BHP Billiton Diamonds Inc.
Operator of the EKATI Diamond Mine

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

April 30, 2008

Wek'èezhìi Land and Water Board
P.O. Box 2130
Yellowknife, NT
X1A 2P6
Attention: Ms. Violet Camsell-Blondin, Chair

Dear Ms. Camsell-Blondin:

Re. EKATI Mine 2007 AEMP Annual Report and Report on 2007 Variability Study

BHP Billiton Diamonds Inc. (BHP Billiton) is pleased to provide the following two reports: 1) *2007 Aquatic Effects Monitoring Program, Summary Report, Appendix A: Evaluation of Effects, Appendix B: Data Report, Appendix C: Statistical Results* (the "AEMP Report"); and 2) *Analysis of Variability in Water Quality, Sediment Quality and Counts of Benthic Organisms in Two Lakes of the Koala Watershed* (the "Variability Study Report").

The AEMP Report is submitted under Part I, Item 6 of the EKATI Water Licence (MV2003L2-0013). This report is the first report of the current 3-year cycle for the Aquatic Effects Monitoring Program (2007-2009). The AEMP report includes all of the new data presentations and statistical analyses that were approved or required by the Wek'eezhii Land and Water Board (the "Board") for this 3-year cycle. The AEMP Report includes a presentation of Minimum Detectable Differences (effect sizes), which was a commitment of BHP Billiton's and a requirement of the Board's.

A new requirement for the 2007 AEMP was a palatability study. This was carried out and included direct aboriginal involvement in fish assessments. Representatives of four aboriginal groups each spent one week on site with the field biologists to contribute their observations to the assessment of fish from various local lakes. This is fully documented in the AEMP Report.

The Variability Study Report is submitted in response to commitments made by BHP Billiton, which are reflected in the Board's requirements. The Variability Study was a special study conducted in 2007 to assess whether the current AEMP sampling design is adequate with regards to spatial variability. An intensive sampling program for water quality, sediment and benthic organisms was undertaken on two lakes downstream of the EKATI mine. The large

number of samples were analysed statistically to assess spatial variability and, thereby, whether changes to the AEMP sample locations would benefit the AEMP.

This letter provides an introduction to the reports, a table of concordance for the Board's conditions of approval, an overview of key findings, and planned management responses to the key findings.

Board Conditions

The design of the AEMP is formally reviewed by the Board on a three-year cycle. This last occurred in 2006. The Board approved the program design for 2007 to 2009 with a number of conditions (April 19, 2007). BHP Billiton has reviewed those conditions and has prepared the table that is attached to this letter, which provides a brief response to each condition and, where appropriate, identifies where further information can be found in one of the two attached reports.

AEMP Report – Key Findings and Management Responses

The primary finding of the 2007 AEMP is that there are no known negative effects of the mining activities on the aquatic community in the Koala and King-Cujo watersheds.

Nonetheless there are three findings presented in the AEMP Report that are of particular interest to BHP Billiton and for which follow up actions are planned:

1. Changes to fish populations as a result of AEMP sampling;
2. Presence of metabolites indicative of hydrocarbon exposure in the bile of fish from Leslie and Moose Lakes; and
3. Nitrate levels in Leslie and Moose Lakes that are just over the interim CCME guideline.

BHP Billiton is concerned that the five-year fish sampling program that is currently built into the Aquatic Effects Monitoring Program appears to be changing the population structure of lake trout and whitefish in the sampled lakes. The AEMP Report documents changes in several parameters (such as catch per unit effort, size, weight and age of fish) that are likely the result of the removal of predominantly larger sized fish for the sampling program. BHP Billiton will meet with Fisheries and Oceans Canada and Aboriginal Groups to discuss this issue. Either before or during the next three-year review cycle in 2009, BHP Billiton will propose to the Board any changes to the fish sampling program that would alleviate this sampling stress on the local fish population.

In 2007 sculpins were assessed as a possible substitute species for lake trout and whitefish. The assessment is documented in the AEMP Report. The finding presented in the report is that the use of sculpin as a surrogate for lake trout and whitefish is not supported scientifically at this time.

