are to be included in the Incinerator Management Plan, yet to be accepted by the WLWB.

DDEC also revised the Waste Management Plan and submitted it to the WLWB in January 2014, which included incinerator operations.

Table 5. Summary of Source Emissions Test Results

Parameter Analyzed	Sampling Method	Units	Average Concentration		Canada Wide Standard Emission Limit
			Unit 63-IN-201 (North)	Unit 63-IN-202 (South)	
Total Toxic Equivalent (TEQ) - Dioxins/Furans Metals	EPS 1/RM/3	ng/m^3	0.0028[1]	0.0028[1]	0.08
Mercury (Hg)	29	ug/Rm^3	0.00[1]	0.00[1]	20.0
Particulate Matter (PM)	5	mg/m^3	24.53	24.53	n/a
Sulphur Dioxide (SO_2)	8	mg/m^3	101.12	101.12	n/a
Carbon Monoxide (CO)	10	mg/m^3	0.00	0.00	n/a
Hydrochloric Acid (HCl)	26	mg/m^3	3.1	3.1	n/a
Chlorine (Cl)	26	mg/m^3	< 0.00005	< 0.00005	n/a
Oxides of Nitrogen (NO_x)	7A	mg/m^3	156.32	156.32	n/a

Notes:
n/a — No Canada-Wide Standard emission limit for this parameter.
[1]@ 11% O_2

Some of the waste management practices that have been improved include waste streaming and segregation at the source over the entire mine site to reduce the incidence of problem materials entering the incinerator. Oily rags, absorbent pads and aerosol cans are collected and shipped off-site to an approved facility instead of being incinerated. Recyclable materials such as batteries, plastics and rubber are also collected and shipped off-site. As well, there has been a shift to eliminate plastics from site so that they do not end up in the incinerator. Examples of this include replacing plastic food take-away containers with palm pulp and bamboo products, and replacing plastic garbage bags with corn oil products.

In our previous annual reports the Agency and our consultant SENES identified some issues with the air quality monitoring program at the Ekati Diamond Mine. DDEC agreed with the issues identified and has reported that they have made improvements to the AQMP program over the past year.

Meteorological Stations

In 2011 there were issues with power failures at the meteorological stations resulting in a loss of four months of data. DDEC reports that they have upgraded the Polar Lake and Koala meteorological stations with new instrumentation and power supply to enhance data collection and reliability, and have purchased a radio telemetry system (to be installed in spring of 2014) in order for operators to have on-demand access to the station's data, thereby minimizing downtime through early detection.

High Volume Air Samplers (HVAS)

In the past the HVAS suffered from several critical issues including: motors were often in need of repair especially during winter; the filters were giving negative values after analysis; there was no Quality Assurance / Quality Control (QA/QC) to ensure the filters were collected and weighed correctly; and the 24-hour sampling window was being run from midday to midday, which may not have accurately reflected daily events over a calendar day and were not directly comparable to the CAM data.

The company has now replaced the HVAS with Partisol 2000i air samplers to enhance sample quality. The Total Suspended Particulate (TSP) samplers are now run between midnight and midnight. DDEC contractor, Maxxam Analytics, now weighs the TSP filters before and after use to ensure quality control.

Continuous Air Monitoring

During the 2009-2011 reporting period, over 75% of the $PM_{2.5}$ data were not valid due to equipment and calibration issues. There were also exceedances of the Canadian Ambient Air Quality Objective and the GNWT Ambient Air Quality Standards in TSP identified but there was no investigation into potential causes. DDEC has now added a wind speed and direction sensor to the CAM building to enhance the ability to investigate any exceedances. They will also conduct a more in depth review and investigation into the cause of exceedances within one month of being discovered. The company will be updating its Standard Operating Procedures to ensure CAM station operators undertake adequate QA/QC checks of the equipment more frequently so that the response time is decreased in notifying Maxxam of any known equipment malfunctions.

Dustfall Monitoring Program

In the review of the AQMP, SENES identified concerns that the upwind locations of the dustfall monitoring stations along the Misery Haul Road where not truly upwind to the prevailing wind direction. DDEC has reviewed the Misery Haul Road dustfall monitoring stations and additional stations are planned for the 2014 season to address wind direction concerns.

Potential for contamination of samples due to helicopter landings was identified in the Agency's previous two reviews of the AQMP program. The company has now revised the helicopter landing/take-off procedure near dustfall stations so that the dustfall results will not be influenced by landing/take-off.

In our last annual report the Agency recommended that the company expand its evaluation of different types of dust suppressant methods and correlate it with meteorological data, actual haul road usage, and the times since suppressant was last applied. DDEC reports that they are undertaking an analysis of the effectiveness of dust suppression efforts and will present them in the 2014 AQMP report.

Snow Core Sampling

In previous annual reports the Agency questioned the sampling methodology of using frozen vs. melted snow samples sent to the lab. The company conducted a comparison but the sample size was not sufficient and the Agency recommended the study be redone. In 2013 the company re-did the comparison study using frozen and unfrozen snow core samples that were extracted from the same location. The results indicated that there is no significant difference in nitrate-N concentrations submitted as snow vs. water. DDEC also intends to further investigate the probable cause of volatile compound variability in the far field which will be included in the next AQMP report.

Agency Assessment

The Agency recognizes that the company's air quality and waste handling procedures have improved significantly.

In September 2013 the Agency visited the new incinerator building where DDEC demonstrated how the incinerators work. We were pleased that DDEC has developed detailed operating procedures that focus on waste streams and waste batching to determine optimal incinerator operations.

The Agency is pleased that the stack testing results indicate that the incinerators are working correctly. We have some concerns with the results for some of the contaminants sampled. One of the units had levels of cadmium and lead above the Canada-Wide Standards in one of the tests, but the report had little explanation of how the source material may have influenced the results. Some important information was missing from the report, including what materials were being burned during the stack tests and when in the burn cycle the sampling took place.

The Agency recommends that DDEC develop detailed operating procedures for the incinerators, including the recording of data, provisions for periodic audits and stack testing, and public reporting.

Dust continues to be a concern for the Agency particularly with regards to its potential effect on caribou and resulting avoidance of key habitat. There are new mining activities being proposed in the eastern part of the Ekati claim block, including a pushback of the existing Misery Pit, the new Lynx Pipe project and the proposed development of the Jay Pipe. These new activities mean a likely increase in potential air quality issues such as generation of dust during construction (blasting, deposition of rock for roads and pads) and operation (blasting during mining and increased use of haul roads). DDEC has indicated that it intends to update the AQMP in 2014.

Any updates to the AQMP should be done prior to these activities commencing to ensure that monitoring of these new dust sources is considered and managed as part of site-wide programs. We look forward to reviewing the more comprehensive evaluation of dust suppression methods that is currently being plowed. ■

Interior Incinerator Building

Wolverine

Highlights:

- Lac de Gras grizzly bear DNA study year 2 conducted in 2013.
- Wolverine DNA monitoring to be conducted in April 2014.
- Bathurst Caribou Range Plan discussions initiated.
- Use of remote cameras to document caribou numbers, movements and behaviours has become a major thrust of caribou monitoring.
- Lynx Pit permitting highlighted concerns over roads and caribou.

Wildlife Effects

Activities 2013-14

Dominion Diamond Ekati Corporation's (DDEC) Wildlife Effects Monitoring Program (WEMP) documents wildlife impacts resulting from mining activities, and assesses the effectiveness of wildlife mitigation and management efforts. The WEMP is in its 17th year. As in previous years, the 2013 WEMP focused on wildlife habitat and wildlife species of greatest interest; caribou, grizzly bear, and wolverine. Monitoring techniques included compilation of incident reports and visual observations, ground-based surveys, behaviour observations, and DNA sampling. A major thrust of the caribou monitoring program has shifted to use remote cameras to document caribou numbers, movements and behaviours.

