

Annual Report
2010-2011

Environmental Monitoring Advisory Board



Contents

Letter from the Chair	3
Report Card: What's happening with the environment?	4
What have we done this year?	6
Dii xo k'e ayii edàats'îlà?.....	7
Holivita Omani Okiokgiyaptikni?.....	8
Diavik.....	10
All about the Environmental Monitoring Advisory Board	13
In the boardroom.....	19
In the communities	22
Oversight and Monitoring.....	23
1. Water/WLWB.....	25
2. Fish/DFO.....	36
3. Wildlife	39
4. Air	47
Reports in review as of March 31, 2011	50
Work plan for 2011-2012	51
Budget 2011-2012.....	54
What happened?	55
Recommendations Report Card.....	59
Abbreviations	61
What does it mean? - Definitions	62

Letter from the Chair

EMAB's 11th year in operation was yet another difficult year. The Board, the Executive Members and staff spent a great deal of time in discussions and preparation for a mediation/arbitration process. This process was initiated by INAC in order to resolve a financial disagreement between EMAB and Diavik. Full details are included in this report on page 15.

The 2010-2011 fiscal year involved another EMAB/Diavik disagreement involving the 2011-2013 budget cycle. The matter was referred to the Aboriginal Affairs Minister, who chose Diavik's budget. (Details on page 16.) The board will make every effort to ensure all Environmental Agreement (EA) commitments are kept.

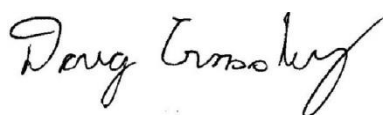
The Board worked aggressively and with strong purpose with Regulators, with Diavik and with other related groups and agencies to ensure that Diavik addressed environmental monitoring needs. Examples of positive work done by all include: AEMP review, continued efforts to address the issue of mercury present the discharge location at the mine site. We also provided a review and recommendations to the Wek'èezhìi Land and Water Board on Diavik's most recent version of the Interim Closure and Reclamation Plan.

As in past years, we championed the need for a full Air Quality Monitoring Program, as required by the EA. Some progress has been made and we hope to have a program in hand this year.

Traditional Knowledge/Inuit Qaujimajatuqangit in another area where Diavik is lacking. As per the EA, Diavik needs to consider and incorporate TK/IQ. EMAB continues to work with Aboriginal Parties and Diavik to find ways to include TK/IQ in environmental monitoring.

On behalf of the entire board, I hope you enjoy reviewing this Annual Report and encourage communication through our office should you have any issues to share or require any clarifications.

Regards:



Doug Crossley
EMAB Chair

Report Card: What's happening with the environment?

Water

All measurements are within licence limits. The main effect on Lac de Gras is from increased nutrients. The AEMP detected several changes in the lake that need further investigation. The WLWB has circulated draft guidelines for Response Frameworks that would provide for adaptive responses to changes in Lac de Gras. The discharge showed almost no toxic effects when tested on aquatic animals, including rainbow trout. In September daphnia and ceriodaphnia died. Ammonia levels are no longer of any concern.

Further investigation is needed soon to assess whether the effect of increased nutrients on Lac de Gras is more than predicted. If so Diavik will need to start looking into ways to reduce nutrients. Questions remain about mercury in fish and a possible link with increased nutrients.

Diavik has still not made any progress adding TK/IQ to the AEMP monitoring.

Wildlife

All impacts are within predictions, except caribou are avoiding the mine at larger distances than was predicted. Communities remain concerned about effects of the mine on caribou migration routes and caribou health. Aerial surveys were cancelled in 2010 and Diavik is proposing to cancel them in 2011. There has been little progress on finding out why caribou stay so far from the mine. In 2010, waste management at the Waste Transfer Area continued to improve over previous years, and attracted less wildlife.

Diavik tested a new grizzly study method in 2010 but then cancelled it for 2011, after the pilot project was half done. EMAB has recommended the study continue. The process for revising the WMP seems to have stalled after two workshops in 2010, and Diavik, which initiated the review, has not shown any leadership to finalize results. EMAB is concerned that Diavik has made changes to the WMP in 2009 and 2010 and proposes more in 2011 without providing strong scientific reasons. Diavik also needs to do a

The Environmental Monitoring Advisory Board welcomes questions and comments.

Call us at 766.3682 Email us at: emab3@northwestel.net

Note: In order to keep readers updated some actions and information have been included in this report that took place after the end of the fiscal year (March 31, 2011).

better job of providing information on the WMP to communities and receiving meaningful input from them.

Diavik does not use TK/IQ in the WMP and rejected EMAB's recommendation to develop a program to work with communities to develop studies.

Fish

Questions about fish health and human consumption continue. The question of why mercury is being found in fish near Diavik's discharge, and whether levels are rising in trout in Lac de Gras, has not been answered definitively. Mercury levels in slimy Sculpin in 2010 were similar near the mine and far away. This is different from finding in 2007 so it's not clear what the results mean.

Progress is being made on fish habitat compensation. Work has started to replace fish habitat altered or destroyed by the mine development (work on the m-lakes on the mainland), including work in communities.

Air

Dust levels continue to be higher than predicted. EMAB has told Diavik for years that it should speed up its work to develop a full air quality monitoring program (AQMP), as it committed to monitoring air quality when it signed the EA, ten years ago. EMAB recommended Diavik should have a draft of a full air quality monitoring program in place by May 2011. Diavik was still working on air quality modelling last year – once this is done Diavik can put together the AQMP for review.

Closure

Diavik submitted a revised draft Interim Closure and Reclamation Plan (closure plan) in 2010. EMAB feels they have made some improvements over last year's version, but there are still some important gaps. The WLWB agreed and sent the revised plan back, with instructions that Diavik change it to meet the terms of the water licence. EMAB is

particularly concerned that Diavik has not presented the plan to communities, and seems to have made minimal effort to do so.

The Environmental Monitoring Advisory Board (EMAB) maintains a website to keep you updated.

Visit www.emab.ca

Diavik needs to make sure the closure plan addresses the commitments it made about closure during the environmental assessment. Diavik needs to develop an effective way of collecting and incorporating TK/IQ into the closure plan that is acceptable to communities. The closure objectives

and criteria need to be clear and link directly to the plan. The information gaps, including research needs, should be addressed soon, including possible effects of climate change.

What have we done this year?

We continue to work with the people of the Affected Communities to help protect the environment around the Diavik mine site. As a public watchdog, EMAB's primary role is to ensure that Diavik and the regulators do what is necessary to protect the environment. The following summarizes major activities for 2009-2010. Details on all these activities can be found in the following pages.

Aquatic Effects Monitoring Program (AEMP): This environmental program tracks the effects the mine is having on Lac de Gras. Diavik samples water at various locations in the lake, close to and further from the actual mine site. Environmental staff also take samples of sediment and water organisms. Each year, the mine reports on the results and EMAB hires a technical expert to review the report. We share this review with Affected Communities and with the Wek'èezhìi Land and Water Board (WLWB), which is responsible for oversight on Diavik's water licence.

Wildlife Monitoring Program (WMP): Equally important to EMAB is the annual report documenting effects of the mine on wildlife. We hire a technical expert to review this report, as well, and share the review with communities and other agencies that have responsibilities regarding wildlife, such as Environment and Natural Resources (GNWT) and the Wek'èezhìi Renewable Resources Board. We have also put a lot of work into the almost two year-long ongoing process to revise Diavik's Wildlife Monitoring Program, and hope that the changes will not only improve our understanding of the mine's effect on caribou and other wildlife, but provide for an expanded program that includes TK/IQ.

Interim Closure and Reclamation Plan (ICRP): Mine closure is high on the list of EMAB priorities. The closure plan continues to be a draft and is revised on a regular basis by Diavik. We hired a technical expert to review version 3.2 of the plan and we conducted an internal review based on the Comprehensive Study Report, a document that lists commitments the company made prior to approval of the project. We submitted these comments to the WLWB.

Air Quality: Air quality has long been an EMAB priority and is a requirement of the Environmental Agreement. EMAB continues to encourage Diavik to develop an Air Quality Monitoring Program, as there is not yet one in place.

Capacity funding: EMAB distributed \$90,000 to the Aboriginal Parties through its Capacity Funding Program. The goal is to help the Parties enhance skills and learning in environmental monitoring.

Diavik funding: In July 2010, due to a funding disagreement between EMAB and Diavik, INAC invoked the dispute resolution process as described in the Environmental Agreement. The final Arbitration Award arrived in February 2011. (Details can be found on page 15.) Also, every two years, EMAB generates a budget and work plan to submit to Diavik. This year, Diavik disagreed with EMAB's budget and the matter went to INAC. The minister chose Diavik's budget over EMAB's.

Dii xo k'e ayii edàats'îlà?

Diavik sôömbak'è wemôö ndè wek'e esawodèch'à gha îâa wexots'ihdi gha dône xè eghàlats'îdè. Dône gha dii sôömbak'è wexots'ihdi, eyit'a t'a EMAB wela hôt'e, eyits'ô amii la k'e eghàlada sii weghà eghàlahoda nàowo sii ghà eghàlagide gha wexòedi. Dii nîhtâ'è hòlî sii 2010-2011 xo k'e ayii edàatâô wek'e eghàlagînda wegondi hôt'e.

Ti Gotâ'a Tich'aàdii Nadè La (AEMP): Dii la t'à edàani Ek'atì wexèdi wexòedi hôt'e. Diavik eyii tì edlatâô ts'ö tì wek'agehta, adî sôömbak'è k'e eghàlagidè ts'ö goîwa-lea eyits'ô wets'ô goîwa sii wexòegihdi. Xo tât'e, sôömbak'è k'e eghàlagidedô ayii edàatâô goghiæô weghô hagedi eyits'ô EMAB dône dii hanì la k'ezhòdee elî sii la k'e negehtë t'à nezî yighàgenda. Dii nîhtâ'è weghô nagit'e nîdè, kôta yagola amii wexîdi ha sii eyits'ô Wek'èezhîi ndè eyits'ô ti wexòegihdidô yagîlî sii dii nîhtâ'è weghàgenda, Diavik gha ti nîhtâ'è ts'ö k'agede hôt'e.

Tich'aàdii Wexòedi La (WMP): Xo tât'e sôömbak'è edàani wek'e eghàlagide weghô nîhtâ'è hohâè dii nîhtâ'è EMAB wegga sîi wet'aæà hôt'e, tich'aàdii t'ahsî gigha wet'aæà. Dône di hani la k'ezhòdee elî sii dii nîhtâ'è yighada ha la gha wenets'ihî, dii wegondi kôta yagola ts'ö ats'ehæî eyits'ô amii see tich'aàdii xòedi elî sii, sîi gighada, asîich'aæôdô eyits'ô Wek'èezhîi gha gehkw'edô dii nîhtâ'è ghagenda. Eyits'ô îdi nàk'e xo gots'ô tich'aàdii wexòedi la âadî ats'ele ha sîi hotâ'ò wek'e eghàlats'înda, edàani sôömbak'è wets'îæö ekwö eyits'ô tich'aàdii âadî wexîdi ha hôni, hanikò, dône nàowo sii weta whela ats'ele ha ts'îwô. TK/IQ

La Enîetî eyits'ô senàæi (ICRP): Dii la wedàetî ekîyeh EMAB sîi gigha wet'aæà hôt'e. Edàani wedàetî ha sii weghô akweäö nîhtâ'è geètâ'è eyits'ô ats'ô lanì Diavik dii

nîhtâ'è ghàgeda. Dône dii hani la k'ezhòdeè elî sii, dii nîhtâ'è 3.2 yighàinda ats'ìlà eyits'ô dii la sîi nezî weghöts'inda nîhtâ'è sii weghàts'ida ghà, dii la ts'ö k'agede gîlî sii dii la wexèhoiwo kwe, ayîi edàatâô gogha wet'aàà gedi t'à weghô nîhtâ'è gehtsî îlè. Dii nîhtâ'è WLWB ts'ö ats'ìlà.

Nîhts'i Edàanahtso: Nîhts'i edàanahtso ts'edi sii whagots'ô EMAB gigha wet'aàà hôt'e eyits'ô ndè wexòedi nàowo gha nàowo giitö. Ats'ô EMAB Diavik ts'ö dii hagedi, nîhts'i wexòedi satsö nègile gogedi hanikò îâa hagehæile.

Asii Wet'à Hohæ Sôömba: EMAB \$90,000 dône sôâi yagîlî giköta ts'ö agîlà, wet'à köta yagòla edàani ndè wexòedi nàowo weghô dône hoghàgogehtô ha. Dii wet'à dône deèæö dii hani la deèæö gik'ezhò ha eyixè sii wet'à ndè wexòedi la deèæö wek'egezhò ade ha.