BHP Billiton is concerned that the liver bile of lake trout and whitefish in Leslie and Moose Lakes contained elevated concentrations of metabolites that are indicative of exposure to hydrocarbons in the water. The fish are healthy in all respects and do not contain any hydrocarbons in the muscles, organs or tissues. However the fish may have been exposed to trace amounts of hydrocarbons in the past. This is not due to any known spills at EKATI and, so, the possible source of hydrocarbons that might be the cause of the metabolites is unknown.

The number of samples is small and the findings are not statistically significant, which introduces uncertainty into the assessment.

BHP Billiton feels that additional information is required to assess the possible implications of this finding and that a follow up fish sampling program is the best way to collect the needed information. However, BHP Billiton does not wish to further aggravate the fish populations in Leslie and Moose Lakes by sampling these lakes two years in a row. Therefore, BHP Billiton will conduct a special fish sampling program in 2008 in Cell E of the LLCF. Testing of fish from Cell E will indicate whether the LLCF is a potential source area for these metabolites. Minor sampling of Leslie Lake may be included to assess whether the levels observed in 2007 are repeated. BHP Billiton will provide a description of the sampling program to the Board prior to carrying out the study and will report the results of the study to the Board.

Nitrate concentrations in the Long Lake Containment Facility (LLCF) have previously been identified as a possible future concern. In 2007 nitrate levels in the LLCF, Leslie Lake and Moose Lake were measured at just above the current, interim CCME guideline for the protection of freshwater aquatic life. There were no identified effects on the aquatic community and all other water quality parameters were below their CCME guideline values. Nonetheless BHP Billiton is concerned that the release of water from the LLCF in 2008 could cause nitrate concentrations in the receiving lakes to be above the CCME guideline. BHP Billiton is aware that Environment Canada is nearing completion of an updated guideline value for nitrate and that the new value is anticipated for release in 2008.

BHP Billiton will continue to monitor nitrate levels in the LLCF and in the receiving lakes closely through 2008. BHP Billiton may withhold discharge from the LLCF through freshet 2008 while conducting studies into nitrate levels and methods for reduction.

<u>Variability Study Report – Key Findings and Management Responses</u>

The Variability Study uses a combination of statistical procedures (principal components analysis and univariate analysis) to assess the data gathered in 2007. This special, one-time study included intensive sampling of Moose and Slipper Lakes. These lakes offer differing characteristics for study but both offer the principal consistency of being downstream of the LLCF. The study considered water quality from various locations and depths, sediment quality from various depths, and benthic organism populations.

One finding of the variability study is that the lakes contain large areas of rocky lake bottom where samples of sediment and benthic organisms could not be collected. This was particularly true in areas of shallower water depths. For this reason and because of the hardness of lake bottom sediments in other areas of the lakes, the use of a core sampler for sediment sampling is not recommended for the EKATI AEMP.

However the primary purpose of the variability study was to assess whether the current sampling layout for the AEMP is hampered by issues of spatial variability. In this respect the key finding of the study is that the current sample layout for the AEMP is not hampered by issues of spatial variability and that there would be no improvement in the power of the AEMP to detect change by modifying the sampling layout.

Based on this key finding of the variability study, BHP Billiton is not proposing any changes to the AEMP at this time. In fact, BHP Billiton feels that it is a risk to consider changes in between

the scheduled 3-year reviews. Interim changes could affect data continuity and the longer-term data assessments that are now incorporated. This is the reason, for example, why BHP Billiton has “parked” its proposal for August-only lake water sampling until the next 3-year review cycle.

In closing, BHP Billiton trusts that the information in this letter and in the attached reports is clear. BHP Billiton has attempted to identify the key findings and to provide the Board with assurance that management responses are being implemented to provide long-term protection of the environment at EKATI. BHP Billiton is not proposing any changes to the AEMP based on this information and recommends that any changes that may be presented to or considered by the Board be held until the next 3-year review cycle.

BHP Billiton continues to strive for a successful mining operation that respects the balance between fundamental protection of the environment and providing lasting benefits and opportunities. Please contact the Mr. Eric Denholm, Environment Superintendent - Traditional Knowledge and Permitting, at 669-6116 if you have any questions.