Government of the Northwest Territories' (GNWT's) Environment and Natural Resources (ENR) sponsored two meetings in Yellowknife on development of a Bathurst Caribou Range Plan with industry, communities, monitoring agencies, and other interested partners. The range plan will monitor and manage disturbance on the landscape as it relates to habitat and range. The plan will ultimately be considered in concert with an overall management plan for caribou, including the Bathurst caribou herd, in the Tłı̨chǫ settlement region, which is being developed under the guidance of the Wek'èezhìı Renewable Resources Board (Figure 3). The range plan process is proceeding slowly and may take up to two years to complete, using technical working groups and a steering committee. The Agency is participating in this process to help set direction and to lend expertise.

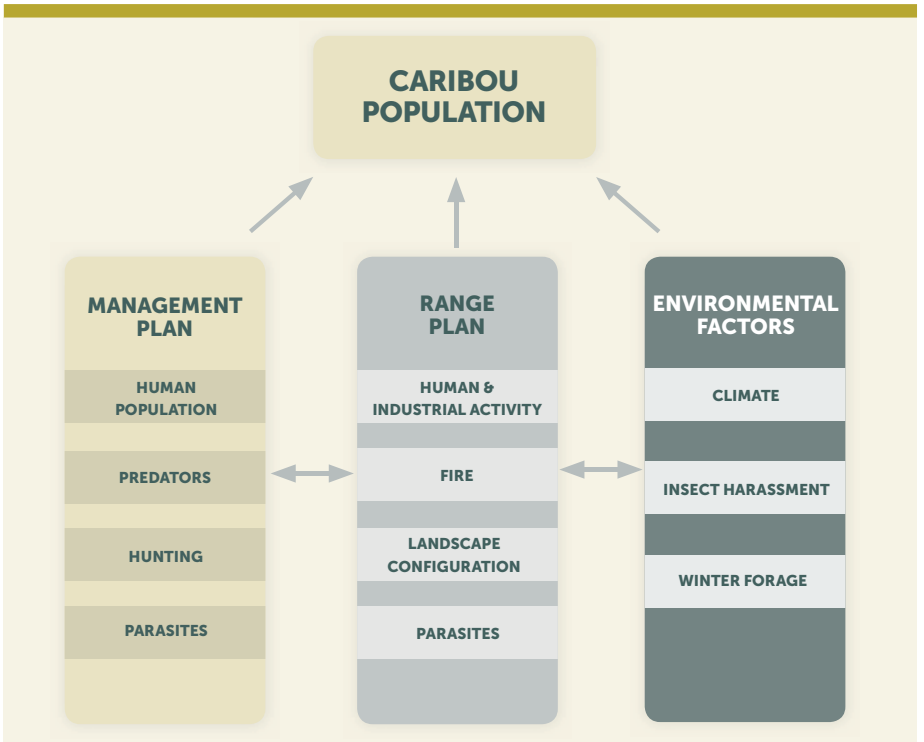
Ekati Mine Footprint

The mine footprint increased by 27 ha during 2013. The total footprint of the mine site now covers 3,242 ha (32 km^2).

Wildlife Incidents

DDEC continues its efforts to improve its waste management practices and reduce attractants at landfills, to reduce wildlife incidents, and to exclude wildlife from areas of danger (e.g., airstrip, high traffic areas). However, adherence by employees to proper waste disposal practices is an ongoing challenge for the company, as the disposal of wildlife attractants at the Ekati landfill has steadily increased since 2008. In fact, 2013 had the highest rate of non-compliance since 2005. Perhaps correspondingly, wildlife sightings and sign (tracks and scat) at the landfill were also the highest documented in years. DDEC should be more diligent at encouraging staff to comply with waste management procedures.

Figure 3: Simplified relationship of Caribou plans



Caribou

Twenty-six vehicle-related animal mortalities were recorded, the highest in nine years. None of the mortalities were of Valued Ecosystem Component species (e.g., caribou, grizzly bear). One short-eared owl was struck and fatally injured by a truck antenna. In July 2013 a caribou gained access to the runway, delaying aircraft activity.

Caribou Monitoring

In the past, DDEC has documented caribou abundance, distribution, incidental observations, and behaviour relative to the mine using aerial and ground-based surveys. No aerial surveys have been conducted since 2009. In 2013, ground-based incidental observations by mine staff estimated 2,653 caribou within the Ekati study area, with most observed during northern migration, late summer and southern migration.

Caribou behaviour can be influenced by industrial development, affecting caribou activity, energetics and habitat use. DDEC and Diavik Diamond Mine are collaborating to collect behavioural observations at close and far distances from mine activities. During 2013, DDEC collected behavioural data from 40 caribou within 300 m of infrastructure.

In an appendix to the WEMP, analyses were conducted on behavioural data collected by both mines from 2010 to 2013, ranging from within 300 m to as far as 108 km from mine infrastructure. Industrial stressors (i.e., mine staff on foot, and vehicles) caused an increase in stress response, but for less than an average of 40 seconds. The report concluded that changes in caribou behaviour due to mining activities "may be small in magnitude and perhaps might rapidly become inconsequential beyond 2 km from the nearest mine infrastructure", but the authors acknowledged low sample size at near to medium distances from infrastructure.

Remote cameras were deployed on the property in 2012 to monitor the interaction of wildlife with mine infrastructure, with a particular focus on the Misery Road. Additional cameras were deployed in 2013, bringing the total to 90 cameras. The cameras replaced previous programs which monitored caribou distribution relative to roads and measured caribou snow track density. The main objectives for the camera program are to examine trends in abundance

Wildlife camera at "The Narrows" between Lac du Sauvage and Lac de Gras

and behaviour, and to determine if the structure of tundra roads deters caribou from crossing. Results from 2012 indicated that 8% of caribou groups that approached roads were deflected. Results from 2013 will be provided in a three-year summary report that will be available as a separate addendum in June 2014.

Grizzly Bear Monitoring

Grizzly bears are a top carnivore and Valued Ecosystem Component species that occur at low densities within the barrens. In 2012 and 2013, DDEC and Diavik Diamond Mine collaborated to conduct a large-scale DNA-based mark-recapture study to estimate the population of grizzly bears in a 16,000 km^2 study area surrounding the two mining operations. During 2012, 112 grizzly bears were identified. DNA results for 2013 were not available at writing, but study results are slated for reporting in June 2014. The study is being done in concert with De Beers Canada who will be conducting the second year of the southern portion of this joint study in 2014.

Wolf Monitoring

Annual surveys of den sites are the main monitoring method used to assess the potential mine-related effects on wolf movements and presence within the Ekati study area. Of 19 dens surveyed in collaboration with ENR in 2013, three were occupied in June with pups present in August. These were the first successful dens in the Ekati study area since 2008.

Wolverine Monitoring

As a follow-up to wolverine DNA sampling conducted in 2005 and 2006, concurrent studies were conducted at Ekati Mine, Diavik Diamond Mine and Daring Lake in April 2010 and 2011. The data suggest

White-fronted goose

declining wolverine populations on the Daring Lake and mine grids; however, coverage of the Ekati wolverine sampling area in 2011 was poor. To continue long-term monitoring, DNA sampling at Ekati was conducted in April 2014.

Bird Monitoring

Tundra breeding bird monitoring is no longer conducted at Ekati, although the North American Breeding Bird Survey was conducted for the 11th year. As recommended at the 2010 technical and community workshops, regional raptor surveys will occur on a 5-year basis. Rough-legged hawks, peregrine falcons, gyrfalcons, and common ravens nested successfully in pits during 2013.

Agency Assessment

Review of the 2013 WEMP Report

We commend DDEC for its leadership on the grizzly bear DNA study, and for participating in the wolverine DNA monitoring. These two studies contribute to cumulative effects monitoring at the regional scale.