Diavik wesôömba: July 2010 k'e, EMAB eyits'ô Diavik sôömba weghô eâek'èa gîwòle t'à INAC gits'ô eâek'èats'îwòle nàowo ghà, dii hani eâexè eghàlada ha gedi. Eyîi weghô Sanàk'ôa Zaà 2011 k'e nàowo hòlî. (Dii wegondi nîhtâ'è 15 k'e dek'ètâ'è.) Eyixè, nàke xo tât'e, EMAB sôömba edàatâô t'à eghàlagide ha gedi t'à weghô nîhtâ'è gehtsî xè edàani xo ghà eghàlagide ha nîhtâ'è Diavik ts'ö ageh'î. Di xo k'e, Diavik edàani EMAB nîhtâ'è segîla gok'èagîwòle eyits'ô dii nîhtâ'è INAC ts'ö ajà. K'àowodeè Diavik k'è hoîæö.

Holivita Omani Okiokgiyaptikni?

Havakhimaaktogot holi monaginahoakhogit amiginahoakhogitlo nunaliit havakatigiplogit Inuit oyagakhiokvikmit ikpigohootikaktot kaninnighaoplotiklo Diavik-kot oyagakhiokviani. Atanniktoiyotlo avatiliginikot monaghitiaknighamik amighiyot nunamik pittiaktitinahoakhotik. Naiklihimaplogit titigakhimayot takoinnagialgit angginighaoyot havaagivaktagot okiokni 2009-mi 2010-mo.

Emalikinikmot Kanogilivaliajotaoyonot amighijotigiplogit Atokpaktavot:

Ona avatiligijotaoyok naonaiyaotaoplani Oyagakhiokvikmit emangmot kinggoknakhijotaoyonik tahiknot okonani Lac de Gras. Diavik-mitlo emangmit pihimmaakhotik emak kanoginmagaat naonaiyaktaovaktok piplotik tattinit oyagakhioviop hanianiitonit tattinit. Holi Avatiligiyyit naonaiyaihimmagaaginnaktot tattit natiinit komagovaloinniklo. Aipaagotoagaagat Oyagakhiokvioyot tohaktivaktot kanogilivaliajotaoyonik naonaiyaotaoyotigot okonongga Avatiliginikot Katimayiinot

holitaok okoa Katimayit havaktighamiknik pivakmiyot takoogiyoghamik tohaktijotaoyomot. Hapkoa tahaktaghat takooktaohimayollo naliannot nunalilknot kaninngaoyonot oyagakhiokvikmot takopkaktavot tohaktijotigiplogit.. Itkilgillo nunainut emalikinikot Katimayinot takopkaktavot okoa emaktigot laisinitaitaiyookmata DIAVIK-kot Oyagakhioktiinot.

Angotighalikinikmot Naotiktoijotaoyot : Talvataok pimmagiokmiyot okonongga Avatiliginikmot Monakhiyit Katimayinot aipagotoagaagat tohagakhalioktaovaktot kinggoknakhitivaliayonik angotighanot oyagakhiokvikmit. EMAB-kot naloghanggitonik havaktighakpakmiyot takoogiyoghamik tohagakhliokhimayainnik oyagakhioktit onipkaaliokhimayainnik ovalo tohaktaghat takopkaktavot tohaktighaliokhogillo nunaliknot alantlo monakhiyoyonot angotighalikinikot, naliannot hapkonongga Avatiligiynot Nunamiotaligiynotlo Nunatiap kavamaini Havakviyot, okonogalo Wek'èezhii Nunamiotaligiynit Katimayinot. Talvalotaok havaagihimmaaktakot okiok malgok naatpok Diavik-kot Oyagakhiokvianit nutaagoktikhogo Angotighalikinikot Naotiktoijotaoyoghat talvalo nigioyivakot monakhiyotighat alanggootait atoknialiktavot naonaikpaaliotaonialikot Oyagakhiokvikmot angotighanotlo kanoklo tukturnut ikpiknahitiniakmagaat ovalo elitkohitokaktigot naonaiyajotaoyoghat elalioyillogit pihimalianikhoni.

Oyagakhiokvik Omiktaonahoalikat Nunalo elitkohigiyagaloagatot Ehoaghafaalogo Pitjotaolotik Opalonggaiyaotaoliktot :

Oyagakhiokvik Omiknialikat kanogillogitighat ehoaghainighakot hivolikpaaliotylogit ehomagiyaoyot okonongga EMAB-konnit. Oyagakhiokviop omiktigotighaagot opalonggaiyaotaoyot holi hoyagikhimanggitok kanok pijotaoyoghat ehoaghaktaohimmaagaginnaktot nutaagokatakhogit kakonggogagaat Diavik-konnit. naloghanggitomik havaktighakpakmiyot takoogiyoghamik omingga titikamik 3.2-mit okakhimayot naonaiyatiakoplogit naonaiyaotylogit Katitikhimayot Tohagakhaliokhimayot atokhogo, titigak okagikhimayavot oyagakhiokvighak havaagoliktinnago. Hapkoa titikat tonihimayavot okonongga WLWB-konnot.

Hilamit Anighaaktoktakot: Hilamit Anighaaktoktakot kanogijohiat holi kangganggotok EMAB-kot hivolyotylogo holi havaagihimmaaktaat avatiliginikollo angikatigiyotaohimayok pivaliahimmaakhogo ehoaghakhimayaat. EMAB-kot holi tiliokhimaaktait Diavik-kot oyagakhioktiit hilamit anighaaktoktakot Naotiktoijotighainnik ehoaghahimmaakoplogit holi tatja pihimayakangginmata enigiikhimayomik naonaiyajotaoyoghanik.

Maniit Atoktaghat: EMAB-kot tonihivaktot \$90,000-taalamik Nunakakkaakhimayot Katimayinot maningnit atoktaghanit haavitaohimayonit. Hama ekayogahoagotighak pihimayot eliaotylogo ayoighajotylogolo avatiliginikmot naotiktoinighakot atoktaghaat pihimayok.

Diavik-konnit Maniit Atoktaghat: July-mi 2010, Maningnik atoktaghatigot piyomajotaoyok angikatigiyotyginginmatjot okoa EMAB-kollo Diavik-kollo, taimaitomik Inulikiyitokat Kavamatokakni onggavaktaat pigiaktitaohimayoogaloak atoktaghanot Avatiliginioy

mighaanot. Haffomoona ehomaliogotaoyok Kavamatokaknit pilihaaktakot February 2011-mi. (Oinggaitiagomagovit titigakhimayok takoinnagialik titikap makpikniani 15-mi)(Details can be found on page 15.) Holi okiok malgok naatagaaganik Also, EMAB-kot maniknik atoktaghamingnik eniktigivaktot kanoklo havaotigilogo atokniakmagaat naonaigotighanik titigagiikpaktot toniplogillo opalonggaigiiktatik Diavik-kot Oyagakhioktiinot. Omani okiokmi Diavik-kot naamagiginnamikot anggigitaat EMAB-kot

toghtitigiyagaloanggat maningnik atoktaghamiknik, Hamna toniyaokmiyok Kavamatokat Enoligiyitokainnot ehoamaghakhiotaotkoplogo. Minisitagoyop ehomaliogotigiplogo ehoagiyaa Diavik-kot maniknik atoktaghanik pitkoijotigiyaat. EMAB-kot piyomayagaloanggit ehoigamiok.

What is the mine's environmental setting?

Lac de Gras is a large lake, 60 kilometres in length, with an average width of 16 kilometres and 740 kilometres of shoreline. This lake is located roughly in the centre of the Slave Geological Province, north of the tree line, and in Canada's Southern Arctic ecozone. The area is cold and dry. Lac de Gras is the headwaters of the Coppermine River, which flows 250 kilometres north to the Arctic Ocean. Typical of arctic lakes, it is cold with long ice-covered periods and, historically, with little food for fish and other creatures. Fish species include lake trout, Cisco, round whitefish, Arctic grayling and burbot. Lac de Gras was also considered near the centre of the Bathurst caribou herd range. The caribou population was estimated at 32,000 in 2009 (GNWT) as compared to 186,000 in 2003. Many other animals included the Lac de Gras area in their home ranges, such as grizzly bears, wolves and wolverines, smaller mammals, migratory birds and waterfowl.

Diavik

(Courtesy of Diavik)

In early 2010, Diavik began mining and processing ore from its new underground mine. Joint venture partners Rio Tinto and Harry Winston Diamond Corporation invested approximately \$800 million for the underground mine, which includes surface and subsurface infrastructure.

All three kimberlite pipes - A154 south, A154 North and A418 - will be mined using underground mining methods. A fourth pipe, A21, is being reviewed to determine the viability of mining. Underground mining is part of the original mine plan that was the basis for Diavik's feasibility study, environmental assessment, and permitting.

In terms of mining operations, open pit mining of the A154 pipes concluded in 2010. A significant portion of the A154 South pipe, known as the crown pillar, was mined using a method known as open benching or 'open sky' mining. Through this method, remotely operated mining equipment accesses the

open-pit ore from the underground workings. Open pit mining of the adjacent A418 pipe continued in 2010 and is expected to conclude in 2012 when Diavik will be an all underground mine.

In 2010, we determined that sub-level retreat (SLR) mining could safely and successfully replace the underhand cut and fill method that was originally planned. SLR has the potential to significantly reduce the complexity of our underground mining operations, resulting in lower costs and higher productivity. As well, hiring of the underground mining teams continues. Diavik is working with existing employees to prepare the transition from open pit to underground and has a progression plan designed to ensure local employment/advancement opportunities. Throughout these efforts, Diavik continues its commitment to the North and to the health and safety of our workers and the protection of the environment. We encourage all Parties to the Environmental Agreement to continue to work together in seeking to deliver effective environmental management programs. We look forward to our continued close and cooperative partnership with EMAB.

For working safely, in 2010 our workforce was awarded a prestigious national John T. Ryan safety trophy. This was our workforce's fourth John T. Ryan award, including one national and three regional recognitions.

These are the mining industry's most significant safety awards. Diavik received its first national award for its 2009 low lost time injury rate. In 2010 Diavik would improve upon its award winning 2009 rate. In fact, 2010 was a year during which Diavik achieved its best safety results since mining began in 2003.



All about the Environmental Monitoring Advisory Board

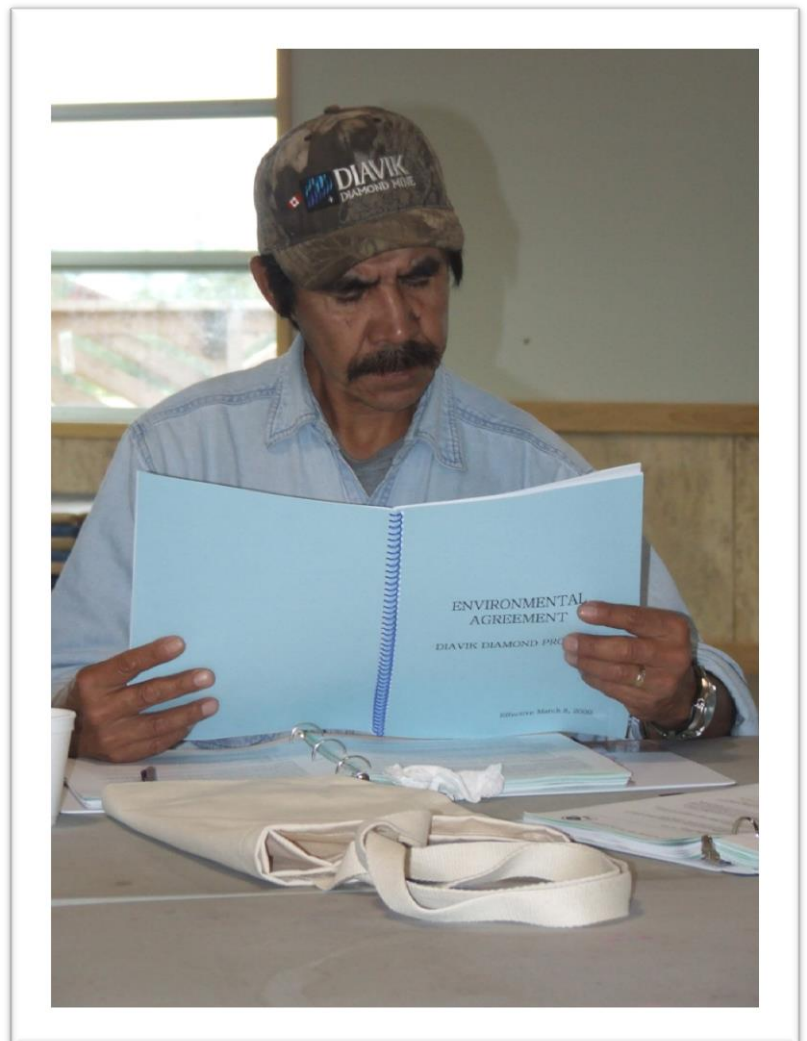
Why was EMAB formed?

We exist because of a contract called the Environmental Agreement (EA) for the Diavik Diamond Project. The EA came into effect in March 2000. The goal of the EA was to ensure that Aboriginal groups and governments, federal and territorial government departments, and Diavik work together, throughout the life of the mine, to protect the environment around the Lac de Gras area where the mine site is located.

