

**BHP Billiton Canada Inc.**  
Operator of the EKATI Diamond Mine

BHP Billiton  
#1102 4920-52<sup>nd</sup> Street  
Yellowknife NT Canada X1A 3T1  
Tel 867 669 9292 Fax 867 669 9293  
bhpbilliton.com

**January 11, 2012**

Ms.T. Merrithew-Mercredi  
Regional Director General-NT Region  
Indian and Northern Affairs Canada  
PO Box 1500  
Yellowknife NT, X1A 2R3

Dear Ms. Merrithew-Mercredi

**Re: BHP Billiton's 2010 Water Licence/Environmental Agreement Annual Report**

BHP Billiton is pleased to provide responses to the comments and recommendations made by reviewers of BHP Billiton's 2010 Water Licence and Environmental Agreement Annual Report for the Ekati Diamond Mine.

This letter and attached table are provided to review each comment/recommendation made and to outline BHP Billiton's response.

BHP Billiton would like to thank all who participated in the review, and looks forward to incorporating the ideas and suggestions to improve future reports.

Should there be any further questions or comments please do not hesitate to contact the undersigned.

Sincerely,

**BHP Billiton Canada Inc.**



Richard Morland  
Head of HSEC  
BHP Billiton Canada Inc.  
Ekati Diamond Mine  
(867) 766-6156  
[Richard.L.Morland@bhpbilliton.com](mailto:Richard.L.Morland@bhpbilliton.com)

*Attachments:*

1. BHP Billiton Canada Inc. Response Table to Reviewer Comments

cc. Gavin More, Environment and Natural Resources, GNWT  
Bill Ross, Chairman, Independent Environmental Monitoring Agency  
Laura Duncan, Tlicho Government  
Chief Antoine Michel, Lutsel K'e Dene First Nation  
Mike Tollis, Lutsel K'e Dene First Nation  
Chief Ed Sangris (Dettah), Yellowknives Dene First Nation  
Chief Ted T'sella (N'dilo), Yellowknives Dene First Nation  
Todd Slack, Yellowknives Dene First Nation  
Bill Enge, President, North Slave Metis Alliance  
Sheryl Grieve, North Slave Metis Alliance  
Charlie Evalik, President, KitikmeotInuit Association  
Geoff Clark, KitikmeotInuit Association  
Donald LeBlanc, Hamlet of Kugluktuk  
Lisa Lowman, Environment Canada  
Bruce Hanna, Fisheries and Oceans Canada  
Lionel Marcinkoski, Aboriginal Affairs and Northern Development Canada  
Jason Brennan, Aboriginal Affairs and Northern Development Canada  
Violet Camsell-Blondin, Chairperson, Wek'eezhii Land and Water Board

**Ekati Diamond Mine 2010 Water Licence/Environmental Agreement Annual Report**  
**BHP Billiton Canada Response to Reviewer Comments**



Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
<b><i>Environment and Natural Resources (ENR)</i></b>				
1	ENR-1	Compliance reports with respect to the water license, the surface leases, the land use permits and other regulatory instruments,	In addition to the section "actions taken or planned to address impacts or compliance problems which are set out in the Annual Report", Section 5.1 notes that the Water License Annual Report provides details on compliance, however, it is suggested that perhaps subsequent EAAR's contain a section highlighting the inspections conducted throughout the year.	The Environmental Agreement section of the report (p.29) refers the reader to the WLWB where the AANDC (formerly INAC) inspection reports are publically available. BHP Billiton agrees that a section highlighting the AANDC inspections conducted throughout the year would be useful for readers.
2	ENR-2	Summary of operational activities during the reporting year;	It is suggested that further details could be included, for example, highlighted undertakings of monitoring programs (SNP, AEMP, wildlife, etc.), construction project activities.	This section requires a summary of the operations related to the mining and processing of Kimberlite ore and the operation of the camp facilities. This provides the reader an overview of the main mine related activities. Summaries of the monitoring programs and construction activities can be found as follows: - Monitoring program highlights can be found in the Environmental agreement section of the report (and related appendices). - Construction activities can be found in the Water Licence section of the annual report (What section??).
3	ENR-3	Summary of operational activities for the next reporting year	Details could be expanded upon including the inclusion of proposed construction activities.	BHP Billiton feels that this section is most appropriate to outlining its operational activities relating to mining. Construction activities are summarized on page 18 in the annual report.