Results of the 2013 WEMP programs conducted are reasonably well presented although some of the writing is dated. For

example, the introduction to the caribou section does not mention the results of the 2011 Ahiak herd survey.

More importantly, some objectives are misdirected and the results overstated. For example, the behavioural studies appear to be directed at examining evidence for whether the mines affect caribou groups as far away as the 14 km Zone of Influence (ZOI) proposed by Boulanger et al. (2012). However, the ZOI as presented by Boulanger and colleagues examined relative distribution and abundance of caribou in relation to mine infrastructure, not the behaviour of caribou at distance from infrastructure. These two metrics are not necessarily correlated; caribou may decide to spend less time within 14 km of mine activities because of some sensory disturbance, regardless of whether their behaviour differs.

In terms of behaviour, the claim of 8% deflection rate suggested by the 2012 camera data is most likely biased because of the field of view that the cameras obtain. If deflection occurred outside of the field of view (which is narrow close to the camera where it can trigger: maximum ~20 m trigger distance), then the cameras would not record the deflection, biasing the deflection rates in a positive direction.

Grizzly Bear

Progress has been slow in offering alternative programs to mitigate and monitor the influence of mine-related activities on the relative abundance and distribution of caribou. Advancement on studies to identify mechanisms (possibly dust deposition) that may be influencing the distribution of caribou relative to the mine footprint, followed by changes to mitigation measures and further evaluation of the ZOI – in effect adaptive management – are still not evident. Limited efforts are being directed at examining the effects of roads and vehicle traffic on caribou movements. Camera and behaviour studies may not be adequately capturing impacts to movements across mine infrastructure.

The recent Lynx Pit land use permitting process highlighted issues with the lack of a comprehensive road traffic management plan to minimize wildlife disturbance. The Agency acknowledges that the Ekati Mine has an exemplary track record for avoiding vehicle-caribou collisions. We suggest, however, that the current site-specific road safety protocols are focussed on physical injury to caribou. These protocols are inadequate to reduce impacts to caribou behaviour and minimize the partial barrier/filter effect of roads at Ekati, which affect the ability of caribou to conduct daily and seasonal movements and to access and use habitat. Wildlife policies and DDEC site procedures regarding caribou and roads are unclear at best. Triggers and mitigations to reduce impacts to caribou behaviour and movement are poorly established. Observations of caribou numbers, distance and behaviour in relation to road traffic are also not adequately addressed in the Decision Flow Chart or the Wildlife Sighting Fishbone Diagram. The Agency looks forward to development of a comprehensive road traffic management plan to avoid wildlife disturbance. This plan could be a stand-alone document or integrated into an overall wildlife management plan.

Recommendation 4

DDEC develop a comprehensive road traffic management plan to reduce wildlife impacts (mortalities and sensory disturbance). The plan should include road design, speed limits, traffic volume caps, triggers for action, driver education, and monitoring and reporting.

Red Fox

Wildlife Monitoring and Management

Workshops held by ENR in 2013 examined establishing guidelines for when and how monitoring programs should be conducted. Guidelines should include:

- Standardized sampling methods to assess abundance and distribution relative to mine infrastructure, including the conditions when sampling should be conducted;
- Development of specific methods to test and evaluate mitigation measures and best practices;
- Triggers for re-evaluating ZOI monitoring, such as changes in operations, new roads, large fires, etc.;
- Shared data storage and study details (coverage, time period and other factors) to assist with regional and future efforts; and
- Direction for data compatibility to ensure regional and cumulative effects assessment and management (i.e., how individual project monitoring will feed into species and landscape planning and management).

These guidelines should fit within a framework to manage cumulative effects. The responsibility to establish monitoring guidelines rests with ENR. ■

Esker near Jay-Cardinal Project

Lynx and Jay-Cardinal Expansion Projects

Highlights:

- **Lynx Project to add five months of mine production using mostly existing facilities.**
- **Jay-Cardinal Project to add about 18 years of life to the Mine but Cardinal Pipe dropped from original proposal.**
- **Concerns with impacts to caribou, water, and fish. Need for detailed analysis of alternatives.**

Lynx Project

The Lynx kimberlite pipe development will be the seventh open pit mine on the property and is in close proximity to the existing Misery mining operation (Figure 4). Mining of Lynx will use much of the existing Misery infrastructure; in addition it will require the following:

- New 1 km access road plus an upgrade of the existing winter access road to the Misery road;
- Expansion of the Misery Waste Rock Storage Area;
- Fish out and dewatering of Lynx Lake;
- Dewatering and minewater pipeline to Desperation and/or King Pond; and
- Possible run-off water structure around the open pit.

Dominion Diamond Ekati Corporation (DDEC) estimates that the Lynx expansion will require nearly two years of construction and will provide about five months of ore feed to the existing processing plant.

The Wek'èezhìı Land and Water Board (WLWB) prepared an amalgamated (with the existing) water licence and a separate land use permit.

Jay-Cardinal Project

The proposed Jay-Cardinal expansion would be a significantly larger project than any of the previous expansions. DDEC estimates they contain more carats than have been mined at Ekati to date. The Jay and Cardinal pipes are located beneath the waters of Lac du Sauvage, a large lake that flows into Lac de Gras east of the Misery Pit. The initial proposal required the dyking of a significant portion of Lac du Sauvage, the diversion and handling of large volumes of water, lowering of the lake surface by about 10 m, altering the natural flow of water through the watershed and the construction of about 40 km of roads. The project has been referred to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for an environmental assessment.

As of early May 2014, DDEC has proposed to withdraw the Cardinal Pipe from the expansion plan, greatly reducing the area of lake affected, the number of dykes required, and the number and length of roads and linear structures required. As the Jay Pipe is located in shallow water near the western shoreline of Lac du Sauvage, the current concept is for a 5 km horseshoe-shaped dyke to isolate the pipe from the main body of water. The isolated area will then be fished out, dewatered and prepared for open pit mining. The approximately 18-year mine life will consist of about 10 years of open pit followed by about 8 years of underground mining. DDEC states it will submit the Developer's Assessment Report (DAR) in the fall of 2014.

Agency Assessment

During the Lynx Project hearing the Agency raised concerns about caribou and roads, and water. Lynx will contribute significant traffic to the new access road, winter road upgrade, and the Misery haul road, increasing sensory disturbance and dust creation. The Agency observed that much relevant wildlife information gathered during the past 16 years of monitoring was not incorporated into the review material, for example the caribou and grizzly bear collar data. The Jay Project also will contribute a significant amount of traffic along the Misery Road well into the 2030s. The wildlife policies

Figure 4: Ekati Expansion Project

Note: Dotted line shows the original outline of the lake before being drained by 5-7m

and DDEC site procedures regarding caribou and roads are unclear. A tiered level of response should be developed that clearly addresses caribou group size, location, and behaviour in relation to roads and infrastructure. Monitoring of the effectiveness of road design and traffic management on caribou behaviour and movement (as well as safety) should be conducted to feed back into adaptive management.

The Agency's greatest concern with water was the proposed pumping of sump water from Lynx Pit to Desperation Pond with subsequent discharge to Carrie Pond and beyond. The Agency took the position that this type of discharge would require the development of new Effluent Quality Criteria. In the end, the company made the decision to pump sump water directly to the King Pond, an existing settling facility, rather than to Desperation Pond.

Many of the concerns raised during the Lynx hearings will be intensified in the proposed Jay Project. Main areas of concern are caribou, water, aquatic life and alternatives for development. The Jay Project would extend the Ekati Mine footprint farther to the east, creating additional potential barriers to north-south movement by caribou and other wildlife. The proposed Jay waste rock pile would lie adjacent to the main north-south oriented esker in the area, an obvious extension of wildlife movements through the Lac du Sauvage – Lac de Gras isthmus.