Clause 4.2 of the EA emphasizes the arm's length and independent nature of EMAB in relation to Diavik and the other Parties who signed the agreement. The EA remains in effect until full and final reclamation of the site is completed or, after commercial production, the Minister of INAC, in consultation with the Parties and EMAB, can a) relieve Diavik of its EA responsibilities and b) set a schedule for winding down and concluding the operations of the board.

Why is the EA important?

The EA is a legal contract between the Parties that have signed it. It states the commitments that Diavik and the other Parties made to make sure that the effects of the mine on the environment are kept to a minimum. The EA includes the requirement that Diavik: a. meaningfully involve the Aboriginal Peoples in the environmental monitoring of the Diavik mine, and b. include the use of Traditional Knowledge and Inuit Qaujimajatuqangit (TK/IQ) monitoring in its environmental monitoring activities. The EA also says that Diavik must comply with all licences, leases, and laws, and explains the steps that may be taken if it does not. It talks about environmental management plans and monitoring programs, and several other issues



Who signed the Environmental Agreement?

The Board has one representative from each of the Parties that signed the EA:

Tlicho, Government (TG)

Yellowknives Dene First Nation (YKDFN)

Lutsel K'e Dene First Nation (LKDFN)

Kitikmeot Inuit Association (KIA)

North Slave Métis Alliance (NSMA)

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

Government of Canada

Diavik Diamond Mines Inc. (Diavik)

The Government of Nunavut (GN) has a representative on the Board because the EA recognizes their involvement in trans-boundary issues, such as water quality and wildlife.

such as the security deposit, enforcement, and closure and reclamation. Finally, the EA sets out EMAB's mandate.

What do we do?

The EA lists 13 points that cover a broad range of issues and activities that we need to consider in relation to the Diavik mine and the environment of the Lac de Gras area. We've condensed the full mandate into four categories in our strategic plan:

- Oversight and Monitoring,
- Aboriginal and Community Involvement,
- Communications, Relationships, Reputation Management and Advocacy, and
- Leadership and Governance.

The full mandate is on page 10 of the EA

How are we funded?

Diavik provides an annual contribution, as detailed in the Environmental Agreement (clause 4.8).

For special research or projects that don't fit within EMAB's usual budget, the EA allows EMAB to submit proposals to Diavik. It must either fund them or explain its reasons in writing for not funding them. EMAB or Diavik can ask the Minister of INAC to review the proposals to Diavik, as well as the decisions.

We also occasionally request funds from the Government of Canada and the Government of the Northwest Territories for specific projects that relate to their mandates. EMAB is a registered not-for-profit society of the Northwest Territories.

The Board

The Environmental Monitoring Advisory Board (EMAB) is composed of members and alternates.



Doug Crossley, Chair

Kitikmeot Inuit Association

I have been a member of EMAB since 2002. EMAB, with the support of KIA, has been a strong advocate of finding means to incorporate Traditional Knowledge/Inuit Quayumajatuqanqit (TK/IQ) in the environmental monitoring programs at the Diavik operation. I have worked with KIA staff at several workshops, including a workshop on Party satisfaction with Environmental Agreement implementation. Closure and reclamation is also a top priority for KIA as it is critical to ensure that Diavik's closure plan is adequate so that the environment is protected when the mine closes. Diavik's funding decisions continue to be a concern as they relate to our ability to meet our responsibilities in an independent and effective manner. I continue to be hopeful that the situation can be resolved in order to allow us all to focus on the environment at and around the mine site.

Ted Blondin, Vice Chair

Tlicho Government

I have been involved in benefit agreements, as well as socio-economic and environmental agreements for all three diamond mines. These all came about from concerns raised in communities. Nobody can predict what will come about at these mine sites at any time, which is why boards like EMAB are important. After ten years, this is certainly true of Diavik operations. Circumstances change, new situations arise, and new opportunities are there in front of us. How to deal with these issues is what we do at

EMAB. We want to make sure environmental monitoring and protection is done right. We have to keep our communities informed so they know what's going on and they can share their concerns with us. As a leader, I want to make sure we do the job right. We don't want to leave a legacy where our children can't enjoy the land. We want to leave a legacy that they can be proud of.

The Board

The Environmental Monitoring Advisory Board members, appointed by each of their Parties, have a range of experience related to the environment. With years of living close to the land or years in corporate or public service, each member brings to EMAB a commitment to protecting the environment. This diversity brings with it challenges and opportunities, as we search for ways to build strong relationships with each other and with regulators and company representatives. We will continue to work to ensure that communities are participants in all aspects of environmental monitoring associated with Diavik.

Floyd Adlem, Secretary Treasurer

Canada

I have been a member of EMAB for several years as the representative for the Government of Canada. In that time I have seen EMAB grow into a more and more active participant in the protection of the Lac de Gras area. I've been in the North for over 30 years, and in that time I've seen the evolution of environmental responsibility. Boards like EMAB serve a critical role in ensuring that mining in the North is done responsibly.

Charlie Catholique

Lutsel Ke Dene First Nation

I am a hunter and trapper and have been involved with environmental issues for many years. For four years I was the Chair of the Wildlife, Lands and Environment Committee for the Łutsel K'e Dene First Nation. Protecting the land is important. Ensuring that nothing happens to the water, the animals and the land is a priority. I am looking forward to working with fellow Board

Sheryl Grieve

North Slave Métis Alliance

I have, at various times since 2005, represented the North Slave Métis Alliance on all three environmental monitoring agencies, as well as the one socio-economic monitoring agency, set up to monitor the three active diamond mines in the Northwest Territories. I see that each has its strengths and weaknesses, but all of them, including EMAB, are

negatively affected by significant capacity issues at the community level, despite the provision of capacity funding to the Aboriginal Parties. The meaningful engagement of communities and the integration of Traditional Knowledge/Inuit Qaujimajatuqangit with scientific studies remain elusive goals. It is my hope that an increased commitment to the terms of the Environmental Agreement that assures each Aboriginal Party training and employment in each of the environmental monitoring programs, and a cooperative re-write of each of the monitoring programs to include meaningful and substantial Traditional Knowledge components will eventually overcome the challenges, and achieve the spirit and intent of the agreement. This would be a fine legacy for Diavik to leave to the North, to Canada and to the world, and would make me proud.

Where are we?

We have an office in Yellowknife, with three staff: Executive Director, Communications Coordinator, and Administrative Assistant.

Our hours are from nine to five Monday to Friday. Our office is open to everyone and houses a library of materials on environmental matters related to the Diavik mine. (Contact information is listed on the final page of this report.)

Lawrence Goulet

Yellowknives Dene First Nation

I am proud to be an ongoing member of EMAB. As someone who continues to be active on the land, as my father was, I know the value of carefully monitoring what happens with the mines and the regulators. Sitting on EMAB is important for my family and my community, today and for the future.

Stephen Ellis

ENR, Government of the Northwest Territories

I have advised and facilitated engagements among First Nations, governments, and industry pertaining to land and resource challenges for ten years. My particular focus has been:

- Building First Nation capacity to deal with industrial activity, particularly through the development and implementation of practical measures for consultation and accommodation.
- Bringing Traditional Knowledge/Inuit Qaujimajatuqangit and community views into environmental monitoring and decision-making processes.
- Negotiating balance between industrial and conservation interests.

Besides sitting on EMAB for the GNWT, I am a Director of the Denesoline Corporation Ltd. and I chair the Akaitcho Screening Board. I have also been a member of the Protected Areas Strategy Steering Committee, the Łutsel K'e Housing Authority, and the NWT Cumulative Effects Assessment and Management Steering Committee.

Colleen English

Diavik

I have worked at the Diavik mine site in various positions within the Environment department for the past seven years. During this time, I was involved in EMAB meetings and visited many communities to help explain some of the environmental monitoring programs that Diavik carries out at the mine site, as well as to let people know the results of the programs. A recent move to a new position with the Communities & External Relations department in 2010 allowed me the opportunity to become involved with EMAB as the DIAVIK representative. I am committed to working with the Board and people from the communities to talk about environmental protection and determine how industry requirements and community needs can be better understood by all parties, and identify opportunities where these may align. Achieving this understanding and alignment will be especially important as mining activities change from open pit to underground, and move towards closure.

Charlene Beanish

Government of Nunavut

I have represented the Government of Nunavut since February 2010. I am also new to the North, employed as an Environmental Protection Officer in the western arctic community of Kugluktuk, Nunavut. My background over the last 5 years has been mostly in enforcement; however, environmental stewardship, protection and sustainability have always been of great importance to me. My participation with EMAB involves trans-boundary issues related to water quality as well as wildlife. I'm looking forward to bringing new assets to the table as well as engaging myself in environmental protection and monitoring, as well as environmental plans/projects with the other experienced board members. Boards like EMAB are imperative for supporting northern communities in protecting resources for our future generations. I am pleased to be a representative on the board for the Government of Nunavut.

What are our special issues?

In EMAB's start-up days, the Board, with community input, chose to focus on water, fish, wildlife, and air. Early on, we realized just how many environmental issues there were and how comprehensive our mandate was. We knew that some areas were of highest priority and needed our complete focus. Thanks to the fact

that the Aboriginal representatives communicate with their communities and understand their concerns, we were able, right from the start, to establish priorities. In the last couple of years, though we continue to focus on those important issues, closure planning has become as important as we look forward to the years when the mine site will need to be prepared to return to a more natural state.



Who are the communities?

The communities we work with (Affected Communities in the EA) are those that belong to the Aboriginal Parties who signed the EA: Behchoko, Wekweèti, Gameti , Whati, Ndilo, Dettah, Łutsek'e, Kugluktuk, Métis of the North Slave.

In the boardroom

EMAB held six board meeting in 2010-2011, along with five teleconferences.

Diavik funding

In July 2010, due to a funding disagreement between EMAB and Diavik, INAC invoked the dispute resolution process as described in the Environmental Agreement.

Government hired a mediator/arbitrator, Jim McCartney, in October. Two mediation sessions were held with INAC, ENR, EMAB and Diavik, led by the Mr. McCartney. Failure to reach a joint solution led to the arbitration process. Each party to the arbitration provided information to the arbitrator, and had the opportunity to respond.

What happens when EMAB makes recommendations?

Since 2001, EMAB has made 67 recommendations. We get involved and make recommendations when regulators raise issues, or when regulators and Diavik disagree on an issue. We also make recommendations when the regulators or the mine are not addressing an issue we think is important. The Environmental Agreement says our recommendations are to be taken seriously and given full consideration. Parties, including Diavik, must respond within 60 days. They must act on our recommendations or give us reasons why they will not. Before making a formal recommendation, we try to resolve an issue through dialogue. EMAB made two recommendations in 2009-2010 and continues to follow up on recommendations from previous years. These are outlined throughout this report and are summarized at the end. If there is an issue that interests you and you would like more information, contact us at 867.766.3682 or visit www.emab.ca

The Arbitration Award arrived on January 16, 2011. A Supplemental Arbitration Award, in reply to a clarification request by EMAB, was received on February 24, 2011.

The awards stated:

- That DIAVIK was justified in reducing its contributions until the unexpended funds and accumulated interest had been used to fund EMAB's costs and that EMAB's unexpended funds and interest as of March 31, 2009 totalled \$370,867; and
- That EMAB, as an independent board, controls its budget as per the Environmental Agreement:
 - EMAB's unexpended funds from one budget period must be applied to EMAB's costs in the next budget period (not necessarily to DIAVIK's contribution);
 - EMAB can reallocate funds within its budget;
 - EMAB can carry over program funds; and
 - EMAB can budget for mandated activities that cost more than Diavik's contribution, and seek partnership funding to help carry these out.

The awards can be found at www.emab.ca

Two-year budget submission

Every two years, EMAB generates a budget and work plan to submit to its main funder, Diavik. This year, Diavik disagreed with EMAB's proposed budget. At issue were:

- EMAB's long-time practice of creating a budget that surpasses the annual Diavik contribution, with a view to generating funds elsewhere. In the event that extra funds are not acquired, EMAB looks to its list of prioritized

projects and eliminates the last important from the work plan. Diavik disagrees with this practice.

- In its early days, EMAB established a Capacity Building Program with a budget of 150,000\$. These funds were to be distributed equally among the five Aboriginal Parties to the EA to increase community capacity in regards to environmental monitoring related to the Diavik mine site. Diavik disagrees with the program.

As per the EA, in the event that EMAB and Diavik disagree over the budget, the Minister of INAC is responsible for choosing one or the other. In this case, the Minister chose Diavik's budget, which does not include a Capacity Funding Program budget line.

Strategic Plan

We reviewed our Strategic Plan, as approved in 2008.

The strategic plan guides the board in determining the high priority items that we need to address in any given year. It also guides us when we produce the work plan and budget that we submit to Diavik every two years.

During the review we acknowledged that some of our priorities would have to be revisited, pending the outcome of the budget disagreement with Diavik.