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
<b>Independent Environmental Monitoring Agency (IEMA)</b>				
4	IEMA-1		<i>Page 6 (2010 Water and Waste Summary Figure) might be expanded to include solid waste and incineration.</i>	Information related to solid waste that is shipped off site is presented in Table 17 of the Annual Report. The volume of landfill waste is estimated by periodic surveys, however the mass is not measured. Data related to the mass of waste incinerated is currently not measured; however, when the new incinerators are operational, waste incinerated will be measured.
5	IEMA-2		<i>Page 8 describes several internal and external audits and certifications of Ekati. In past reports there has been some description of the findings and improvements made by BHPB and this should be continued. This would go some way towards evaluating BHPB's adaptive management system as required by the Environmental Agreement (s. XX).</i>	BHP Billiton's external certifications (e.g. ISO 14001, ISO 9001) are only awarded after verification and surveillance by an external, independent auditing agency. These audits are designed to ensure compliance with the certification standards and ensure BHP Billiton is continually improving its systems and processes. BHP Billiton feels that to ensure impartiality of the audits and mechanism for continual improvements, that audit reports will not be published.
6	IEMA-3		<i>Page 13 (Waste Discharged to Containment Facility), some explanation of the huge variation in mine water pumped to the LLCF and King Pond would be helpful to understand the range and seasonal differences.</i>	Agreed. The reader would benefit from a brief explanation of pumping rates, both in relation to source and season variation.
7	IEMA-4		<i>Page 18 references the Life of Mine Plan found in figure 5 but there is no statement regarding any changes or variations to this important planning tool such as the dropping of the Sable development.</i>	BHP Billiton updates its Life of Mine Plan on an annual basis to ensure changes in operational and market conditions are taken into account for mine planning. It is agreed that a brief discussion on changes (updates) to the Life of Mine Plan would be useful.

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
8	IEMA-5		<i>Page 22 mentions the three-year AEMP review but does not outline what changes were agreed to by the Wek'eezhii Land and Water Board (WLWB). A bulleted list of the changes would have been helpful.</i>	BHP Billiton will consider this comment for future Annual EA and WL Reports in regards to material changes in monitoring program methodologies.
9	IEMA-6		<i>Page 24 describes spills and follow-up actions but there is no mention of the Fay Lake spill monitoring program and report submitted in 2010 by BHPB. The Fay Bay monitoring is briefly described on page 32 and could be referenced here.</i>	The unplanned release of Processed Kimberlite onto Fay Bay occurred in the winter of 2008 and was not discussed in this section of the 2010 EA and WL Annual Report. Clean-up activities successfully completed in 2008 resulted in the removal of most of the Processed Kimberlite from the ice surface and from the affected slopes. The 2010 Fay Bay monitoring program was intended to compare specific parameters with baseline conditions (water quality, benthic, phytoplankton, zooplankton) and identify any long-term issues. BHP Billiton released the summary report in August 2011 (EKATI Diamond Mine 2010 Fay Bay Monitoring Program) and considers the monitoring program to be complete.
10	IEMA-7		<i>Pages 29-30 contain a Compliance Report for the Ekati regulatory instruments but there are no details other than referring the reader to other inspection reports. There could be a list of inspections provided with a summary of any corrective actions recommended.</i>	See comment 1 (ENR-1)
11	IEMA-8		<i>Page 29, the surface leases were issued under the Territorial Lands Act. It would be helpful to have some details on the applicability of the Federal Real Property Act to these dispositions.</i>	The Federal Real Property/Immovables Act, does not apply to these surface leases. They are issued under the authority of the Territorial Lands Act and Regulations. This statement was confirmed by AANDC Lands Administration staff.