Removal of the Cardinal Pit from the proposal would substantially reduce the potential negative impacts from the development. The Agency will review the revised project in the months to come and continue to participate in the environmental assessment. ■

Bathurst Caribou Range Plan Workshop

Regional Monitoring and Cumulative Effects

Highlights:

- **ENR has begun a range plan for the Bathurst caribou herd and held a workshop on regional wildlife monitoring workshop in the Slave Geological Province.**
- **Little progress from AANDC and GNWT on best practices for caribou protection measures as recommended by the WRRB in 2010.**
- **CIMP is focused on caribou, fish and water, overall purpose and use of information not clear.**

Activities 2013-14

In this section, we review new developments with regard to regional monitoring and cumulative effects. Regional monitoring is a useful tool for cumulative effects monitoring and management.

The Government of the Northwest Territories (GNWT), Department of Environment and Natural Resources (ENR) hosted a Slave Geological Province Regional Wildlife Monitoring Workshop in November 2013. The Agency participated as did representatives of the diamond mines including Dominon Diamond Ekati Corporation (DDEC). There was some useful discussion of standardized protocols for wildlife monitoring to ensure that data collected can better be used for regional purposes including cumulative effects assessment and management.

ENR also held two workshops on developing a range plan for the Bathurst Caribou Range Plan in November 2013 and February 2014. These large workshops have resulted in the establishment of a steering committee that will continue to oversee the effort and ensure communications, and future technical working groups that will provide expert advice on information gaps such as setting action levels and thresholds. The Agency intends to monitor this initiative and to offer technical assistance where possible (Figure 3, page 27).

The Wek'èezhìı Renewable Resource Board (WRRB) recommended in October 2010 that Aboriginal Affairs and Northern Development (AANDC) and ENR collaboratively develop best practices for mitigating effects on caribou during calving and post-calving. These would include consideration of mobile caribou protection measures (temporary restrictions on land use activities tied to caribou movements) and monitoring landscape changes, including fires and industrial exploration and development, to assess potential impacts to caribou habitat. There does not appear to have been any progress made on this work in 2013-14.

The Cumulative Impact Monitoring Program (CIMP) was intended to provide information on the state of the environment for the Mackenzie Valley region and to evaluate the functioning of the integrated resource management system. CIMP staff moved over to the new GNWT Lands Department effective April 1, 2014. Caribou, fish and water were established as priorities for CIMP but we are unsure whether the goals of CIMP are being achieved and if the work has much relevance to cumulative effects issues for the Ekati Mine including aquatic effects in Lac de Gras and the wise management of the Bathurst caribou herd. ■

Willow Catkin

Traditional Knowledge and Community Engagement

Highlights:

- Company senior management has been visiting Aboriginal communities.
- Community-based TK projects continue to be funded by the company.
- Details of a TK workshop on vegetation reclamation was reported.
- Need for improved reporting of how TK is being used at Ekati

Activities 2013-14

Community-Based Traditional Knowledge Projects

Kitikmeot Inuit Association (KIA): *Content Development for the Naonayaotit Traditional Knowledge Project (NTKP)* Publication was completed in June 2013. Publications based on the Naonayaotit Traditional Knowledge Project (NTKP) material were developed for community organizations, elders centres, visitor centres and schools.

Tłı̨chǫ First Nation: *Tłı̨chǫ Digitizing Tapes & Database Project* was completed in June 2013. Harvesters and elders' observations and narratives are now documented and digitized. The Traditional Knowledge (TK) is now managed with new technologies and key TK concepts are captured within a Geographic Information System (GIS) of the Tłı̨chǫ Land Protection Department.

Yellowknives Dene First Nation (YKDFN): *Goyatiko Language Society Proposal for Digitization of Elders Stories* was completed in November 2013. TK knowledge was digitized and preserved in a database.

Łutsel K'e Dene First Nation (LKDFN): *Traditional Knowledge Archive Project-Phase 3.* The project is a continuation of Phase 2 to create a comprehensive and workable database of traditional knowledge.

North Slave Métis Alliance (NSMA): *Community Heritage Project.* This project is ongoing and will see a genealogical research process combined with the organization and proper cataloguing of existing archives, and a series of workshops to develop an accepted definition of the Métis community.

Ekati-based Community Engagement Programs

Air Quality Community Engagement Program. June. To address Aboriginal community concerns about air quality and its monitoring. Community representatives were shown how mine staff conduct their day-to-day site-based air quality monitoring programs, with some hands-on learning. This included explanations of road dust suppression methods and the various types of dust suppressants used (e.g., water, DL10 and EK35).

2013 Grizzly Bear DNA Community Engagement Program. June – August. The objectives were to provide estimates of grizzly bear abundance and distribution in the study area over time, and to teach community youth about the Ekati environmental monitoring programs. NSMA members helped find suitable grizzly bear habitats for the proposed DNA plots, based on areas NSMA determined bears would most likely frequent.

Caribou Monitoring Community Engagement Program. July, September. TK holders from KIA and YKDFN were invited to view caribou in their natural habitat to explain Aboriginal criteria for assessing caribou health, and to document and bring community information and TK about caribou in parallel with scientific monitoring.

Jay Pipe Archaeological Baseline. September. Community members assisted in the archaeological assessment of the northernmost area of Lac de Sauvage, designed to determine whether any

previously unrecorded sites exist within the footprint of the proposed Jay Pipe mine expansion.

Reclamation Research Planning

A specific Reclamation Research Plan (RP 7.1) has been designed for the inclusion of TK in closure and reclamation planning activities. The research objectives are to identify opportunities for inclusion of TK in reclamation research and closure at Ekati and develop methods and approaches to involve and encourage TK input from communities.

In 2013 DDEC hosted a two part vegetation workshop that was designed to identify the types of vegetation that will best establish stable land covers that are safe for wildlife and humans, and are sustainably rejuvenated every annual growing season. The information provided would then eventually be incorporated into future reclamation research.

Part one was a Community Vegetation Advisors Workshop where local community advisors were identified by their local community organizations as individuals who had experience with the traditional identification and use of local plants and vegetation by humans and wildlife. The advisors were consulted on their expertise and assisted with the planning and implementation of the Reclamation Vegetation Workshop held at the Ekati Diamond Mine in August.

The second workshop brought together the community vegetation advisors, TK holders, community youth, DDEC reclamation staff, and consultants who shared TK and scientific information on community and Ekati based vegetation research projects. Topics included: plant identification, medicinal and other traditional uses of plants, harvesting practices, plant communities used by Aboriginal communities as well as plants consumed by local and migratory wildlife.

TK advisors gave presentations as follows:

- Johanne Black (YKDFN) on the Colomac Mine reclamation efforts;
- Terri Enzo (LKDFN) on the medicinal uses of spruce gum, and how it is collected;
- Kate Inuktalik (KIA) demonstrated how Inuit traditionally collected plants and how to build a fire on the tundra using local plants.

The workshop also included site visits to:

- Local tundra areas to allow participants to walk on the land and talk about the different tundra plants, TK of plants and the spiritual importance. Locations included Polar Lake, shore of Lac de Gras and Thinner Esker;
- The Fox Pit, to discuss the conceptual plan for flooding pits and construction of littoral zones;
- The LLCF, to discuss the natural colonization of alkali grass on processed kimberlite tailings;
- The Cell B reclamation Pilot Study; and
- The Pigeon Stream Diversion Channel revegetation site.

DDEC Literature Reviews

In December 2013, DDEC delivered to the WLWB a compilation report 'Review of Past and Current Traditional Knowledge Projects' synthesizing all of the Ekati Mine TK and community engagement activities pertinent to closure since BHPB's preparation of its 1995 environmental assessment. A beneficial component of this report is a table at the end of it that explains how DDEC has addressed community concerns in planning for closure. However, other than stating a commitment to use TK methods of deflecting caribou from dangerous mine sites, it does not explain what TK has been or will be used in mine activities and closure planning.