EMAB considers its strategic plan to be a "living document" that can be changed to adapt to circumstances.

Changes might include the need to hold a workshop on an unforeseen issue or to fund the technical review of a report or plan that becomes necessary as a result of a regulator's decision.

We made some minor fixes to the plan but, essentially, it remains as it was passed in 2008. It is available on our website at www.emab.ca or through the EMAB office.

Updates from sister boards

Ekati Diamond Mine and Snap Lake Diamond Mine, both located in the Northwest Territories, have similar environmental advisory boards. Each have their own negotiated Environmental Agreements.

In an effort to keep each other apprised of diamond-mine related issues, EMAB meetings include updates of activities by the Independent Environmental Monitoring Agency (Ekati) and the Snap Lake Environmental Agency.

In the communities

Community updates

Each year we try to visit as many communities as possible. Updates occur as communities are able to accommodate us.



In February, we held our Board meeting in Lutsel K'e, and in the evening held a public update open to the community. We also meet with the local Wildlife, Lands, and Environment Committee.



In March, Chair Doug Crossley, the Kitikmeot Inuit Association member, and EMAB's communication coordinator travelled to Kugluktuk to provide the community with an update.

Capacity Funding Program

In 2010-2011, EMAB distributed \$90,000 to the Aboriginal Parties through its Capacity Funding Program. The goal is to help the Parties enhance skills and learning in environmental monitoring.

The Yellowknives Dene First Nation, with the help of EMAB funds, participated in the second year of a survey of inconnu in Yellowknife River and Yellowknife Bay involving both collection of Traditional Knowledge/Inuit Qaujimajatuqangit and sampling of fish stocks.

The North Slave Métis Alliance Capacity funds were used to support NSMA staff in reviewing and summarizing documents, providing information to NSMA members, holding environmental Committee meetings and facilitating community involvement in community-based monitoring. Funds also support NSMA members in increasing their knowledge of Diavik environmental issues.

Oversight and Monitoring

EMAB monitors Diavik and the regulators to make sure they are doing a good job protecting the environment in the Lac de Gras area around the Diavik mine, and that

they, and all the other Parties, are keeping the promises they made in the Environmental Agreement.

Most of EMAB's focus is on Diavik's environmental monitoring programs and reports, and on the way the regulators handle them. When EMAB notes concerns coming from regulators we take that as a signal that we need to know more about the issues. These issues are outlined in the following pages.

Each year we do our own reviews of Wildlife Monitoring Program report and the Aquatic Effects Monitoring Program report. Sometimes we do a separate review of an issue that is a high priority to EMAB and the Parties, like air quality monitoring, or the mine closure plan.

Who are the regulators and managers?

- **Wek'èezhìi Land and Water Board (WLWB)** are responsible for the Diavik water licence and the technical review of all documents required under the licence. The WLWB is a regional panel under the Mackenzie Valley Land and Water Board. Staff are not technical experts; they coordinate the review of documents.
- **Department of Fisheries and Oceans (DFO)** reviews some of the reports submitted under the water licence and all the reports submitted under the fisheries authorizations.
- **Indian and Northern Affairs Canada (INAC)** reviews reports required by the water licence and the land leases. INAC has an inspector assigned to Diavik. This inspector attends our meetings to keep us aware of what is happening at the site. The inspector is also responsible for ensuring Diavik meets the terms of its water licence and land leases.
- **Environment Canada (EC)** reviews the reports required by the water licence focusing on water and air quality. They can call on experts from across Canada when needed.
- **Environment and Natural Resources (ENR)**, a department of the Government of the Northwest Territories, is not a regulator; they are a Party to the EA and have responsibility for wildlife and environmental protection, including air and water quality. They review and comment on the Wildlife Effects Monitoring Program reports. They also propose better ways to monitor effects of Diavik on wildlife.
- **Wek'èezhìi Renewable Resources Board (WRRB)** is a wildlife co-management authority established by the Tlicho Agreement. The WRRB is responsible for

The Environmental Agreement and the water licence

The water licence and the EA both contain requirements for the AEMP. Most of the water licence requirements are more detailed than those in the EA.

The WLWB cannot make Diavik meet any of the EA commitments unless they are also in the water licence. In the EA Diavik said it would do its best to involve Aboriginal People in designing monitoring programs, and that all its monitoring programs would include activities to:

- . consider TK,
- . establish or confirm thresholds or early warning signs,
- . trigger adaptive mitigation measures,
- . provide ways to involve each of the Aboriginal Peoples in the monitoring programs and
- . provide training opportunities for each of the Aboriginal Peoples.

EMAB is working with Diavik to help it meet its commitments as described throughout this annual report

managing wildlife and wildlife habitat (forests, plants and protected areas) in the area known as Wek'èezhii.

1. Water/WLWB

EMAB monitors regulators' responses to reports under the water licence and reviews some plans and reports directly. EMAB meets with WLWB staff from time to time to keep updated and share information.

The renewed water licence required Diavik to prepare a number of plans that are important to EMAB:

- An adaptive management plan for responding to effects detected in Lac de Gras (which will now be called a response framework)
- A closure and reclamation plan;
- Plans for testing effects of Diavik's discharge on hyalella azteca in Lac de Gras;
- Development of a proposed nitrate limit – this is still not done.

1.1 Water licence amendments

A21 Mining Method

As noted in EMAB's 2009-10 annual report, Diavik withdrew its application to use a new mining method for the A21 kimberlite pipe in May 2010. EMAB was pleased, as Diavik had not provided enough information for EMAB or communities to fully understand the proposal or provide meaningful comments.

Increased Fresh Water Use

Diavik was granted an amendment two years ago to increase water use from Lac de Gras up to the end of 2009. Starting in September 2009 it built a pipeline from the North Inlet to the processing plant to supply process water. The pipeline was completed in early 2010.

EMAB is keeping track of Diavik's water use and how well the pipeline is working. Freshwater use in 2010 has returned to similar levels to those before the increase was granted.

1.2 Seepage

Some seepage from Diavik has entered Lac de Gras in the same area, east of the PKC, for each of the last three years. EMAB monitors seepage reports from Diavik and has expressed concern to the WLWB because levels of some metals – zinc, aluminium and nickel, as well as ammonia – have been above water licence limits. Diavik has installed winterized sumps and pumps and a road parallel to the South Haul Road to access the seepage area. In addition Diavik put in eight wells in the PKC wall to catch any seepage and allow it to be pumped back to the PKC.

EMAB found that Diavik's seepage report for 2010 showed some seepage entered Lac de Gras in June at the same place as in 2008 and 2009, and that zinc and nickel levels were above water licence limits. DIAVIK did not give an estimate of the amount of seepage that reached Lac de Gras.

EMAB will continue to monitor this issue.



1.3 AEMP and reports

2010 was the third full year of operation for the revised AEMP. EMAB is very pleased with the data collection and analysis under the new program and remains confident in its ability to give an early warning of changes in Lac de Gras.

Sample collection for the new program has improved a great deal since the first year and Diavik was able to collect all of the samples required in 2010.

Summary report and design review

This year Diavik must submit a summary report in addition to the annual AEMP report. The summary will:

- Present the significant results of the AEMP since the start of the new program in 2007;
- Any trends the data show;
- Compare the actual effects to the predictions made in the environmental assessment of the project;
- Look at the combined effect of all the various changes identified including potential changes to the fish in the lake;

- Evaluate the effectiveness of the AEMP to detect changes in the lake; and
- Document Diavik's responses to the changes found by the AEMP.

The report was to be submitted by the end of June and had not been circulated at the time of writing this report.

The water licence also requires that DIAVIK submit a modified AEMP on September 30, 2010 for approval by the WLWB. This was changed to 2011 because the first year of sampling in 2007 was decided to be inadequate by the WLWB. This design review will address a number of AEMP design issues raised by Diavik and its consultants, and reviewers, including EMAB. (See EMAB annual reports for 2007, 2008 and 2009).

EMAB has placed a very high priority on the summary report and design review and will have our expert consultants review and comment on both reports. This is the first detailed assessment of the new AEMP and it is important that any weaknesses are corrected and any proposed changes are scientifically justified.

Diavik's proposed changes to AEMP sampling for 2011

When it submitted its 2010 AEMP report, Diavik also proposed to decrease sampling in summer of 2011, by reducing water sampling in summer from three times to once and by cutting out sediment and benthic sampling. EMAB told the WLWB that we objected to these changes, since they did not follow the agreed upon direction in the AEMP and were not scientifically justified. The WLWB decided that Diavik should continue with the existing sampling program, except for sediment, until the design review is completed.

1.3.1 Annual AEMP reports

Diavik's 2010 AEMP report was similar to the previous reports. The 851 page report, along with data, included detailed analysis by Golder Associates on dust, water, sediment, benthics, fish and plankton, and a review of eutrophication indicators. The results of all these reports were brought

The AEMP – a primer

The 2007 AEMP design does not rely on baseline data. One of the main problems with the original AEMP is that it relied on baseline data that was inadequate. The new AEMP compares water, benthics and small fish near the mine to three places in the lake that are not affected by the mine, called reference areas. Four samples are also taken in a line from the place where the mine discharges to each of the reference areas. The number of sampling locations was doubled, and sampling will take place more often during the open water season. All the data are compared statistically so that any conclusions are scientifically defensible. All this means that we now have confidence that the AEMP will be able to give us an early warning of any change in Lac de Gras. If the data show a change then Diavik will do further studies to find out whether the mine is the cause, and how far the effect reaches from the mine, and propose actions to make sure Lac de Gras is not harmed.

together in a “weight-of-evidence” report. Diavik provided a summary report covering each appendix, some additional conclusions, and described any follow-up actions they planned.

The results revealed many early warning effects, four moderate-level effects and two high-level effects. Overall the various effects show that nutrients from the mine discharge are changing Lac de Gras. Testing of the discharge showed one instance of acute toxicity on daphnia and ceriodaphnia in September. None of the other test organisms showed any acute toxicity at that time, and there was no other acute toxicity during the year.

Nutrients

EMAB and others have been expressing concern about the rate of increase of nutrient levels in Lac de Gras, and the need to determine whether Diavik’s maximum predictions made during the environmental assessment might be exceeded. The WLWB hired a consultant to review the results and make recommendations to them in 2010. The consultant’s review found that Lac de Gras nutrient levels are changing the lake, and that Diavik’s previous statement that the effects are “mild” doesn’t go far enough. The consultant supported EMAB’s recommendation that Diavik forecast nutrient loads over the life of the mine. A further recommendation was that Diavik develop a model showing what is happening to the phosphorus (the main nutrient) that is being discharged. North-South and EMAB support this recommendation. The report is available on the WLWB website, including a number of other recommendations.

EMAB notes that DIAVIK responded to the above recommendations by saying that predictions from a model will have uncertainties compared to data from the AEMP. The point of developing a model that can make scientifically based predictions of phosphorous levels was to:

- Help understand why chlorophyll *a* levels seem to show a much greater increase than phosphorous; and
- Give lots of early warning about whether Diavik’s original predictions of changes in nutrient levels in Lac de Gras caused by Diavik are wrong, and by how much, so that decisions can be made about whether the mine needs to do more to decrease nutrients in its discharge.

Mercury

Slimy Sculpin were sampled for mercury in 2010. The testing showed that the levels of mercury in the fish close to the mine discharge were similar to those living far away from the mine. This is different from sampling in 2007 where Sculpin living near the discharge had higher levels of mercury. Diavik does not know why the results are different this year.

The research project looking at the possible effect of increasing nutrient levels in Lac de Gras on mercury levels in fish through sediment cores found that levels of mercury have been increasing in the sediment over time since the 1950's or earlier. This is a similar pattern to other lakes in the NWT where there has been no mining, and that this is likely related to climate change and long range transport of mercury from industrial sources in the south and Europe. The researchers say that while Diavik does not seem to have had an additional effect, there is so little new sediment that has been deposited since the mine began that it is hard to tell. A review of the study done for the WLWB by Hutchison Environmental Services stated that *"This study is useful but our assessment is that it does not support the conclusion that '... there is no evidence of a mine related effect on phosphorus or mercury levels, or on algal community composition or abundance in Lac de Gras.'"*

EMAB continues to have questions about mercury in fish in Lac de Gras and about the levels of mercury in fish from the lake, including trout. This is particularly concerning because the methodology for Diavik's baseline study for mercury levels in trout is different from current methodology so can't be used to see if mercury levels in trout flesh are increasing.

EMAB is pleased that Diavik will sample mercury in trout in 2011 and will sample slimy Sculpin again in 2012 and will continue to pay close attention to the studies and the results.

EMAB contracted North-South Consultants (N-S) to do a brief review of the report focusing on the changes Diavik was proposing to the sampling program for 2011. We decided to reduce our review of the 2010 report from previous years to allow us to focus more on the summary report and design review.