Sincerely,
BHP Billiton Diamonds Inc.

Original signed by

Laura Tyler
Manager – Environment, Community, Communications and Planning
EKATI Diamond Mine

Attachment:

Table of Concordance

Wek'eezhii Land and Water Board Conditions of Approval for the 2007-2009 Aquatic Effects Monitoring Program

WLWB Condition	BHP Billiton Response
1.(7) substrate variability	Sections 4.3.3 and 4.3.4 of the Variability Study Report discusss the substrate variability and its impact on the analysis of sediment quality and benthic counts.
(10) analysis of stomach contents	AEMP Appendix A Sections 3.7.3.11 (Koala Watershed) and 4.7.3.11 (King-Cujo Watershed).
(11) DELT – whole fish and organ photos	AEMP Appendix A Sections 3.7.3.11 (Koala Watershed) and 4.7.3.11 (King-Cujo Watershed) for evaluation. AEMP Appendix B Section 14 for all data and photos (Tables 14-95-105 and Figure 14-25).
(14) review slimy sculpin data for use as metal bioaccumulation	The results of slimy sculpin whole body metal concentrations show only a few significant correlations to metal concentrations in tissues from round whitefish or lake trout, thus it is not suggested that they be a surrogate for either of these species (AEMP Appendix A Section 3.7.3.12)
(17) improved identification of nematodes	In 2007 nematode identification was improved, and different morphotypes were identified, which are believed to represent different genera. Benthic taxonomic data is presented in AEMP Appendix A Sections 12 and 13. BHP Billiton continues to believe that collection of this data is feasible and that identification of nematodes will improve to the point where the morphotypes are known to genus or species level. BHP Billiton will continue with nematode identification for 2008 and 2009 with the intent of reviewing the issue again during the next scheduled 3-year review

WLWB Condition	BHP Billiton Response
	(2009).
(18) continue with complete community analysis	BHP Billiton continued to evaluate the complete community composition
(32) review variability study plan with EC	The sampling design is explained in Section 2 of the Variability Study Report. The ideas discussed by stakeholders at the AEMP re-evaluation session considered and implemented in the study. Time constraints precluded a review of the sampling design with Environment Canada prior to implementation. BHP Billiton is available to meet with Environment Canada to discuss the study.
(33) discussion of a review of MMER EEM guidelines on Benthic QA/QC	The methods used for benthic sample QA/QC are described in Section 2 of the AEMP Report Appendix B. A review of the QA/QC programs for the AEMP was made in 2003 in the AEMP Re-evaluation and refinement report. This review included comparison to established monitoring programs. Recommendations were made and adopted at that time. The 2007-2009 AEMP program adopted some changes to the QA/QC program and these are listed in Section 2.3 of the AEMP Program Plan for 2007-2009.
(50) Hydrocarbon and chlorinated phenols in fish tissue	AEMP Appendix A Sections 3.7.3.13 and 3.7.3.14
(51) 0.10 rate for Type I/Type II errors in BACI	AEMP Appendix A Section 2.2.3.9
(57) figure showing AEMP data interpretation paradigm (also in AMP)	AEMP Appendix A Figure 2.2-1
(58) hydraulic gradient in data assessment	Throughout the 2007 AEMP graphs and tables are presented with a gradient (u/s-d/s). Attempts were made to include two measures of gradients in the