DDEC also commissioned a literature review of existing and past reclamation projects in northern Canada that have incorporated TK. There were 33 remediation project looked at to learn how industry and government have used TK in closure and reclamation. The important outcome of this review was identifying a set of industry best practices for incorporating TK in closure:

- Establish an Aboriginal advisory group to incorporate TK, gather community input, monitor project remediation activities and communicate project activities to the affected communities.
- Define clear expectations of the role and level of involvement communities will have in the process.
- Work collaboratively with affected Aboriginal communities;
- Provide funding and resources (a) to fill TK data gaps in separate studies and (b) for Aboriginal participation in closure planning;
- Provide regular site visits for Aboriginal community residents;
- Set TK parameters early on in the remediation planning process;
- Provide mechanisms for the Aboriginal community participation in choosing remediation plans to facilitate community buy-in; and
- Make community engagement transparent throughout the entire closure planning process.

Agency Assessment

A positive initiative in community engagement is DDEC's current practice of having its senior managers meet in the communities to inform them of mine operations and monitoring programs, allowing them to hear directly from community members.

The Agency commends DDEC for conducting an effective vegetation workshop with the Aboriginal Society Members, however, information was not reported on plant succession and colonization of disturbed areas, species names in Aboriginal languages, potential grazing of plants by animals, or other information that would prove useful in identifying species suitable for revegetation and how to measure success. It would be helpful to know how results from this workshop have improved reclamation planning at Ekati.

The Agency has recently received community engagement reports that document specific TK learned in workshops as the Agency has requested. However, the company needs to document not only community concerns and lessons learned from the community visits (as was summarized in its TK compilation report), but how the TK is incorporated into monitoring and management plans and how it will be incorporated into closure planning.

We encourage the company to continue finding ways to incorporate TK in its work. ■

IACT Site Visit.

Highlights

- Financial security under the water licence has still not been posted.
- Consultations around the proposed changes to the Environmental Agreement were not well conducted.
- Inspections and water resources staff have moved over to GNWT.
- WLWB did a good job on Lynx Project but will be eliminated in 2015 due to changes in federal legislation.

Assessment of the Regulators

The Regulators and Our Mandate

As the public watchdog for environmental management at Ekati, we monitor not only the performance of the operator but also the federal and territorial government agencies that regulate the mine. The following are our comments regarding the regulators' performance in 2013-14.

Agency Assessment

As in previous years, the regulators remain effective in ensuring that Dominion Diamond Ekati Corporation (DDEC) operates an environmentally sound mine. Over the course of 2013-14, we identified some instances where we felt that government agencies and regulators performed well and some instances where their involvement could have been improved. We were pleased to observe the willingness among all regulators to collaborate and share resources. For example, this year the Government of the Northwest Territories (GNWT) played a lead role in coordinating discussions of wildlife monitoring guidelines and better coordination moving towards cumulative effects management.

Aboriginal Affairs and Northern Development Canada (AANDC)

We welcomed a new inspector for the Ekati Mine and are pleased to report that a regular inspections routine has been restored (nine in 2010-11, six in 2011-12, five in 2012-13, ten in 2013-14). The Aboriginal Affairs and Northern Development Canada (AANDC) inspector for Ekati has been thorough and effective, as in past years.

AANDC staff were thoroughly engaged in the Lynx water licence process, Pigeon Waste Rock Pile design review and other management plan reviews. AANDC staff provided sound technical advice to the WLWB on water issues. We commend the staff as we recognize that this was

Panda Diversion Channel

increasingly difficult given the reduced resources the department devoted to these responsibilities, partly pending Devolution. It is unclear if AANDC has retained any capacity relating to its residual responsibilities for Aboriginal peoples.

A couple of areas of disappointment with AANDC need to be raised. The significant gap between financial security held and that approved for the ICRP and the financial security required under the Environmental Agreement were not addressed under AANDC's watch. The proposed changes to the Environmental Agreement as a result of Devolution went well beyond what the Agency had originally been told and have the potential to adversely affect the Agency's mandate. We believe AANDC can and should have done more to properly consult the Agency and our Aboriginal Society Members about the proposed changes.

Department of Fisheries and Oceans (DFO)

There has been a complete turnover of staff at DFO in Yellowknife who are responsible for Ekati. We have met the new staff and appreciate their willingness to discuss DFO's new and somewhat diminished mandate.

DFO has provided some useful comments on some of the regulatory submissions made by DDEC. We hope this will continue, especially with the proposed Jay-Cardinal Project with its effects on Lac de Sauvage and Lac de Gras.

Government of the Northwest Territories (GNWT), Department of Environment and Natural Resources (ENR)

In the last year ENR has started to make more substantive comments on some of DDEC's regulatory submissions. This is good news in anticipation of changes that are coming about as a result of Devolution.

The Ekati land and water inspector will move over to ENR, as will the former AANDC water resources staff. Cumulative impact monitoring will be housed in the new Lands Department which will also play a role coordinating GNWT input into environmental assessments.

We expect to be able to more fully report on how GNWT is exercising its new authority in relation to Ekati in next year's annual report, especially financial security.

Environment Canada (EC)

EC continues to provide essential technical advice on air and water quality although its input over the last year was less than in previous years. The Agency has not been informed of any further developments on regulations for effluent from diamond mines. EC is in the process of reviewing the incinerator stack tests and other air quality related matters and we look forward to that advice.

Wek'èezhìı Land and Water Board (WLWB)

The Agency was satisfied with the water licence and land use permit process that the WLWB put in place for the Lynx Project. We were pleased to see that the WLWB staff conducted a careful review of the data put forward by the company and found some discrepancies that were later explained or corrected. We await the final outcome which we will report on in next year's annual report.

The Agency is still waiting for clearer guidelines or direction that set out the WLWB's expectations for the content and level of detail in management plans and for aquatic response frameworks. The Agency encourages further work and development of supporting documentation required to implement the Water and Effluent Quality Management Policy.

We are disappointed to report that the issue of financial security under the current water licence has still not been resolved as the security required has not yet been posted at the time of writing.

We understand that land and water boards may have new administrative tools to ensure compliance in the future.

We are dismayed to report that the WLWB will be eliminated effective April 1, 2015 as result of changes to the *Mackenzie Valley Resource Management Act* made by the federal government. The Mackenzie Valley Land and Water Board will take on its roles and responsibilities. It is unclear what will happen with the staff and whether the new board will be able to retain a good working relationship with all the currently involved stakeholders. ■

Agency Annual General Meeting

Main Camp building.

Assessment of Dominion Diamond Ekati Corporation

Highlights

- **Low staff turnover with sale of the mine.**
- **Positive work on incinerator, community engagement and some reclamation research.**
- **Financial security not settled, waste rock pile not freezing should be investigated and new project descriptions should be improved.**

The most important observation we can make is that Dominion Diamond Ekati Coroporation (DDEC) continues to operate Ekati in an environmentally sound manner – the same message as we have delivered for years. Most staff are the same as before the sale and our working relationship with them and with the new management at DDEC remains very positive.

The Agency certainly has some concerns about the work being done that is needed to continue to ensure good performance into the future. We are still concerned, as we were last year, with continued slippage in reclamation research. It must be noted, however, that some of the reclamation research carried out seems particularly helpful (e.g., the water quality model).

In spite of discussions with DDEC concerning the importance of doing very good work as part of the applications for Lynx and Jay Pipes, we found the quality of work to be less than suitable. We certainly hope the quality will improve or the regulatory process will likely take longer than planned.

We have expressed concern with the lack of freezing of some waste rock piles and have urged DDEC to conduct a study to better determine what is happening in order to have available suitable plans to deal with this uncertainty.