EMAB and North-South commented on a number of key issues:

- North-South's review, which EMAB endorsed, noted that the AEMP detected many effects of Diavik on Lac de Gras. Based on these effects, N-S recommended Diavik continue with much the same sampling program as took place in 2007 through 2010. They agreed that sediment and fish sampling are not required in 2011.
- EMAB noted that the WLWB has identified issues in each AEMP report since 2007 that must be addressed in the summary report and design review, and stated our support for this.
- EMAB repeated our recommendation that Diavik should develop a predictive model for phosphorous loadings throughout Lac de Gras based on the last five years of data.

- EMAB repeated our recommendation that Diavik compare mercury levels in trout collected in 2005 and 2008, and that mercury levels in fish sampled during the fish palatability studies be included in the summary report.
- EMAB also stated that Diavik should develop a method for identifying trends in mercury concentrations in trout that is not dependent on baseline data.
- EMAB recommended that the Traditional Knowledge/Inuit Qaujimajatuqangit section of the report be changed to:
 - clarify that Diavik has not done anything to try to include TK/IQ in the AEMP since 2007;
 - that it is not working with EMAB to solicit TK/IQ monitoring proposals from communities.
- EMAB also noted that Diavik is responsible to do the work to ensure that monitoring using TK/IQ is included in the AEMP, and that it must show leadership in this area.
- EMAB noted that Diavik rejected recommendations EMAB made about ways to include TK/IQ in the AEMP. EMAB recommended that Diavik develop a TK/IQ Research Plan that involves communities, and a transparent program that can provide funding to communities to develop proposals and carry out TK/IQ monitoring. EMAB further recommended that Diavik make use of existing resources such as INAC's toolbox for inclusion of TK/IQ monitoring in AEMP's. EMAB also recommended that Diavik review our comments on the TK/IQ portion of the recent ICRP (version 3.1) with respect to TK/IQ and the AEMP.

EMAB continues to be very pleased with the quality of the AEMP reporting, including the detailed appendices.

In addition to EMAB's comments, the Wek'èezhìi Land and Water Board received comments from INAC, ENR, DFO and KIA for consideration in approving the report. EMAB was disappointed that Environment Canada did not offer comments.

1.3.2 Adaptive Management Plan

One of the requirements of the AEMP was that Diavik submit an Adaptive Management Plan (AdMP) for approval by the WLWB. This plan sets out how the mine will respond to effects detected by the AEMP, and how communities, regulators and EMAB will have input. Diavik submitted a draft plan in August 2007 and the WLWB gave direction for reviewing Diavik's AdMP in February 2008. Following reviews of the draft plan and a **community workshop organized by EMAB**, the WLWB decided that it would develop a guidance document for all AdMPs and work with Diavik to revise the draft AdMP to meet the intent of the guidelines.

The WLWB circulated a draft adaptive management response framework in October 2010.

Mixing Zones

The allocated mixing zone, also called the initial dilution zone, is defined as “the area contiguous with a point source (effluent discharge site) or a delimited non-point source where the discharge mixes with ambient water and where concentrations of some substances may not comply with water quality guidelines or objectives (CCME, 1996).”

Mixing zones are areas in which the initial dilution of the effluent occurs and concentrations of some substances may not comply with EQOs (which are generally based on preventing chronic effects).

The mixing zone is an area of acceptable, but not acutely toxic, impact that does not affect the overall quality of the receiving water.

Diavik committed to treat all effluent from the proposed mine to achieve ambient thresholds for aquatic life and drinking water within the 0.01 sq. km. mixing zone with the exception of phosphorus.

EMAB provided comments on the draft to the WLWB in December 2010. We were supportive of the work, while providing a few comments on how the response framework would apply to Diavik’s AEMP requirements and requirements documented in the Environmental Assessment.

The WLWB is expected to circulate a revised draft for review in 2011.

1.3.3 Water and effluent quality management policy

In April 2010, the Mackenzie Valley Land and Water Boards released a draft water and effluent quality management policy. The policy sets out how the land and water boards will set effluent quality criteria (EQCs) for the projects it regulates.

EMAB stated that we believe the policy will be useful in providing a consistent approach to development of EQCs. EMAB asked our aquatic consultants, North-South, to provide a review. Our comments addressed a number of issues including:

- ***The need to minimize changes to water quality;***
- ***The need to address cumulative effects;***
- ***and***
- ***The need for a transparent process that enshrines the right of communities to participate.***

1.4 Ammonia

Ammonia levels have dropped significantly since 2005 and this year they ranged from 0.01 to 0.7 mg/l., well below the maximum allowable of 12 mg/l in any sample and an average of 6

mg/l over time.

Whitefish testing continues to be frustrating. DFO went to collect whitefish eggs in December 2010 and found the lake they use had iced over and it was too risky trying to break through. They plan to collect whitefish this fall/winter to raise in the lab for eggs. This is part of a partnership study on whitefish sensitivity to diamond mine effluent compared to the rainbow trout that are currently used to assess toxicity. Funding has been committed by DFO, INAC, Ekati, De Beers and Diavik.

EMAB continues to follow this issue and encourage the partnership to continue its efforts; we believe it is important to assess the effect of Diavik's discharge on species that live in Lac de Gras.

Diavik has submitted its final report on research on removing ammonia from the North Inlet and has found that bacteria break the ammonia down faster at warmer temperatures, and that adding zeolite speeds up the process. Diavik will now decide how to follow up the results.

EMAB will continue to track this study and Diavik's response.

1.5 Closure

EMAB made closure planning at Diavik a priority in our strategic plan and we put a lot of effort into providing input to Diavik's revised draft closure plan this year, and to providing information on closure and the plan to Aboriginal Parties.

Diavik submitted version 3.0 of its draft closure plan in December 2009. The WLWB sent the plan back for revisions and Diavik submitted version 3.1 in December 2010. In its comments on the plan, the WLWB said:

- Diavik did not seem to have addressed conditions on the approval of the 2001 closure plan – the only one officially approved;
- The plan lacks clarity;
- There are outstanding technical issues, including waste rock, pit water quality, the PKC and on-site burial of equipment; and
- Diavik's community engagement plan needs to be improved – Diavik should develop a plan and start undertaking thorough community engagement as early in 2010 as possible.

EMAB contracted SENES Consultants to do a technical review of Diavik's revised plan; we circulated the review to the Aboriginal Party communities. EMAB also did a review to find out how Diavik had addressed our comments on the previous draft:

- Commitments Diavik made in the Comprehensive Study Report
 - **EMAB comment**—Diavik’s revised plan still does not show how the draft plan will meet these commitments, and some parts of the plan are inconsistent with some of the commitments. EMAB pointed out that during the environmental assessment Diavik was required not to bury equipment, machinery or buildings on site, yet had included burial in its closure plans. EMAB’s position is that DIAVIK must not do this unless it first consults with communities and provides an acceptable justification.
- Community engagement
 - **EMAB comment** – Another year has gone by and Diavik has still not followed the WLWB’s direction on engaging with communities. Diavik has not given communities a chance to have a full understanding of the proposed plan, or to provide meaningful input. This should be corrected before the end of 2011. Diavik should provide thorough documentation of each meeting.
- Use of Traditional Knowledge/Inuit Qaujimajatuqangit
 - **EMAB comment** – Diavik needs a separate TK Research Plan that engages communities on this important topic, and needs expert advice on TK/IQ research methods.
- Closure objectives and criteria, and how the plan implemented them
 - **EMAB comment** – Objectives have improved since version 3.0, but many closure options and criteria do not link to objectives and/or are inadequate. Diavik must provide strong reasons for its proposed approach.
- The Reclamation Research Plan
 - **EMAB comment** - The current plan is missing several important items and needs more detail on methods for research, work plans and schedules.

Other technical issues EMAB raised include:

- Diavik needs to better explain and support some proposed changes, in particular the changes to the way it wants to close the waste rock piles: sloping, cover materials, revegetation.
 - Diavik also needs to address the likelihood that drainage from the waste rock will be contaminated.
- Diavik has not provided a revegetation plan.
- Diavik should revise its estimate of closure costs to address the deficiencies.

EMAB commented to the Wek’èezhii Land and Water Board that the plan still has a number of gaps that need to be filled and some significant changes in the near term. In addition to our consultants’ reviews, we provided 36 pages of comments.

The WLWB sent version 3.1 of the closure plan back for additional revisions in May 2011 and set a deadline of August 1, 2011, and included several specific requirements:

- Diavik is to re-write the closure plan to follow the previously approved closure plans until it can provide sufficient evidence to support any requested changes.

- Diavik is to hold an information session on the PKC and challenges to closing it properly.
- Diavik is to engage with communities on the issue of burial of equipment, machinery and buildings.
- The WLWB will host a workshop on closure criteria.
- The WLWB will host a workshop on community engagement.

EMAB continued to encourage Diavik to provide for strong community participation in development of the draft ICRP.

Closure research

Diavik built test waste rock piles several years ago that they are studying to find out how they will freeze, whether water will flow through the piles, and any effects climate change may be having on waste rock freezing and runoff. Diavik is finding that the runoff from these piles is contaminated.

Diavik's revegetation study, which is part of its reclamation research plan, was completed this year. It experimented with many different plants grown in many different conditions to see which worked best. The study makes a number of recommendations, which include continued monitoring and the testing of more plant species. Diavik is considering the results to decide its next steps for revegetation.

EMAB is tracking all these activities related to closure.

1.6 Intervener funding

EMAB continues to promote the need for intervener funding to be made available to allow meaningful and effective participation of Aboriginal Parties and others in hearings and review processes under the MVRMA.

1.7 Licence Management Recommendations

EMAB has raised a number of issues we felt could enhance the management of Diavik's water licence over the last several years and each year we report on progress on those that remain outstanding. We are hopeful that the MVLWB initiative from 2008 to establish working groups to develop consistent procedures will address some of these.

We addressed some of these issues in our comments to the Minister on the Northern Regulatory Improvement Initiative (NRII) report. We encouraged the Minister to

consider addressing some other areas we felt were missing from the report and have not been addressed through other mechanisms:

- **The need for permanent funding for the WLWB to have access to technical expertise as required.** As noted in previous annual reports, we feel that the WLWB was able to make progress on some difficult issues concerning the Diavik water licence by turning to independent technical experts for advice and assistance. To our knowledge this remains outstanding, although INAC has stated that ensuring adequate resources to all boards is a priority. EMAB was also pleased to learn that the WLWB plans to establish a pool of technical experts it can draw on for reviews and that it intends to use internal technical experts to assist the Board with decision-making.
- **The need for a mechanism to make changes to water licences between hearings** that can be initiated by the public, including publicly available criteria for determining whether a change is in the public interest

1.8 Inspector

EMAB relies on the inspector's reports as a key source of information about compliance with authorizations, implementation of mitigation measures and the details of on-the ground operations at the mines, including any environmental issues.

The inspector updates the Board at each meeting on the key results of monthly inspection reports, particularly focusing on possible effects on water quality such as:

- Spills or seepage;
- Chemical and fuel storage areas;
- Contaminated water storage areas; and
- Water discharge locations.

In 2010-11 the inspector found much less seepage than the previous year. Diavik made a number of repairs on the PKC dams and collection ponds over the summer and installed monitoring wells in the PKC wall.

EMAB keeps track of Diavik's compliance with the water licence. There was a non-compliance in 2010-11 when seepage flowed into Lac de Gras once in late June of 2010 with levels higher than allowed by the water licence.

2. Fish/DFO

EMAB monitors DFO's reviews of reports from Diavik on its fisheries authorizations.

2.1 No Net Loss

EMAB tracks progress on fish habitat compensation projects and encourages DFO and Diavik to continue moving forward.

One community project has been identified to help compensate for loss of fish habitat during construction of the Diavik mine. There is a project in Kugluktuk: Bridges will be installed in the area to help protect fish in local creeks from the effects of ATV traffic, and former stream crossings will be repaired. Designs are completed and it is hoped that construction will be complete by 2012.

Diavik is in the process of consulting with other Affected Communities for a second project.

Baseline monitoring of the M-lakes habitat enhancement on the mainland, South East of Diavik, and on the West Island streams, began during summer 2009. The University of Alberta and DFO will study the lakes until the work is done in the fall of 2011, and for two to three years after the work is finished to find out the effects. They have been looking at the fish in the lakes as well as water quality, water levels over the summer, structure, and all the plants and aquatic life to get an idea of how well the lakes can support fish and movement of fish. They have found more fish species than expected. They have also found that water levels drop by about 18cm. over the summer, and that the lakes are low in nutrients.



2.2 Fisheries Authorization Monitoring

EMAB reviews reports under the Fisheries authorizations:

Dike monitoring

DFO contracted a statistician to review the monitoring design. Diavik will try to coordinate sampling for the A154 and A418 dykes and the work at the A21 pipe. They are also trying to make sure the data is compatible with AEMP monitoring. The analysis showed that Diavik's control sites may be being affected by the mine discharge and recommends investigating nearby lakes as possible control sites. It also suggests ways to analyze how contaminants are leaching from the dikes and a review of winter sampling.