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
12	IEMA-9		<i>Page 31 discusses the results of further hydrocarbon sampling studies which are to continue in 2011 but no details for this work are provided.</i>	Summary results of the 2010 hydrocarbon sampling were provided in the report. No trends were identified. In 2011 hydrocarbon testing in water samples taken downstream of the Long Lake Containment Facility was completed to increase confidence in the observations to date.
13	IEMA-10		<i>Page 31 deals with the nitrate issue in the LLCF but BHPB's adoption of the IPS as a discharge criterion is not discussed, even though this is above the CCME guideline.</i>	One component of BHP Billiton's adaptive management plan for nitrate that is on-going is the identification of an appropriate management level for nitrate. A management level is needed to confirm that EKATI is safely releasing water from the LLCF. The risks for nitrate in water are not as well understood as for some other water quality parameters. This general uncertainty about nitrate risks led BHP Billiton to undertake a conservative and cautious approach to identifying a management level. To date, BHP Billiton has based its management level on the most current receiving water quality guidelines published by government. This may change in the future as more information becomes available about the risks of nitrate in water. BHP Billiton also conducts a comprehensive Aquatic Effects Monitoring Program (AEMP) to ensure changes downstream are detected.

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
14	IEMA-11		<p><i>Page 31, the wolverine hair snagging program is mentioned but there is no mention of the completeness of the post placement given that it was a low snow year and how this might affect the results. There is no mention of the grizzly bear hair snagging test program that was conducted Sept 2010.</i></p>	<p>The reporting period for the 2010 Wildlife Effects Monitoring Program (WEMP) was October 01 2009 to Sept 30, 2010. The 2011 Wolverine Program was conducted in March/April 2011 and has not been reported upon yet. Low snow conditions were experienced during the 2011 Wolverine Program, however Wildlife Technicians were able to still access large portions of the study area by diligent route planning. In places where access was not possible due to impassable conditions, the post locations was moved.</p> <p>Appendix K only contains the Executive Summary of the 2010 WEMP, whereas the complete report is available separately. Details of the 2010 Grizzly bear program were described in Section 6.3 of the full 2010 WEMP Annual Report. This phase was only intended to provide logistical and program information/experience. 8 plots were put out and no DNA analysis was conducted on the samples recovered.</p>
15	IEMA-12		<p><i>Page 32 of the annual report states that "BHPB continued the assessment ... of Traditional Knowledge projects through 2010." The company has not done this assessment of efficacy of the inokhok fences at deflecting caribou around dangerous areas. The Kugluktuk elders even cautioned that inokhok effectiveness needed to be monitored so that modifications could be made if needed as mentioned in the Caribou and Roads report.</i></p>	<p>The report (Caribou and Roads. Implementing Traditional Knowledge in the Wildlife Monitoring at the Ekati Mine. 2006 Annual Report, Sept 2007) identified the inokhoks were not working and offered some suggestions to make them more visible. These suggestions were implemented. The interviews of the hunters and Elders suggested the inokhoks were intended for hunting in the fall and spring migrations and they would not work in the other seasons. They also said the design they use could not be reproduced well at the mine areas of concern due to a lack of suitable high ground and immediately local rocks, was absent. In addition to the inokhoks, the Elders stated the</p>

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
16	IEMA-13		<p><i>Page 33 on TK mentions the community workshop held in October 2010. The workshop report states that the objectives of the workshop were not achieved but there is no reference to this in the Annual Report.</i></p>	<p>BHP Billiton values the participation and commitment of all representatives who attended the Community Wildlife Monitoring Program Review. This was an excellent opportunity to allow community members to voice their opinions and concerns, and present opportunities for program improvement. There were 20 recommendations made in the community workshop that BHP Billiton responded to. They referred to quotation, "<i>Conclusions. The overall purpose of determining how to incorporate TK monitoring in to effects monitoring for the mines was not achieved</i>", should not be taken as referring that the workshop was not useful and successful, however indicating that all participants recognized that there is more work to be done to integrate TK into the Wildlife Monitoring Programs. Community representatives reiterated their interest in working positively towards better wildlife monitoring programs and to finding ways to consider TK effectively (reference to parallel process with science-based monitoring). There were numerous recommendations and in particular BHP Billiton would like to highlight a key recommendation (#19) that states "Planning and wildlife monitoring activity should involve youth as well as traditional knowledge holders and Aboriginal harvesters. Youth will soon become the leaders." BHP Billiton hosted pairs of Elders and Youth at EKATI in 2011 to participate in the various monitoring programs and help review our Wildlife Monitoring Programs.</p>
17	IEMA-14		<p><i>Page 34 describes revegetation of the Culvert Camp and other areas but there is no indication of success against targets or objectives.</i></p>	<p>Closure criteria for revegetation sites are not yet established and are being developed under the ICRP. Once these are established BHP Billiton will assess the success of vegetation against the closure criteria. This work will be reported through the ICRP reporting mechanisms.</p>