We have urged DDEC to submit a proposal for security to be posted under the Environmental Agreement, an action that is well overdue.

The Agency has expressed concern about slow progressive reclamation. The Panda Diversion Channel (PDC) has been widened and a concrete and good plan for reclamation of Old Camp has been acted upon. The Agency is very pleased.

We wrote a strong letter of support for DDEC's application for a "Towards Sustainable Mining" award offered by the Mining Association of Canada. The commendable action is the grizzly bear research being carried out. We commented last year on the strong leadership shown by DDEC in doing this work.

One of the long term frustrations of the Agency was the failure to get the new incinerator working effectively at Ekati. We are pleased to report that it is now working and, based on stack tests performed in operation, it seems to be working very well. This good performance is, in part, because of the significant reduction in use of plastics at site for which we commended the company (BHPB) last year.

One of the most important improvements noted was the greater level of DDEC's engagement with the communities. The senior management, in particular, has been visiting the communities quarterly in connection with the proposed expansion projects. There have also been Traditional Knowledge workshops. This is a very positive sign from the company. ■

Management Responsibility Statement

The management of Independent Environmental Monitoring Agency is responsible for preparing the financial statements, the notes to the financial statements and other financial information contained in this annual report.

Management prepares the financial statements in accordance with Canadian accounting standards for not for profit organizations. The financial statements are considered by management to present fairly the management's financial position and results of operations.

The organization, in fulfilling its responsibilities, has developed and maintains a system of internal accounting controls designed to provide reasonable assurance that management assets are safeguarded from loss or unauthorized use, and that the records are reliable for preparing the financial statements.

The financial statements have been reported on by Crowe MacKay LLP, Chartered Accountants, the Agency's auditors. Their report outlines the scope of their examination and their opinion on the financial statements.

Jaida Ohokannoak, Secretary Treasurer
June 13, 2014

Independent Auditors' Report

To the Directors of Independent Environmental Monitoring Agency

We have audited the accompanying financial statements of Independent Environmental Monitoring Agency, which comprise the statement of financial position as at March 31, 2014, and the statements of operations, changes in net assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not for profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the organization's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the organization's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements present fairly, in all material respects, the financial position of Independent Environmental Monitoring Agency as at March 31, 2014, and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not for profit organizations.

Chartered Accountants
Yellowknife, Canada
June 13, 2014

Statement of Operations

For the year ended March 31
See accompanying notes.

	2014	2013
Revenues		
Core funding - Dominion Diamond Ekati Corporation	$ 611,422	$ 608,181
Separate fund - Dominium Diamond Ekati Corporation	40,000	40,000
Interest income	2,483	2,037
	653,905	650,218
Expenditures		
Acquisition of assets	3,271	-
Advertising and promotion	3,500	1,261
Amortization	2,857	4,689
Auditing and bookkeeping fees	16,415	16,233
Board support		
– honoraria	146,367	117,870
– travel, meals and accommodations	47,713	47,862
Community consultation		
– annual general meeting	16,401	22,791
– Annual report	51,343	57,708
– community visits	16,231	41,595
Consultants	9,692	12,500
Insurance	5,270	5,131
Rent – facility rental	2,707	1,295
Rent – office and maintenance	31,500	31,500
Office supplies	13,838	10,744
Postage and courier	1,117	1,397
Professional development	4,778	400
Separate fund		
– honoraria	47,401	38,419
– travel and administration	3,857	2,300
Staff recruitment	253	12,675
Staff travel	5,207	3,171
Telephone and fax	4,999	6,642
Wages and benefits	222,459	201,774
	657,176	637,957
Excess (deficiency) of revenues over expenditures before other items	(3,271)	12,261
Other items		
Unspent funding - core	-	(12,261)
Aquisition of assets	3,271	-
	3,271	(12,261)
Excess of revenues over expenditures	$ -	$ -

Statement of Changes in Net Assets

For the year ended March 31, 2014
See accompanying notes.

	Unrestricted Fund	Tangible Capital Asset Fund	Total 2014	Total 2013
Balance, beginning of year	$ 6,041	$ 6,644	**$ 12,685**	$ 12,685
Excess of revenues over expenditures	-	-	-	-
Acquisition of assets	(3,271)	3,271	**-**	-
Amortization	2,857	(2,857)	**-**	-
Balance, end of year	**$ 5,627**	**$ 7,058**	**$ 12,685**	$ 12,685

Statement of Financial Position

For the year ended March 31
See accompanying notes.

Assets

	2014	2013
Current		
Cash	**$ 427,829**	$ 152,946
Term deposits (note 3)	**15,136**	15,001
Accounts receivable	**-**	4,395
Prepaid expenses	**3,951**	5,318
	446,916	177,660
Tangible capital assets (note 4)	**7,058**	6,644
	$ 453,974	$ 184,304

Liabilities

Current		
Accounts payable and accrued liabilities (note 5)	**$ 115,088**	$ 124,651
Deferred revenue (note 6)	**318,336**	-
Contributions repayable (note 7)	**7,865**	46,968
	441,289	171,619

Fund balances

Unrestricted Fund	**5,627**	6,041
Tangible Capital Asset Fund	**7,058**	6,644
	12,685	12,685
	$ 453,974	$ 184,304

Commitments (note 8)

Approved on behalf of the board:

William A. Ross, Director

Jaida Ohokannoak, Director

Statement of Cash Flows

For the year ended March 31,
See accompanying notes.

	2014	2013
Cash provided by (used for)		
Operating activities		
Excess of revenues over expenditures	**$ -**	$ -
Items not affecting cash		
Amortization	**2,857**	4,689
	2,857	4,689
Change in non-cash working capital items		
Accounts receivable	**4,395**	-
Prepaid expenses	**1,367**	341
Accounts payable and accrued liabilities	**(9,563)**	27,820
Deferred revenue	**318,336**	(324,091)
Contributions repayable	**(39,103)**	12,261
	278,289	(278,980)
Investing activity		
Purchase of tangible capital assets	**(3,271)**	-
Increase (decrease) in cash	**275,018**	(278,980)
Cash, beginning of year	**167,947**	446,927
Cash, end of year	**$ 442,965**	$ 167,947
Cash consists of:		
Cash	**$ 427,829**	$ 152,946
Term deposits	**15,136**	15,001
	$ 442,965	$ 167,947

Notes to the Financial Statements

March 31, 2014

1. Nature of operations

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.

Dominion Diamond Corporation aquired the Ekati Diamond Mine from BHP Billiton Inc. on April 10, 2013. The new owner assumed all of the environmental obligations including the Environmental Agreement under with the Agency is established. Dominion Diamond Ekati Corporation (DDEC) is the current operator of the Ekati Diamond Mine. There have been no changes to the funding or other aspects of the Agency's operations as a result of the change in ownership of the Ekati Diamond Mine.

2. Significant accounting policies

These financial statements are prepared in accordance with Canadian accounting standards for not-for-profit organizations. The significant policies are detailed as follows:

(a) Cash equivalents

Cash and cash equivalents consist of cash on hand, bank deposits and GICs.

(b) Tangible capital assets

Tangible capital assets are recorded at cost. The Agency provides for amortization using the declining balance method at rates designed to amortize the cost of the tangible capital assets over their estimated useful lives. Amortization is calculated by the declining balance method at the annual rates set out in note 4.

(c) Deferred revenue

Contributions received in advance are deferred. The amounts will be taken into income as services and goods are acquired.

(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 collection is reasonably assured.

Investment income includes interest income. Interest income is recognized when earned.

(e) Financial instruments - Recognition and Measurement

Initial measurement

Financial assets originated or acquired or financial liabilities issued or assumed in an arm's length transaction are initially measured at their fair value. In the case of a financial asset or financial liability not subsequently measured at its fair value, the initial fair value is adjusted for financing fees and transaction costs that are directly related to its origination, acquisition, issuance or assumption. Such fees and costs in respect of financial assets and liabilities subsequently measured at fair value are expensed.