The results of the studies under the Fisheries authorizations will be included in the AEMP summary report expected later this year.

2.3 Mercury

EMAB continues to be concerned about mercury levels in trout in Lac de Gras and continues to seek clear answers regarding levels in trout, trends and whether or not an official warning should be made.

EMAB has been following this up with Health Canada and GNWT, since it does not appear that the commitment in the CSR regarding mercury is being implemented.

Diavik's predictions about mercury

Diavik predicted during the environmental assessment that mercury would not increase above the existing background concentration of 181.5ug/kg, and GNWT's statement at that time that it agreed that the mercury consumption guideline of 200 ug/kg for fish used for subsistence fishing would be applied.

3. Wildlife

EMAB, and the Affected Communities, have high expectations of Diavik, particularly where it comes to the effects of the mine on wildlife. Unlike aquatic effects there is no regulatory framework for wildlife, so the only authority is through the Environmental Agreement, which sets out Diavik's commitments. The feedback we have received from communities and observed in our watchdog role is that Diavik could do much better when it comes to wildlife monitoring and management.

The Wildlife Monitoring Program (WMP) studies the effects of Diavik on wildlife and vegetation in the area around the mine. Diavik prepares a report on wildlife monitoring every year. This year Diavik did a comprehensive statistical analysis on the data gathered since the program began, to identify trends – it does this analysis every three years.

The process to revise the WMP, which Diavik and the other diamond mines initiated in 2008, continued this year.

3.1 WMP revisions

It has been three years since Diavik told EMAB it planned to update the WMP and over two and a half since Diavik and the other diamond mines approached ENR, EMAB and the other monitoring boards to jointly review their wildlife monitoring programs in order to:

- Increase the value of information collected while maintaining or reducing costs;
- Identify alternative monitoring approaches and address safety issues; and
- Identify opportunities for collaboration between governments and mining companies.

EMAB felt the review would be an excellent opportunity to improve the WMP and coordination between the mines. We participated actively in the review. In June 2011 Diavik informed EMAB that the process is finished. A great deal of time has passed with little to show for it. EMAB has been largely disappointed in the results, and views the process as a missed opportunity.



With the review over, the result has been less monitoring and less clarity as to the purpose of specific monitoring activities. For most species the major questions raised at the beginning of the process have not been addressed.

Looking back, the process that EMAB originally supported was abandoned within months and was changed again and again without regard to the initial intent (see previous annual reports). Although the diamond mines initiated the review they did not take responsibility for bringing the process to a clear outcome or decision point, and Diavik distanced itself from the outcomes.

- In April 2010 the mines informed EMAB and the other participants that they would organize two workshops: a technical workshop in June and a community workshop in October. The community workshop was intended to add a TK/IQ monitoring component to the WMP.

EMAB attended both workshops.

- Diavik and the other mines sponsored the workshops, contracted the facilitators and acted as the reviewers for the workshop reports. But when the reports were circulated Diavik rejected many of the recommendations. Where Diavik

supported a recommendation it did not provide any concrete action plan for implementing it.

- In June 2010 Diavik informed EMAB that it was working with individual Aboriginal Parties to develop a community engagement protocol. The protocol was supposed to set out how Diavik would engage with communities regarding many different areas, including wildlife monitoring and Traditional Knowledge/Inuit Qaujimajatuqangit . Diavik's progress on this has been very slow, further delaying any progress on development of a TK/IQ component in the WMP.

3.1.1 Lack of scientific rationale or meaningful consultation

In 2008 EMAB recommended to Diavik that it must give a scientifically defensible rationale for any proposed change to the WMP, and that Diavik must consult Affected Communities in a meaningful way before making changes. EMAB has consistently put this position forward. **In August 2009 EMAB made further recommendations about the process for changes to the WMP.** Diavik responded to these recommendations in September 2010. (See Recommendations report card at the conclusion of this report.)

Instead of following EMAB's recommendation, Diavik made a number of changes to the WMP each year through wildlife research permit applications. EMAB's previous objections are documented in the 2008-09 and 2009-10 annual reports. For 2011 Diavik has proposed more changes to the WMP and again has not provided scientific justification for them, or engaged communities in any meaningful consultation about them.

Caribou

Aerial survey methods changed in 2009 to match EKATI, and they were cancelled for 2010. Diavik is proposing to cancel the surveys in 2011 and start them again in 2012 for three years, followed by two years with no surveys.

In a joint letter with IEMA and SLEMA in December 2008 EMAB encouraged Diavik and the other mines to develop monitoring to find out why the ZOI is larger than predicted. This has not been done.

Caribou behaviour surveys changed. Diavik collects data far from both mines and EKATI collects data near the Ekati mine.

Grizzly

Grizzly monitoring was cancelled in 2009 due to safety reasons. Diavik proposed to do a two-year project to test a new method in 2010 but has proposed to cancel it in 2011 after one year.

After considering a recommendation from our expert wildlife consultant, MSES, that Diavik complete the two-year grizzly study pilot project and analyze the data collected, EMAB recommended to Diavik in May 2011:

- That DIAVIK carry out the second year of the grizzly hair-snagging pilot project in 2011, and
- That DIAVIK ensure that its grizzly monitoring addresses the environmental assessment predictions regarding the zone of influence of the Diavik mine on grizzly bear.

TK/IQ

As already noted Diavik rejected EMAB's recommendations for making progress on including TK/IQ in the WMP. There continues to be no TK/IQ component in Diavik's wildlife monitoring through 2011.

EMAB reminded Diavik of our recommendation that any change to the WMP be supported with a rationale on July 6, 2011 and noted that Diavik has not done this for changes since 2008.

EMAB has been frustrated at Diavik's lack of progress and lack of effort to find ways to include TK/IQ in the WMP and other monitoring programs. In 2010, EMAB made three recommendations to Diavik, including that the company develop a program to provide funding and support to communities to develop proposals for monitoring using TK/IQ. Unfortunately Diavik rejected this recommendation.

EMAB regrets to report that for another year Diavik has made no apparent progress in including TK/IQ in the WMP.

3.2 WMP report - 2010

Wildlife consultant MSES reviewed the 2010 WMP report for EMAB and provided its assessment of the methods and results. They have reviewed the annual WMP report for EMAB since 2004. MSES sat in on Diavik's presentation of the 2010 report to EMAB, along with invitees from the Wek'èezhii Renewable Resources Board, and federal and territorial government wildlife experts. As noted, the presentation this year included an analysis of the data collected since the program started. These Diavik reports are posted on EMAB's website at www.emab.ca.

MSES raised a number of questions and made several comments and criticisms regarding:

- the report,

- Diavik's recommendations for 2011,
- the long-term data analysis, and
- the results of the WMP revision process.

In the end MSES recommended that EMAB accept the 2010 report with the qualification that Diavik address all of the questions and comments in their review and carry out the analyses they recommend.

On July 6, 2011, EMAB requested that Diavik do this.

The MSES review made various comments regarding wildlife.

Caribou

- There were no aerial surveys in 2010.
- The analysis of aerial survey data is misleading because it doesn't take the effect of the Ekati mine into account. This is likely one of the reasons Diavik's estimates of the ZOI have such a large range (from 14 to 40 km.).
 - Diavik used their ZOI analysis to study whether the level of activity at the mine over the years affected the size of the ZOI, and didn't find any link.
- An independent analysis that took both mines into account reported a ZOI of around 14 km.
- MSES and EMAB want Diavik to re-do the ZOI analysis taking distance from Ekati into account, and then re-analyze whether the level of activity affects the ZOI.
 - MSES and EMAB would both like to see coordination of caribou aerial survey data analysis between Diavik and Ekati.
- The behaviour studies seem to show that caribou with calves spend less time feeding within 5 km of Diavik.
- The aerial survey and behaviour studies seem to show that either caribou are more sensitive than expected or mitigation measures are not as effective as hoped. Diavik has still not followed up on a recommendation from MSES and EMAB from 2008 that some kind of management response is needed from Diavik. This also applies to the behaviour results.

Vegetation

- Reduced lichen cover near mine also has implications for caribou feeding near the mine.
- Diavik has not followed up recommendations on TK/IQ studies focusing on TK/IQ holders' knowledge of caribou behaviour and assessment of caribou health.

Grizzly

- Habitat use studies were cancelled for 2009 due to safety concerns and lack of useful data to assess predictions. Diavik proposed a two-year pilot project to test a new grizzly monitoring method starting in 2010 using hair samples. This involved collecting hair from barbed wire wrapped around pyramid-shaped wooden frames.
- Diavik should analyze data from new method to ensure design will allow detection if there is a ZOI for grizzly.
- Diavik should consider analyzing hair using DNA.
- Diavik should continue the pilot project in 2011.

Wolverine

- Snow track information and DNA sampling are both providing useful information.

Falcons

- New objectives are reasonable.

Waterfowl

- No new information.

Waste management

- Again better than in 2008 but the presence of foxes and ravens have been increasing and ravens were at some of the highest levels ever.

Lack of TK/IQ in wildlife monitoring

In 2010 the Wildlife Monitoring Program still did not include any monitoring using Traditional Knowledge/Inuit Qaujimajatuqangit and no plans are presented to do so in 2011. EMAB continues to be disappointed with Diavik's progress in addressing this commitment, and lack of activity by the company to develop effective initiatives to fill this gap. Diavik has indicated several times that it is committed to including TK/IQ in its wildlife monitoring, and that communities must take the lead on this with Diavik support, but has not developed any form of program to implement these statements. EMAB has put a great deal of effort into providing options and recommendations for Diavik to follow, but they have all been rejected by the company.

EMAB continues to support the need for updating and revision of the scientific monitoring and looks forward to working with Diavik to revise and improve the WMP for 2012.

3.3 Cumulative Effects

EMAB continues to raise the issue of cumulative effects of development activities on wildlife, in relation to Diavik's contribution. As discussed above there is direct evidence of a cumulative effect of Diavik and Ekati on caribou.

NWT and Nunavut barren-ground caribou herds have shown a continuing drop in numbers over the last few years, ranging from 40 – 86%. The most recent information for the Bathurst herd is that there were about 32,000 in 2009, compared to an estimated 472,000 in 1986. Many possible causes have been suggested:

- Over-hunting;
- Wolf kills;
- Effects of climate change;
- Overgrazing and range deterioration;
- Industrial and other projects; and
- The winter road.

These drops in the numbers of Bathurst and other caribou herds are a huge concern for Affected Communities and this issue comes up frequently during EMAB community meetings.

These are part of the larger question of cumulative effects on caribou and other wildlife. EMAB had hoped that the recent initiative to revise the diamond mine WMPs would help to address cumulative effects, but this does not appear to have happened.

ENR initiated a study to model cumulative effects on the Bathurst caribou in 2007-08. The model was intended to predict the effects of development, including Diavik, and natural change on caribou, and was to incorporate Traditional Knowledge/Inuit Qaujimagatuqangit . A demonstration project was started but most of ENR's efforts have gone into caribou management since the herds have been declining. The results are limited because they are largely driven by satellite collar information and there are very few collared caribou (nine in February 2011). It is very difficult to pick out the effect of individual mines. They do see some avoidance of active mines.

EMAB has taken the position that cumulative effects monitoring of wildlife is the responsibility of ENR and INAC, and that they should take the lead in setting standards for monitoring as well as bringing together and analyzing existing data and developing study designs to fill gaps such as monitoring of the winter road.

EMAB continued to state the need for ENR and INAC to address cumulative effects monitoring on effects of development on caribou and other wildlife. We raised this issue during meetings between ENR and the diamond mines regarding improving the WMPs, and are hopeful that this collaboration may be a step in the development of guidelines for wildlife monitoring.

EMAB has been planning a workshop on cumulative effects on the Bathurst caribou to address this issue but our budget limitations make it likely that EMAB will have to find additional sources of funds to carry this out.

4. Air

Dust and Air Quality

Diavik made some progress this year in addressing EMAB and community concerns about environmental effects of dust and air emissions, particularly on wildlife and the vegetation eaten by wildlife. The pace continues to be slower than EMAB believes is reasonable and we have strongly encouraged Diavik to put more effort into meeting its commitments for air quality monitoring.

4.1 Dust monitoring

Diavik's dust monitoring continues to show that the mine is producing more dust than predicted (up to ten times more in some years), although it appears to be decreasing at this time. Diavik is trying to reduce dust by watering roads more and other dust control methods, but based on the dust monitoring results more may need to be done.

EMAB first expressed concerns about Diavik's dust monitoring methods in 2005 because they are not using standard methods. In 2007 Diavik set up two dust gauges next to two existing gauges and monitored those using standard methods to compare the results with the system they've been using all along. The results seem to show that Diavik's method gives quite different results from standard methods but it has removed the test gauges and has not made any changes to the program.

EMAB will raise this issue during the AEMP design review process in 2011 and we are hopeful that this problem can be resolved.

4.2 Air quality monitoring

In September 2006, following strong encouragement from EMAB, Diavik stated it planned to work on its air quality monitoring, with the first step being an update of its air dispersion model. In November 2006 EMAB recommended that Diavik proceed with development of the program.