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
18	IEMA-15		<i>Pages 40-41 describe the results of the air quality monitoring but there is no indication whether the results were within CCME or GNWT standards.</i>	Detailed analysis of air quality results is provided in the 3-year AQMP reports, the next of which is scheduled to be submitted in April 2012.
19	IEMA-16		<i>Page 41 mentions that “Design and engineering” are ongoing for the “new” incinerators, but nothing concrete as to projected start-up month or even year. Nor are any reasons given for why upgrading of the incinerators would be ecologically important (i.e. removing dioxins and furans which may be finding their way into Kodiak Lake). This has been an issue of concern for most if not all stakeholders.</i>	BHP Billiton is completing work on the two new incinerators and hopes to commission them in early 2012.
20	IEMA-17		<i>Page 43 mentions waste audits conducted by BHPB Environment staff. The results are found later on page 129 and should be cross referenced.</i>	BHP Billiton will consider how we can communicate the results of the waste bin survey more effectively for the 2011 EA Annual Report.

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
21	IEMA-18		<p><i>Page 44 mentions that some of the mine water was discharged into the bottom of Panda pit rather than Beartooth. An indication of the relative amounts and significance for overall water management would be helpful.</i></p>	<p>The storage of water in the Panda Pit is part of the underground recycling process. Water that is collected in the Panda Pit can either be pumped to the surface and the Beartooth Pit, or it can flow through an outlet and back into the Panda Pit. This water is then allowed to collect in the sump at the bottom of the Panda Pit where it is available to use for underground drilling. This is key in the management of underground water at Panda Pit. It is an efficient use of the water collected in the underground sumps and reduces the water that needs to be pumped to surface and stored in the Beartooth Pit. The recycling of water in the Panda Pit is a management tool used primarily in the winter when rainfall and freshet do not contribute to the water in the Panda Pit. The storage of water in Panda Pit assures that there is water available for underground operations. The volume of water that was cycled back into the Panda Pit for additional use, such as underground drilling, in 2010 was 81,129 m3.</p>
22	IEMA-19		<p><i>Page 45 discusses the new airport fencing but does not disclose the death of several caribou as the main driver behind this initiative. This information is referenced on page 129.</i></p>	<p>BHP Billiton communicated through community letters, and incident reports to ENR that several caribou had become entangled within the fence and that the new fence was envisioned to provide additional protection to wildlife. In 2011 the airport fence has been very successful and no mortalities were reported to date.</p>
23	IEMA-20		<p><i>Appendix C graphs that summarize the sampling results for each SNP station are helpful but CCME guideline levels would make them more meaningful, as found in the AEMP reports. A short verbal explanation of any trends or CCME exceedences would be helpful.</i></p>	<p>Receiving water quality guidelines (CCME, site-specific or other) could be added to graphs for sample locations in the receiving environment and EQC could be added to graphs for upstream locations. BHP Billiton will continue to develop the method of presentation of this information in future Annual Reports.</p>

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
24	IEMA-21		<p><i>Appendix G (page 104) mentions nitrates and molybdenum being above CCME guidelines under ice in lakes closest to LLCF, but no mention of selenium being in the same state (as can plainly be seen in Fig. 5-40 of the AEMP report).</i></p>	<p>Based on the graph in the AEMP the common misconception is that selenium concentrations in water downstream of the LLCF have risen to levels exceeding CCME guidelines. The graph is often misinterpreted because water quality results that are reported as less than the analytical detection limit are halved for graphical purposes. Although analytical detection limits were variable for selenium in the 2010 AEMP water quality samples (particularly during winter), all results for selenium concentrations in lakes downstream of the LLCF in winter 2010 were below analytical detection. Therefore, based on the available data we cannot conclude for certain that winter selenium concentrations in lakes downstream of the LLCF were less than CCME guidelines (because detection limits exceeded CCME guidelines). However, samples collected from Station 1616-30 within the LLCF in 2010 show that total selenium concentrations were consistently below analytical detection limits of 0.0002 to 0.0005 mg/L (lower than the CCME guideline) and the AEMP data also show no evidence to suggest that total selenium concentrations had increased downstream of the LLCF due to mine effluent. BHP Billiton will develop a clearer explanation of the selenium data for future annual reports</p>
25	IEMA-22		<p><i>Appendix H contains a helpful summary of progressive reclamation and research activities and findings. A short section at the end summarizes activities for the coming year. This approach should be considered for other appendices that report on monitoring and research activities.</i></p>	<p>No response required.</p>