The agency subsequently measures the following financial assets and financial liabilities at amortized costs:
Financial assets measured at amortized cost include cash, term deposits, and accounts receivable.
Financial liabilities measured at amortized cost include accounts payable and accrued liabilities, deferred revenue, and contributions repayable.

Notes to the Financial Statements

March 31, 2014

Impairment

At the end of each reporting period, management assesses whether there are any indications that financial assets measured at cost or amortized cost may be impaired. If there is an indication of impairment, management determines whether a significant adverse change has occurred in the expected timing or the amount of future cash flows from the asset, in which case the asset's carrying amount is reduced to the highest expected value that is recoverable by either holding the asset, selling the asset or by exercising the right to any collateral. The carrying amount of the asset is reduced directly or through the use of an allowance account and the amount of the reduction is recognized as an impairment loss in net income. Previously recognized impairment losses may be reversed to the extent of any improvement. The amount of the reversal is recognized in operations.

(f) Use of estimates

The preparation of these financial statements in conformity with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the reported amount of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the current period. These estimates are reviewed periodically and adjustments are made to income as appropriate in the year they become known.

3. Term deposits

Short-term investments consist of guaranteed investment certificates maturing on November 28, 2014 and earning interest at 1.10% per year. The certificates are transferable on demand to the Agency's bank account.

4. Tangible capital assets

	Rate	Cost	Accumulated amortization	2014 Net book value	2013 Net book value
Equipment	20%	$ 12,180	$ 11,902	$ 278	$ 347
Computer equipment	30-55%	10,578	8,206	2,372	-
Computer software	100%	2,543	2,543	-	-
Website	30%	15,120	10,712	4,408	6,297
		$ 40,421	$ 33,363	$ 7,058	$ 6,644

5. Accounts payable and accrued liabilities

	2014	2013
Accounts payable	$ 90,957	$ 111,408
Government remittances - Canada	12,558	8,318
Government remittances - GNWT	4,754	3,938
Salaries and benefits payable	6,818	987
	$ 115,088	$ 124,651

6. Deferred revenue

Deferred revenue consists of payments received in advance for the 2014/2015 fiscal year

Notes to the Financial Statements

March 31, 2014

7. Contributions repayable

	2014	2013
Dominion Diamond Ekati Corporation		
Core funding 2012	$ -	$ 10,507
Core funding 2011	-	59
Separate fund 2012	-	24,141
Core funding 2013	**7,865**	7,865
	$ 7,865	$ 46,968

Contributions repayable arising from one fiscal year are normally deducted from contributions provided by Dominion Diamond Ekati Corporation in the following fiscal year.

8. Commitments

As at March 31, 2014 the Agency has an operating lease (month to month) for office space; there are no immediate plans for changes in rental agreements nor location. The payment for the next year, based on the existing month-to-month contract is $31,500.

9. Economic dependence

The Agency receives 99% (2013 - 99%) of its revenue from Dominion Diamond Ekati Corporation. Management is of the opinion that operations would be significantly affected if the funding was substantially curtailed or ceased. The funding arrangement with the owners of the mine is governed by legislation.

10. Comparative figures

The financial statements have been reclassified, where applicable, to conform to the presentation used in the current year.

11. Financial instruments

Transactions in financial instruments may result in an entity assuming or transferring to another party one or more of the financial risks described below. The required disclosures provide information that assists users of financial statements in assessing the extent of risk related to financial instruments.

(a) Concentration risk

The Agency does have concentration risk as the cash and term deposits are held in one Canadian chartered bank.

Agency Site Visit

Summary of Work Plan and Core Budget 2014-15 and 2015-16

The work plan is based upon the direction and feedback received from our Society Members at our Annual General Meeting in December 2013 and the Agency's own initiatives.

With the Resolution Agreement from January 2006, 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 2014-15 Dominion Diamond Ekati Corp. (DDEC), as the owner of the Ekati Mine, will contribute approximately $662k to the Agency, and in 2015-16 approximately - $674k (assuming a 2.0% increase in CPI as shown in Table 6).

The second year of the work plan will be refined and modified based on direction received during next year's annual general meeting, 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 three months. Board meetings provide an opportunity for Directors to discuss, review and make recommendations on recent, ongoing and anticipated initiatives. Guests are invited to meetings to provide updates and receive input on their specific activities. The company, Wek'èezhìı Land and Water Board (WLWB) staff and the Aboriginal Affairs and Northern Development Canada (AANDC). (effective April 1, 2014 GNWT) inspector are regular guests.

Proposed Activities: Annually, three board meetings (not including one in a community) and two 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, water licences and other regulatory approvals.

Proposed Activities: The Agency expects to deal with the following in 2014-15:

- The regular environmental monitoring reports for 2014 (e.g., Aquatic Effects Monitoring Program, Wildlife Effects Monitoring Program, and Pigeon Stream Diversion);
- Various management plans and updates including the Waste Rock and Ore Storage Management Plan, Wastewater and Processed Kimberlite Management Plan, Wildlife Management Plan, and Waste Management Plan;
- Interim Closure and Reclamation Plan (ICRP) progress report and Long Lake Containment Facility (LLCF) Pilot Revegetation Design;
- Financial Security Review;
- Aquatic Response Framework and Nitrogen Response Plan; and
- DDEC's Ekati Annual Environmental Report.
- Air Quality Monitoring Plan

There are also now two meetings for

Table 6: Core Budgets 2014-15 and 2015-16

Activity	Forecasted 2013-2014	Proposed 2014-2015	Proposed 2015-2016
Board Meetings	63,799	93,375	95,243
Review of Documents	42,429	42,650	58,803
Separate Fund	51,258	40,000	40,000
Communications	176,761	181,250	169,575
Outside Contracts	9,692	10,000	10,000
Mgmt and Admin	303,211	293,575	299,457
TOTAL	**647,150**	**660,850**	**673,078**
(APPROVED)	**651,275**	**661,933**	**674,417**

Note: Figures based on actual expenses as audited statements use a different breakdown.

Standing L-R: Tony Pearse, Tim Beyers, Kim Poole, Laura Johnston, and Bill Ross.
Seated L-R: Jessica Simpson, Kevin O'Reilly, Jaida Ohokannoak, and Arnold Enge.

DDEC, Government of the Northwest Territories (GNWT), AANDC, AANDC and the Agency to better coordinate implementation of the Environmental Agreement.

The same workload is expected in 2015-16, although the focus may shift with more work on closure planning.

Separate Fund Activities

As a result of the most recent mediation, the March 2008 Resolution Agreement sets out that the Agency is entitled to allocate expenses up to $40,000 per year for matters where a public hearing is reasonably assured as indicated in approved work plans or budgets, or as confirmed by a regulatory body.

Proposed Activities: For 2014-15, the Agency expects the following:

- Review of the Jay-Cardinal Project Developer's Assessment Report (DAR), and preparation of Information Requests;
- Participation in Technical Sessions;
- Preparation and submission of Agency Technical Report; and
- Public hearing preparation and participation.

For 2015-16, the Agency expects the following:

- Jay-Cardinal Project water licence and land use permit application review and Technical Sessions;
- Preparation and submission of Agency intervention; and
- Public hearing preparation and participation.

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, and upon invitation will host one Board meeting and open house a year in a community. The Agency will continue to attend workshops and meetings relevant to its mandate. The Agency will maintain its website (including the timeline project covering development of the mine, regulatory events and environmental issues) and public registry. The Agency will continue to produce two annual reports, one in plain language and one technical. The Agency will also be implementing other parts of our Communications Plan including printed material and possibly video files in Aboriginal languages.

The same activities are anticipated in 2015-16.

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 Executive Director and one Communications and Environmental Specialist. The Agency manages its own office space and equipment.