Despite assurances from Diavik, there was still little progress on the program between 2006 and 2010. EMAB discussed the issue with Diavik at our May 2010 meeting, and **in June 2010 EMAB made a recommendation to Diavik that:**

DIABIK complete the air dispersion model, in consultation with Environment Canada and Environment and Natural Resources staff, no later than November 19, 2010, and submit a draft Air Quality Monitoring Program as per EA clauses 7.1 and 7.2 to EMAB and the Parties for review no later than May 19, 2011.

After receiving EMAB's recommendation Diavik committed to meet the deadlines. EMAB has worked with technical staff from EC and ENR to move this work along and continue to follow up. We have received updates from Diavik at every EMAB meeting and have sent regular reminders of Diavik's comments regarding an Air Quality Monitoring Program (AQMP). We also attended a meeting in March 2011 with Diavik, EC and ENR to discuss next steps.

EMAB was disappointed that Diavik's written responses did not accept that the current dust monitoring program does not meet the EA requirements for an AQMP that fulfils the commitments Diavik made in the Environmental Assessment. Diavik has said it will continue to finalize the air quality model and will make a decision about the scope of the AQMP after completing the model.

After considering Diavik's position EMAB wrote the Minister in February 2011 requesting an investigation under EA section 5.4(a) and 7.5(a) to determine whether Diavik was out of compliance with the Environmental Agreement. The Minister can require Diavik to make the needed changes to the plan. The Minister indicated that INAC would review Diavik's response before making any decisions to proceed with an investigation.

EMAB is disappointed that Diavik has not met the deadlines set out in our recommendation from May 2010. It is still in the final stages of completing the dispersion model – over eight months late already - and has not yet submitted a draft AQMP.

EMAB continues to raise this issue and will follow up with the Minister regarding Diavik's lack of compliance with the EA and the need for investigation.

4.3 Lichen monitoring

EMAB has continued to raise the issue of the effects of dust and air emissions from the mine on the vegetation around the mine, especially as food for wildlife. EMAB held discussions with ENR staff about ways to study these effects and provided information to Diavik to be used in follow up lichen monitoring studies.

At our May 2010 meeting Diavik informed the board that it planned a follow up lichen study in August to determine whether Diavik's emissions were affecting lichen near the mine. Diavik's plan was that if lichen near the mine were being affected a follow-up study would be done to find out how far it reached. EMAB requested the opportunity to review the study methodology but did not receive any information until after the study had taken place.

Diavik released the study report in spring 2011. It showed that the mine emissions had an effect on nearby lichen and that 17 of 21 metals analyzed were higher near the mine. The study included a risk assessment that concluded that there would be no health effects on caribou eating lichen near the mine even if they stayed in that area year round. The study notes that the toxicity of the metals has been tested in lab animals but not in caribou or other northern wildlife, so there is some uncertainty about the effect the contaminated lichen might have. EMAB plans to have an independent consultant review Diavik's study and conclusions.

Diavik's consultant has recommended the study be repeated every two years to see if there are any increases in the amount of metals in lichen.

Reports in review as of March 31, 2011

Report Description	Date Submitted	TO
Reports in review as of March 31, 2011		
Design Specs & Monitoring Plans - Fish Habitat Compensation		
Streams (draft)	April 14/03	DFO
West Island Stream	April 22/04	DFO
Lakebed sediment, water quality & benthic invertebrate study - A418 (yr 1) & A154 (yr. 3)	May 15/07 2007	DFO DFO
Options to monitor ionized ammonia toxicity	Nov 20/08	WLWB
Proposed changes to SNP	Nov 24/09	WLWB
NIWTP operation plan - ver 1	Oct 1/10	WLWB
Interim Closure and Reclamation Plan (ver 3.1)	Dec 31/10	WLWB
Water Management Plan ver 9	Jan 3/11	WLWB
Aquatic Effects Monitoring Program Tech. Report-10	March 31/11	WLWB
Water Licence report 2010	Mar 31/11	WLWB
Hazardous Materials Management Plan v.15	March 31/11	WLWB
Operations Phase Contingency Plan v.15	March 31/11	WLWB
Waste Rock Management Plan ver 6	Mar 31/11	WLWB
Sewage Treatment Plant Operations Plan - rev F	Mar 31/11	WLWB
Reports approved in 2010-11 or not requiring review		
Aquatic Effects Monitoring Program Tech. Report-09	May 5/09	WLWB
Water Management Plan ver 8	Dec 31/09	WLWB
Sewage Treatment Plant Operations Plan (rev)	Mar 31/10	WLWB
Water Licence report 2009	April 1/10	WLWB
Hazardous Materials Management Plan v.14	April 1/10	WLWB
Operations Phase Contingency Plan v.14	April 1/10	WLWB
Dam safety inspection report	Oct 26/10	WLWB
2009 Environmental Agreement Annual Report	Nov 19/10	DIAND
PKC operation plan - ver 2	Jan 7/11	WLWB
Dike inspection reports (A154, A418, NI)	Feb 18/11	WLWB
Wildlife Monitoring Report	Mar 31/11	ENR/EMAB

Work plan for 2011-2012

EMAB's priorities for 2011-2012 are:

EA Implementation

- Develop a budget that follows the terms of the arbitrator's decision on the funding dispute, and work out a mutually agreeable process for future budgets with Diavik.
- Address recommendations of independent review of Party satisfaction with implementation of the Environmental Agreement (EA), and keep Parties informed.
- Continue to implement the strategic plan, including an annual review.
- Continue to implement the communications plan, including an annual review, and continue to improve communications.
- Continue to pursue development of a work plan for EA implementation that includes cooperative activities with Diavik and other Parties as appropriate.

Oversight and monitoring

- Review and assess environmental effects monitoring reports on the Diavik mine, while focusing on issues surrounding wildlife, particularly caribou, fish, water and air quality.
- Participate in the review of version 3.2 of Diavik's revised Interim Closure and Reclamation Plan.
- Develop further capacity in reclamation and closure related to Diavik.
- Actively participate in review of Diavik's AEMP summary report and three-year AEMP design review, including a technical review
- Actively participate in review and revision of Diavik wildlife monitoring program, including the mine's contribution to cumulative effects on wildlife.
- Follow up the WMP revision process to ensure all current issues are addressed adequately: use of TK, caribou monitoring, grizzly monitoring and wolverine monitoring.
- Organize a workshop with community participants on monitoring air quality, including effects on wildlife.
- Continue to pursue Diavik to develop an Air Quality Monitoring Program, including following up EMAB's request to the Minister to investigate whether Diavik is out of compliance with this part of the EA.
- Comprehensively review Diavik's Air Quality Monitoring Program when it is made available.
- Carry out a technical review of Diavik's lichen study and risk assessment
- Participate in review and design of the WLWB Response Framework, and Diavik's revised plan when ready.
- Monitor regulators to ensure plans and programs are thoroughly reviewed and necessary follow-up is done.

- Develop and enhance report cards on the state of the environment at the mine and the success of Diavik and the regulators in managing and monitoring the environment.
- Continue to carry out technical reviews in areas of higher priority (water quality, wildlife, fish, air quality).

Aboriginal involvement in monitoring

- Continue emphasizing the need for greater Aboriginal involvement in monitoring at Diavik, including follow up on recommendations from 2007 Aboriginal Involvement workshop and 2010 Environmental Agreement review/workshop.
- Organize a workshop of Parties and community participants to discuss the EA provision for a Traditional Knowledge Panel and receive feedback from communities on their vision for the Panel.
- Follow up our recommendations regarding use of Traditional Knowledge in monitoring and continue to identify the need for use of Traditional Knowledge in Diavik's monitoring programs and management plans.
- Support communities that wish to develop monitoring studies using Traditional Knowledge.
- Build capacity (skills and knowledge), increase awareness and support meaningful participation of Aboriginal Peoples in environmental monitoring activities related to Diavik.
- Continue to implement revised capacity building program; assess the results of removal of the requirement for proposals.

Closure and reclamation – EMAB made this area a priority in our strategic plan. We participated in all appropriate aspects of the review process for version 3.2 of Diavik's draft Interim Closure and Reclamation plan submitted to the Wek'èezhii Land and Water Board in December 2010. Now that the WLWB has sent the revised draft plan back for revision EMAB will dedicate the necessary resources to thoroughly reviewing the second version of the revised draft, including contracting technical expertise to assist us in the review and making this information available to Parties to the EA.

EMAB intends participate in the workshop on community engagement for closure planning proposed by the WLWB for 2011-12.

Aboriginal Involvement – EMAB will continue to follow up on recommendations to Diavik on improvement of involvement of Aboriginal people in all aspects of monitoring and on coordination of various organizations responsible for training in environmental monitoring. We will keep raising the issue of participant funding as a necessary means for meaningful participation of Aboriginal Parties in public review processes.

Traditional Knowledge – EMAB will follow up our last year’s recommendations regarding necessary steps to include TK/IQ in environmental monitoring. EMAB made this a priority issue in our strategic plan, as per the review of Party satisfaction with implementation of the EA highlighting: the concern among most Parties that Diavik’s commitments regarding use of TK in monitoring are not being met. EMAB will host a workshop on development of a Traditional Knowledge Panel under the EA to receive community input on the value of the Panel, and its role and structure.

Monitoring – EMAB will continue to work with regulators to ensure timely, rigorous review for environmental management plans, environmental monitoring programs and reports, while making sure that documents submitted by Diavik are of the highest possible quality. We continue doing technical reviews of monitoring programs and reports and management plans as needed. We continue to be concerned at the lack of progress on cumulative effects monitoring on wildlife, particularly the Bathurst caribou, and will work to find ways to make progress. We also plan to work on improving our report cards on the state of the environment at the mine, and to develop an approach to reporting on the success of Diavik and the regulators.

We continue will continue to work to ensure that Diavik in develop an Air Quality Monitoring Program (AQMP). We will follow up our letter to the Minister requesting an investigation of whether Diavik is out of compliance with the EA with respect to its commitment to an AQMP. EMAB has set aside funds to do a technical review of a draft AQMP once it is prepared.

Diavik is required to do a summary AEMP report in 2011 integrating all the information collected under the AEMP, followed by an AEMP design review. EMAB will review the documents, including a detailed technical review by our aquatic consultants.

Communication – EMAB will continue to provide updates on environmental monitoring of the Diavik mine to communities through Board members, and target at least one public meeting in each community to review environmental monitoring results, answer questions and hear community concerns. Where possible we will do group community updates along with Diavik and regulators. We will continue to implement the Communication Plan. The communication coordinator will also assist in communicating complex issues to communities and in making sure that EMAB hears, understands, and addresses community concerns. EMAB will also produce a newsletter and, when required, plain language summaries of key documents, and update our website regularly.

EMAB will continue to monitor Diavik’s community engagement protocol and report back to Parties on any progress.

Capacity Building – EMAB will continue to implement our revised capacity funding program to support Affected Communities in participating in monitoring the Diavik project, while reviewing its effectiveness. EMAB’s communication coordinator will provide additional support to Aboriginal Parties in developing and carrying out projects to build monitoring skills and knowledge in Affected Communities.

Relationship Building – We will continue to hold meetings that bring together regulators that deal with the Diavik file. These meetings help everyone understand each other’s roles and help resolve issues.

Strategic plan – We will continue to implement and update our strategic plan through our work planning and activities and ongoing evaluation.

No Net Loss – we will monitor the development of detailed designs for projects to replace fish habitat, and the construction and effects of the projects over the long term.

Organizational Development – The Board will continue to work on its procedures and review bylaws and policies to improve efficiency and effectiveness. EMAB holds annual governance workshops to review our performance and transfer knowledge to more recent board members.

EMAB expects to hold six Board meetings over the coming year and plans to continue rotating meetings in the Affected Communities. EMAB will continue to use Board teleconferences; these offer greater efficiency for routine items as well as improving cost efficiency and reducing time demands on Board members.

Budget 2011-2012

Administration 67,650

Capital Cost 3,000

Management Services 288,350

Board and committees 142,000

Community Engagement 15,000

Capacity Building 50,000

Projects 165,000

Contingency 0

Total 731,000

What happened?

(The following is an update on previous recommendations.)

EMAB recommends that DDMI proceed with development of its proposed air quality monitoring program. DDMI should also state which pollutants it proposes to include in its air quality monitoring program and should make best efforts to coordinate with air quality monitoring at the Ekati mine so that data is compatible and comparable. (from November 2006)

Diavik's Air Quality Monitoring Program is still not in place, and the first step of developing a new air dispersion model has not been completed.

Recommendations related to management of DDMI's water licence – these recommendations are documented in the water section of previous annual reports and include the need for: participant funding, and a process for amendment of licence between hearings. (from February 2007)

Participant funding continues to be an unfulfilled objective for EMAB and we will continue to pursue this as appropriate.

EMAB continues to be hopeful that a process for amendment of water licences between hearings will be developed by MVRMA working groups.