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
26	IEMA-23		<i>Appendix L contains no information on the permafrost monitoring between Beartooth pit and Upper Panda.</i>	In 2008 EBA Engineering conducted a thermal analysis as part of BHP Billiton's evaluation of the use of Beartooth Pit for minewater retention. The thermistors installed were operational for only a short period of time; however, they served the primary purpose of confirming the depth of permafrost at that location.
27	IEMA-24		<i>We note that the communication and external outreach section found in previous year's report is absent. This would be a useful addition to show that BHPB communicates the result of its environmental management to all interested parties, particularly communities. Details on issues raised and actions taken arising from community meetings and other communication activities would be helpful to document.</i>	BHP Billiton is committed to ensuring the results of its Environmental Monitoring Programs are communicated to all of its stakeholders. Results are published in annual reports and distributed to the communities and posted on the WLWB registry.
28	IEMA-25		<i>Page 21 states that "An expanded grizzly bear hair-snagging program will be completed in 2011, following the successful 2010 program". The 2010 program was barely "successful", suffering from a very late start (September) and small sample size of posts, and the 2011 program is still a pilot study testing methodology with no apparent objectives.</i>	The 2010 program was intended solely as a pilot study to assist BHP with experimental design and other program logistics, which it did very well. The 2011 program objectives again are directed towards refining the experimental design, the inclusion of TK in the design, and logistical challenges that arose from 2010 and that face both BHP and ENR. The 2011 program is stated in the Wildlife Research Permit application for 2011/12.
29	IEMA-26		<i>Page 23 states "There are four distinct caribou herds in the Arctic Barren Lands" is simply not accurate</i>	Agreed. BHP Billiton will consider this for future reports.

Tracking Number	Comment ID	Topic	Reviewer Comment	BHP Billiton Response
30	IEMA-27		<i>The Plain Language report mentions neither Molybdenum nor Selenium being above CCME guidelines under ice.</i>	BHP Billiton notes the unintentional omission of the discussion of CCME guideline exceedances for molybdenum under ice in 2010. Total molybdenum concentrations did exceed the CCME guideline under-ice in Leslie and Moose lakes in 2010, however, concentrations were below the site-specific objective. For a discussion on selenium please see our response to IEMA comment #21.
31	IEMA-28		<i>A few technical words or concepts have been retained from the full Annual Report which could have been avoided. For example, in reporting on aquatics:</i>	BHP Billiton strives to produce a Plain Language Summary that communicates the message and content required in the annual report in a clear and straightforward manner. BHP Billiton agrees that this is useful and necessary and hopes to continually improve this Report.
32	IEMA-29		<i>Page 4 shows an overview map of the site that still includes the Sable development but this has now been removed from the Life of Mine Plan.</i>	BHP Billiton updates its Life of Mine Plan on an annual basis to ensure changes in operational and market conditions are taken into account for mine planning. The representation of the Sable Kimberlite Pipe location is only intended to highlight to the reader where it is located in relation to the mine site.
33	IEMA-30		<i>Page 11 on air quality monitoring does not describe whether there were any exceedences of air quality standards.</i>	Detailed analysis of air quality results is provided in the 3-year AQMP reports, the next of which is scheduled to be submitted in April 2012.
34	IEMA-31		<i>Page 15 mentions an adaptive management plan for nitrates. It would be more accurate to describe the current work by the company as an "approach" rather than a "plan", given that the adaptive management plan submitted to the WLWB was not approved, pending further guidance.</i>	BHP Billiton is continually working to protect the downstream receiving environment. Two significant improvements BHP Billiton has made to reduce Nitrates in the Long Lake Containment Facility is to redirect underground mine water to Beartooth Pit and stimulate phytoplankton growth (and Nitrate uptake) through the addition of phosphate to Cell D of the LLCF. BHP Billiton will continue to monitor the downstream environment with its Aquatic Effects Monitoring Program and implement solutions as identified and required.