Proposed Activities: Maintain current staff and benefit levels. ■

Acronyms

AANDC – Aboriginal Affairs and Northern Development Canada, previously known as "Department of Indian Affairs and Northern Development (DIAND)" and "Indian and Northern Affairs Canada (INAC)"

AEMP – Aquatic Effects Monitoring Program

AQMP – Air Quality Monitoring Program

BHPB – BHP Billiton Canada Inc. ("the company")

CAM – Continuous Air Monitoring

CCME – Canadian Council of Ministers of the Environment

CIMP – Cumulative Impact Monitoring Program

CPI – Consumer Price Index

DAR – Developers Assessment Report

DDEC – Dominion Diamond Ekati Corporation

DELT – deformities, eroded fins, lesions and tumours

DFO – Fisheries and Oceans Canada (also known as "Department of Fisheries and Oceans")

DNA – deoxyribonucleic acid

EC – Environment Canada

EIR – Environmental Impact Report

ENR – Department of Environment and Natural Resources (NWT), previously known as "Department of Resources, Wildlife and Economic Development (RWED)"

FPK – Fine Processed Kimberlite

GNWT – Government of the Northwest Territories

HVAS – High Volume Air Samplers

IACT – Inter-Agency Coordinating Team

ICRP – Interim Closure and Reclamation Plan

KIA – Kitikmeot Inuit Association

KPSF – King Pond Settling Facility

LKDFN – Łutsel K'e Dene First Nation

LLCF – Long Lake Containment Facility

MVEIRB – Mackenzie Valley Environmental Impact Review Board

MVLWB – Mackenzie Valley Land and Water Board

NSMA – North Slave Métis Alliance

PAG – Potential Acid Generating

PDC – Panda Diversion Channel

PK – processed kimberlite

PM – particulate matter

PSD – Pigeon Stream Diversion

QA/QC – Quality Assurance/Quality Control

SNP – Surveillance Network Program

SSWQO – Site-Specific Water Quality Objective

TK – Traditional Knowledge

TOC – total organic carbon

TSP – total suspended particulates

WEMP – Wildlife Effects Monitoring Program

WLWB – Wek'èezhìı Land and Water Board

WPKMP – Wastewater and Processed Kimberlite Management Plan

WROMP – Waste Rock and Ore Storage Management Plan

WRRB – Wek'èezhìı Renewable Resources Board

WRSA – Waste Rock Storage Area

YKDFN – Yellowknives Dene First Nation

ZOI – Zone of Influence

Agency site visit to revegetation pilot study area

Glossary

Action Levels – A predetermined change, to a monitored variable or other qualitative or quantitative measure that requires the Licensee to take appropriate actions that may include, but that are not limited to: further investigations, changes to operations, or enhanced mitigation measures.

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

Benthos – The sediments and mud at the bottom of rivers, lakes and ponds that can contain living organisms. Benthic invertebrates such as mosquito larvae are an important food source for small fish.

Chloride – Salt resulting from the combination of the gas chlorine with a metal. Fish and aquatic communities cannot survive in water with high levels of chlorides.

Cladocera – An order of small crustaceans (i.e., zooplankton) that live in water (commonly called water fleas).

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 natural factors and effects from other past, present and future human activities.

Dioxins and Furans – A type of organochlorine that can cause cancer and other health problems. A group of chemicals that mainly come from the burning of waste.

Environmental Agreement – Created as a legally binding instrument to provide monitoring and input into management practices not covered by other authorizations. Parties include BHPB and the federal and territorial governments. Akaitcho Treaty 8 First Nations (LKDFN and YKDFN), Kitikmeot Inuit Association, North Slave Métis Alliance and Tłı̨chǫ Government were involved in the negotiations.

Failure Modes and Effect Analysis – A systematic, proactive method for evaluating a process to identify where and how it might fail and to assess the relative impact of different failures, in order to identify the parts of the process that are most in need of change.

Hydrocarbons – Organic compounds which contain only hydrogen and carbon. This includes fossil fuels (i.e., coal, petroleum and natural gas) as well as their derivatives, such as plastics, solvents and oils.

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.

Meromictic – A condition of a lake whose water is permanently stratified and does not circulate completely throughout the basin at any time during the year.

Molybdenum – A metal that can affect trout just after they hatch.

Nitrate – A nutrient, like a fertilizer, derived from nitrogen. Nitrate can affect the growth of baby fish if it gets too high.

Phytoplankton – Microscopic plants (e.g., algae) found in freshwater and ocean environments. They are an important food source for zooplankton.

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

Progressive Reclamation – Reclamation that can be carried out during the construction and operation phases of a mine prior to final closure (e.g., rock waste dumps).

Reclamation – The recovery to viable ecosystems of areas of land and water bodies that have been disturbed during mining.

Schist – A large group of coarse-grained metamorphic rocks which readily split into thin plates or slabs as a result of alignment of lamellar or prismatic minerals.

Significant Thresholds – A level of environmental change in any monitored variable which, if reached, would result in a significant adverse effect.

Slave Geological Province – Area between the City of Yellowknife and the Arctic coast.

Tailings – See "Processed Kimberlite".

Total Suspended Particulates – The fraction of airborne particulates that will remain airborne after their release in the atmosphere.

Valued Ecosystem Component – Environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.

Waste Rock – Rock containing diamonds but too low in grade to be mined or processed economically. Also other rock that must be removed to access kimberlite pipes.

Waste Rock Seepage – Water that drains through the waste rock piles. This water may pick up contaminants as it touches the waste rock and may enter the receiving environment.

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

Zone of Influence – Area of reduced caribou occupancy.

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

TECHNICAL ANNUAL REPORT 2013-14

A PUBLIC WATCHDOG FOR ENVIRONMENTAL MANAGEMENT AT EKATI DIAMOND MINE

INDEPENDENT ENVIRONMENTAL MONITORING AGENCY

Directors

BILL ROSS
Chairperson
269 Edgebank Circle
Calgary AB T3A 4V8
Phone: (403) 547-0415
E-mail: ross@ucalgary.ca

TIM BYERS
Vice-Chairperson
P.O. Box 1049
Teulon MB R0C 3B0
Phone/Fax: (204) 886-4642
E-mail: byerses@escape.ca

JAIDA OHOKANNOAK
Secretary-Treasurer
P.O. Box 2366
Cambridge Bay NU X0B 0C0
Phone: (867) 983-2153
E-mail: Jaida@qiniq.com

ARNOLD ENGE
5124 Forrest Drive North
Yellowknife, NT X1A 2N4
Phone: (867) 873-4812
E-mail: arnoldenge@gmail.ca

LAURA JOHNSTON
611-16th Avenue North
Creston BC V0B 1G5
Phone: (250) 402-0036
E-mail: laurajo@shaw.ca

TONY PEARSE
663 Wilkes Road
Mayne Island BC V0N 2J1
Phone: (250) 539-3015
Fax: (250) 539-3025
E-mail: tpearse@godoroja.com

KIM POOLE
1918 Shannon Point
Nelson BC V1L 6K1
Phone: (250) 825-4063
Fax: (250) 825-4073
E-mail: kpoole@aurorawildlife.com

How To Reach Us

IN PERSON
Suite 203
5006 Franklin Avenue
Yellowknife NT

BY MAIL
P.O. Box 1192
Yellowknife NT
X1A 2N8

BY TELEPHONE
(867) 669-9141

BY FAX
(867) 669-9145

BY E-MAIL
monitor1@yk.com

OR VISIT OUR WEBSITE:
www.monitoringagency.net

OFFICE HOURS
Monday to Friday
9:00 a.m.–12:00 p.m.
1:00 p.m.–5:00 p.m.

Office Staff

KEVIN O'REILLY
Executive Director

JESSICA SIMPSON
Communications and Environmental Specialist