EMAB made a number of recommendations about Aboriginal involvement in monitoring in early 2008, in follow up to our workshop with community participants on this topic. DDMI responded about 13 weeks after the 60 day deadline (from February 2008):

In order to improve levels of Aboriginal involvement in the design of its monitoring programs Diavik should present these programs at public meetings in communities. Diavik should prepare for the presentations by translating the WEMP and AEMP Program Design documents into plain language with lots of graphics making sure they clearly explain the intent of the programs – along the lines of the AEMP summary presented at the March 2007 AEMP preparatory workshop. These presentations should also address the Environmental Agreement commitments for monitoring, and the ways the programs meet these commitments. There should be a number of presentations/workshops over time focusing on specific topics, such as caribou, rather than trying to review all the

monitoring programs at one time. The design review should include ways to incorporate TK/IQ into the monitoring programs. EMAB encourages Diavik to make best efforts to ensure youth are involved in these presentations/workshops.

Diavik informed us that they did not expect the scientific components to change and that the CBM camp would focus on TK. The CBM camp program no longer exists. They stated that since the communities hold TK they should implement TK monitoring programs, with EMAB support; however Diavik has provided minimal support to assist communities to develop or carry out monitoring programs using TK. Diavik has not yet presented details of its monitoring programs to communities. Diavik is now in the second year of developing a community engagement protocol that it hopes will address the best way for it to work with each community on TK (see EMAB comments in section 3.1).

As part of its efforts to put greater emphasis on inclusion of TK in its monitoring programs Diavik should:

- *review the Inuit curriculum developed by the Government of Nunavut and the Dene curriculum developed by the GNWT for potential inclusion of TK/IQ into their monitoring programs.*
- *arrange for Diavik staff to go on the land with elders to observe and exchange information about how each group monitors water quality. This could be done through the Diavik Community Based Monitoring camp or a similar forum. The intent is to give Diavik staff a better understanding of TK/IQ as it relates to water so they can more effectively work with elders and EMAB to include TK/IQ in the aquatic effects monitoring program while giving elders a better idea of the monitoring Diavik does.*
- *have a TK specialist on staff / contract to help in improving the inclusion of TK in monitoring.*

In addition an inventory of TK/IQ research papers and reports regarding water should be undertaken. A partnership approach, such as WKSS, might be the best way.

Since this recommendation was made in early 2008 Diavik approached the community of Lutsel K'e in February 2010 with an offer of funds to develop a proposal to use TK for monitoring but EMAB is not aware of this resulting in a proposal. The Tlicho Government has had discussions with Diavik about a TK monitoring program but EMAB is not aware of any tangible outcome. EMAB is not aware of Diavik approaching any other communities. In December 2009 Diavik stated it would not support a proposal developed by EMAB and communities to monitor wildlife and fish using TK.

Most recently Diavik rejected an EMAB recommendation to develop a program to assist communities to prepare and implement proposals for monitoring using TK.

The lack of inclusion of TK in Diavik's monitoring programs was identified by most Parties during the recent review of EA implementation as their highest priority concern.

EMAB recommends that the first presentations Diavik should take to communities be on the recently approved AEMP.

Diavik presentations during group updates have not provided details of the AEMP. EMAB is not aware of any other presentations Diavik has made on the AEMP to communities.

EMAB recognizes that Diavik does good scientific monitoring work, such as on caribou, and recommends Diavik find ways to involve more Aboriginal people, particularly youth, in this monitoring. Diavik committed in the EA to make best efforts to provide for the involvement of members of each of the Aboriginal Peoples in its monitoring programs including giving priority to members of each of the Aboriginal Peoples in training and employment, and particularly providing technical training opportunities for youth. EMAB recommends that Diavik develop and implement a strategy to improve their success in meeting this commitment. EMAB also recommends that Diavik develop programs to provide for youth and elders from each of the Aboriginal Peoples to observe and participate in Diavik's environmental monitoring.

Diavik gives priority to Aboriginal people for hiring for environmental monitoring positions, including training positions for youth, and has participated in meetings to improve training for environmental monitoring. They are working toward having all staff certified under the GNWT environmental monitor certification program. EMAB is not aware of any other actions Diavik has taken to improve the success in involving members of each of the Aboriginal Peoples in its monitoring programs.

EMAB recommends that one or more of the Parties to the Agreement immediately initiate Article 16 of the Environmental Agreement "Resolution of Disputes" by delivering notice in writing to DDMI that its contribution for 2009-10 is in dispute, and that its interpretation of EA (4.8)(g) is also in dispute; and

EMAB recommends that DDMI, the disputing Party(s) and EMAB enter into mediation as soon as possible with the intent of resolving the dispute before the 60-day deadline set out in section 16.2 of the EA (from February 2009)

The dispute over DDMI's contribution has been settled following an initiative by INAC and GNWT in mid-2010.

EMAB recommends that Diavik's revision of its Wildlife Monitoring program:

- *Be designed to fulfil Diavik's commitment in the Environmental Agreement to use its best efforts to involve members of each of the Aboriginal Peoples in Environmental Monitoring Program design (EA 7.6(a))*
- *Be designed to fulfil Diavik's commitment in the Environmental Agreement that the Environmental Monitoring Programs consider Traditional Knowledge (EA 7.1(d))*
- *Address relevant recommendations from EMAB's June 2007 Aboriginal Involvement workshop conveyed to Diavik in February 2008*
- *include a pre-consultation session with EMAB and participants from the Aboriginal Parties to provide input on the best way to present the information to the Affected Communities and receive and address their input*

(from August 2009)

Diavik responded to these recommendations in September 2010. For further information on the status of revisions to the WMP.

EMAB recommends that DDMI engage communities in discussion to determine if the plain language summary of the EAAR is satisfactory and to determine how best to present the information in the EAAR to the community. (From December 2009)

In January 2011 Diavik informed EMAB that it intended to consult communities regarding the plain language summary. In April 2011 Diavik wrote to each Aboriginal Party requesting feedback on the plain language summary.

Recommendations Report Card

A – good; B – fair; C – meets minimum standards; D - unacceptable

Recommendation	To	Timely Response	Satisfactory Response
<p>EMAB recommends that DDMI complete the air dispersion model, in consultation with Environment Canada and Environment and Natural Resources staff, no later than November 19, 2010, and submit a draft Air Quality Monitoring Program as per EA clauses 7.1 and 7.2 to EMAB and the Parties for review no later than May 19, 2011.</p> <p>(sent June 14/10)</p>	DDMI	D – response was 30 days late	D – Diavik gave assurance that it would meet EMAB’s recommended deadlines. But at March 31, 2011 Diavik had not completed the dispersion model.
<p>EMAB encouraged DDMI to continue and enhance its efforts to work with communities to develop TK/IQ components for both the Wildlife Monitoring Program and the Aquatic Effects Monitoring Program, and provided a number of recommendations that we believe are required for further progress:</p> <ul style="list-style-type: none"> • EMAB recommends that within six months DDMI develop a program to provide funding to Aboriginal Parties for development and implementation of proposals for monitoring using TK/IQ, in consultation with EMAB and the Aboriginal Parties to the EA. The program should include access to TK/IQ gathering expertise for communities that wish to use it in developing proposals, or in seeking advice in carrying out the monitoring. DDMI should target to have a full program description prepared by March 2011. EMAB also recommends DDMI contract TK/IQ gathering expertise to assist it and the Aboriginal Parties in developing the program. 	DDMI	A – Diavik sent a letter of response on Nov 23/10	<p>D – Diavik’s letter did not respond to EMAB’s recommendations.</p> <p>EMAB followed up and Diavik accepted EMAB’s recommendation for a literature review and rejected the others without adequate reasons.</p>

<ul style="list-style-type: none"> • EMAB recommends DDMI carry out a thorough literature review to document existing baseline TK/IQ information on the Lac de Gras region by August 2011. EMAB also recommends DDMI contract TK/IQ gathering expertise to assist it and the Aboriginal Parties in documenting this information. • EMAB recommends DDMI contract TK/IQ gathering expertise to assist it and the Aboriginal Parties to collaboratively develop a TK research plan. (sent Oct 4/10)			
EMAB recommends that DDMI ensure sufficient resources are dedicated to the preparation of the Environmental Agreement Annual Report to meet the submission date of June 30 of each year as prescribed by the Minister. (sent Jan 12/11)	DDMI	A – response received January 18/11	A - Diavik gave EMAB full assurance they would dedicate sufficient resources to the EAAR in future years.

According to the Environmental Agreement (Article 4.3), the Minister of DIAND, Diavik, or any other Party to the EA must respond within 60 days after receiving a written recommendation from EMAB.

Any response must be given “full and serious consideration” and an attempt made to implement the recommendation the best way possible, or a written reason must be given explaining why it is not possible.

Article 4.4 states that the Minister of DIAND will encourage regulatory authorities to comply with the above if they receive a recommendation from EMAB.

Abbreviations

AEMP Aquatic Effects Monitoring Program
AdMP Adaptive Management Plan
AGM Annual General Meeting
CEAMF Cumulative Effects Assessment and Management Framework
CIMP Cumulative Impacts Monitoring Program
CSR Comprehensive Study Report
DDMI Diavik Diamond Mines Inc.
DFO Department of Fisheries and Oceans
DTC Diavik Technical Committee
EA Environmental Agreement
EC Environment Canada
EMAB Environmental Monitoring Advisory Board
ENR Environment and Natural Resources
GN Government of Nunavut
GNWT Government of the Northwest Territories
ICRP Interim Closure and Reclamation Plan
IEMA Independent Environmental Monitoring Agency
INAC Indian and Northern Affairs Canada
KIA Kitikmeot Inuit Association
LKDFN Lutsel K'e Dene First Nation
MVEIRB Mackenzie Valley Environmental Impact Review Board
MVLWB Mackenzie Valley Land and Water Board
NSMA North Slave Metis Alliance
SLEMA Snap Lake Environmental Monitoring Agency
TG Tlicho, Government
TK/IQ Traditional Knowledge/ Inuit Qaujimajatuqangit
WMP Wildlife Monitoring Program
WLWB Wek'èezhii Land and Water Board
WRRB Wek'èezhii Renewable Resources Board
YKDFN Yellowknives Dene First Nation

What does it mean? - Definitions

Aboriginal Parties/Aboriginal Peoples: means the Tlicho Government, the Lutsel K'e Dene First Nation, the Yellowknives Dene First Nation, the North Slave Métis Alliance and the Kitikmeot Inuit Association.

Adaptive Environmental Management: is a way to manage the environment by 'learning by doing.' We expect plans will need changes. These are important steps: • Admit doubt about what plan or action is "best" for the issue.

- Thoughtfully select the plan or action to be taken.
- Carefully carry out the plan and action.
- Keep an eye on key results.
- Study the results with the original objectives in mind.
- Include the results in future decisions.

Affected Communities: means Behchoko, Whatì, Wekweètì, Gametì, Łutselk'e, Dettah, Ndilo, and Kugluktuk.

Baseline: means all the facts, numbers and information that were collected about the Lac de Gras area before Diavik started construction. Facts, numbers and information are being collected all the time and will be compared with the baseline to see if there are any changes to the environment of the Lac de Gras area.

Compliance: means following all the rules and regulations, laws and legislation, as well as following through on commitments.

Cumulative Effects: means the effects on the environment that increase, when the effect of one action is added to other actions. Cumulative effects can be the result of small, individual actions, that when looked at all together become more important over a period of time or in a whole region.

Environmental Quality: means the state of the environment of an area at any time compared with its natural state. This includes biological diversity and ecosystem structures and process.

Mitigation: means the choices possible to lessen or get rid of harmful environmental effects. There are three basic choices:

- get rid of the problem by using other sites, locations or operating conditions;
- lessen the problem by using other sites, locations or operating conditions; or
- make up for the problem by remediation, replacement or payments in cash or kind.

Possible mitigation can include the requirement of additional measures or actions, which can be funded or implemented independently of the main project.

Monitoring: means keeping an eye on the actual operation and comparing it to what was planned or what was expected to happen. Monitoring generally involves collecting and analyzing information and if a problem is discovered, fixing it.

Reclamation: means the way that lands disturbed because of mining are cleaned up. Reclamation can include: taking out buildings, equipment, machinery and other physical leftovers of mining, closing processed kimberlite containment areas, leach pads and other mine features, and contouring, covering and revegetation of waste rock piles and other disturbed areas.

Security: means the money that Diavik gives to DIAND as assurance that it will clean up the mine site in an acceptable way after the mine closes.

Sustainable Development: Makes sure that the land our children will use is as healthy and rich as the land we have now. It means not doing harm to the environment that we can't fix, or use up resources our children will need. Sustainable actions are not wasteful, do not have unreasonable costs and are right for society, as well as respect cultures.

Precautionary Principle: means stopping harm from happening to the environment or human health if there is a good reason to think it might happen. Not knowing all the scientific causes and effects of the situation is not a reason to allow possible damage.