WLWB Condition	BHP Billiton Response
	model: a cumulative point-to-point distance between the containment facility and the sampling location in each lake; and a simple ordinal predictor numbering the lakes in order from the containment facility. However, the models treating each lake separately provided far better fit to the data.
(59) multivariate stats every 3 years	This will be completed for the next 3-year review of the AEMP (2009).
(62) annual analysis of time trends and multivariate / 3years	Time trends were completed this year and are presented throughout Appendix A. The multivariate stats will be completed for the next 3-year review of the AEMP (2009).
2. Continue open-water season water sampling in July, August and September	This was conducted for the 2007 season and will be conducted in 2008 and 2009, at which time BHP Billiton may propose changes as part of the 2009 3-year review.
3. Three year review requirements a) Multivariate analyses every 3 years, time trend analyses every year b) Assessment of using step-wise elimination of biotic data c) Reconsider the use of fish plugs	a) Time trends are presented in Appendix A, multivariate analyses will be completed in 2009 plan review. b) 2009 plan review. c) 2009 plan review.
4. DELT analysis	Extended invitation to participate in DELT analyses to all affected communities and 4 communities participated in the survey. Results are presented in Appendix B Section 14 and assessed in Appendix A Section 3.7.3.15 (Koala Watershed) and 4.7.3.13 (King-Cujo Watershed).
5. Shallow benthic sampling approval for termination	Shallow benthic sampling was removed from the program in 2007.

Table of Concordance

Wek'eezhii Land and Water Board Conditions of Approval for the 2007-2009 Aquatic Effects Monitoring Program

WLWB Condition	BHP Billiton Response
6. Submit variability study and evaluation of effect sizes a) Effect sizes b) Variability study o Assess core sampling o Shallow water benthic sites o Indicate valid replicate for in-lake variability	a) Effects sizes were evaluated using power analysis and Minimum Detectable Differences. Discussion is provided in Appendix A of the AEMP Report. b) In the Variability Study Report: o Core sampling is assessed in Section 3.1.4. o Shallow water benthic sites were included where sampling was possible (Section 3.1.5). o Analyzing water, sediment and aquatic biology measurements as independent observations may underestimate the true variability, making statistical tests overly and incorrectly sensitive. The simplest method of dealing with pseudoreplication was to average all measurements from each lake to provide a single observation. Because comparisons were made across lakes and across years, averaging the data within one lake has no effect on the tests of interest and eliminates the issue of pseudoreplication in the AEMP.
7. Flushing times for Leslie, Moose, Nema and Slipper lakes	Residence time of surface runoff for lakes downstream of the LLCF are presented by Month in Section 2 of Appendix B.
8. Present LLCF water quality modeling report and update AEMP plan to address any trends of concern found in the model	Two reports describing the LLCF water quality model (Versions 1.0 and 2.0) were provided to the WLWB in

WLWB Condition	BHP Billiton Response
	April 2008. No changes to the AEMP are proposed based on the model results.
9. Cumulative effects - Identify stressors reaching Lac de Gras and describe monitoring needs to document the magnitude of those stressors	The AEMP sampling program includes the waters, sediment and aquatic organisms in the Slipper Lake and Lac du Sauvage drainages. These samples are within the receiving environment upstream of Lac de Gras and are representative of the mine-related effects of water and dust.
10. Clarify a) BHP Billiton's response to EC on triplicate water samples and 5 year term for archiving invertebrate samples b) Use of multiple reference lakes in time trend analysis c) Reason why DOC is not sampled	a) BHP Billiton has "parked" its proposal for triplicate sampling in August as representative of the open-water season, to be revisited during the next 3-year review (2009). BHP Billiton will commit to archiving samples for 5 years. b) Measurements sampled from each lake in each year are averaged to create a single grouped observation without any loss of information. Variations in these values are broken into two components: yearly effects that impact the measurements in all lakes; and effects that impact each of the monitored and reference lakes individually. These sources of variation are included in the model as random effects, and the form of the resulting mixed-effect model is presented in Section 2.2.3.2 of Appendix A of the AEMP Report. c) BHP Billiton has identified, though other studies, that DOC levels are very low in the

WLWB Condition	BHP Billiton Response
	local waters and, therefore, not useful in chemical analyses.
11. Link between the AEMP and the Adaptive Management Plan	The Watershed Adaptive Management Plan (WAMP) (Feb'08) describes specific linkages between the AEMP and the WAMP. A review of the WAMP by the WLWB is pending and will provide opportunity to review these linkages.
Notes: **1.** Bold numbers represent the numbered requirements in the WLWB letter dated April 19, 2007 giving conditional approval of the 2006 AEMP plan (2007-2009). (1) Numbers in brackets represent the tracking numbers from the comment table generated in the AEMP review process	