

BHP Billiton Diamonds Inc.
Operator of the EKATI Diamond Mine



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April 15, 2008

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

Dear Ms. Camsell-Blondin:

Re. EKATI Diamond Mine - Long Lake Containment Facility Water Quality Projections

Introduction

BHP Billiton has operated the Long Lake Containment Facility (LLCF) for ten years with no water quality compliance issues. One of the tools that has helped BHP Billiton to accomplish this is a predictive water quality model. Over the last several years BHP Billiton has developed a site-specific numerical model that can estimate possible future trends in water quality in the LLCF.

BHP Billiton would like to share the two enclosed reports that describe the model and provide the most recent updates based on 2007 field data. Interested readers should read both reports to gain a full understanding of the model. Readers are reminded that models are by their nature based on a number of assumptions which render the results useful for assessing trends and possibilities but not for obtaining exact values. The findings of the LLCF model is no exception to this rule and the results should be treated accordingly.

While the enclosed reports describe the model itself, this letter provides a brief overview of the management actions that are underway, at least in part, as result of the findings of the model.

Background

Prior to 2005 BHP Billiton operated various simple models to coarsely predict annual trends in water quality in the LLCF. Following an increase in some parameters over the winter of 2003/04 BHP Billiton informed the Board that it would conducted a series of special water quality investigations. These investigations led to the development in 2005 of the current more sophisticated model.

The initial findings of the new (2005) model were available to the company in early 2006. The findings provided greater clarity on several previously identified trends. Most notably, the new model highlighted that nickel, lead, molybdenum, chloride and nitrate could become issues in future. Nickel and lead were linked to processing of the Fox ore, and molybdenum to processing of the Misery ore. Chloride was linked to underground mine water. Nitrate was linked to residual blasting agents and degradation of ammonia within the LLCF. Given the preliminary nature of these findings, BHP Billiton wanted to advance the work to develop a better understanding to the model outputs before sharing the work with others.

BHP Billiton continued a series of special water quality investigations through 2006 and 2007 to resolve the most important data gaps and uncertainties. This included monitoring of the full vertical profiles of Cells D and E of the LLCF. The results of this work were rolled into a general update of the model in early 2008. The updated model was used to re-forecast future trends for the two parameters of most immediate interest, chloride and nitrate.

Nickel and Lead

The source of nickel and lead that prompted the 2005 model to indicate a possible future concern was processing of Fox ore. At that time BHP Billiton had completed and reported on a special investigation of the implications of Fox ore for water quality in the LLCF (the Fox Ore Trial). This special investigation provided generally inconclusive findings but data from the study was used in the 2005 model. There were no actual increases in nickel or lead in the LLCF to observe at that time.

The concentrations of nickel and lead in the LLCF through 2006 and 2007 remained low and much lower, by an order of magnitude, than the levels initially predicted by the model. The concentration of nickel in the LLCF also remained much lower than its Effluent Quality Criteria (EQC), by two orders of magnitude.

In 2007, BHP Billiton conducted a follow up investigation into the implications of processing Fox ore on water quality in the LLCF (Fox Ore Trial II). BHP Billiton will assess the results of the follow up investigation and will take action as appropriate based on those results.

Molybdenum

Molybdenum concentrations had been observed to be on an increasing trend prior to the development of the 2005 model. The initial findings of the model provided greater clarity around this predicted trend. The source of molybdenum that prompted the model to indicate a possible future concern was processing of Misery ore. Molybdenum is known to be present in the Misery kimberlite pipe in greater concentration than in the other kimberlite pipes being mined at EKATI.

Given that the processing of Misery ore was completed in fall 2007, the source of molybdenum to the LLCF has been discontinued. Therefore, the increasing trend that has been observed in recent years is expected to reverse beginning in 2008. Given a time lag of up to one year in the LLCF, BHP Billiton will initially look for the reversal in the upstream areas of the LLCF (Cells C and D) while the molybdenum that is already present is displaced.

BHP Billiton conducted a Tier I Ecological Risk Assessment (ERA) for molybdenum in 2006 which indicated that a concentration of 16 mg/L would be protective of the environment. This is much greater than the current CCME guideline of 0.073 mg/L and much greater than the

concentrations observed in the LLCF, which ranged from 0.01 to 0.1 mg/L in 2007. BHP Billiton's ERA used the HC5 approach, which is the approach that is now being recommended by the CCME. The current CCME guideline was not derived using this approach.

BHP Billiton will monitor molybdenum concentrations through 2008 and will take appropriate actions based on those results.

Chloride

Chloride concentrations in the LLCF are linked predominantly to the underground mine water. A smaller amount of chloride is introduced in the process plant. Chloride in the underground mine water originates naturally in fault zones that are intersected by the underground workings.

Following from the initial indications of the 2005 model, the special studies conducted through 2006 and 2007 showed a continued increasing trend in chloride concentrations in the LLCF. Therefore, BHP Billiton included a re-forecast of chloride trends as part of the March 2008 update to the model. The 2008 model suggests that chloride concentrations, if unmitigated, could continue to increase for several years in step with continued underground mining.

Because there is no CCME guideline for chloride, BHP Billiton initiated work to assess the ecological implications of these findings. In 2004 BHP Billiton conducted a Tier I Ecological Risk Assessment (ERA) for chloride which suggested that a receiving water concentration of 180 mg/L would be protective of the environment. This was submitted to and peer-reviewed through the Mackenzie Valley Land and Water Board.

BHP Billiton subsequently conducted more in-depth, site-specific research that suggests that a receiving water concentration of 313 mg/L at hardness 80 mg/L CaCO₃ would be protective of the environment. This research is under review through the Wek'eezhii Land and Water Board at this time. Further research is underway into a possible hardness-toxicity relationship.

The concentrations of chloride in the LLCF in 2007 ranged from less than 10 to about 115 mg/L, all less than the protective concentrations indicated by BHP Billiton's research.

BHP Billiton recognizes that chloride concentrations in the LLCF could continue to increase and, therefore, continues to monitor chloride levels and advance the research into ecological implications. Updated information on chloride concentrations and possible mitigative plans will be shared in future as new information is developed.

Nitrate

Nitrate observed in the LLCF originates from residual blasting agents and degradation of ammonia within the LLCF. Following from the initial indications of the 2005 model, the special studies conducted through 2006 and 2007 showed a continued increasing trend in nitrate concentrations in the LLCF. Therefore, BHP Billiton included a re-forecast of nitrate trends as part of the March 2008 update to the model. The 2008 model suggests that nitrate concentrations, if unmitigated, could continue to increase for several years.

The interim CCME guideline for nitrate is 2.93 mg/L NO₃-N for the protection of freshwater aquatic life. BHP Billiton has been informed that Environment Canada is nearing completion of an updated guideline value for nitrate and that the new value is anticipated for release in 2008.

The new guideline value will be derived using the HC5 approach, which is the approach that is now being recommended by the CCME. The current interim CCME guideline was not derived using this approach. In 2007, the concentration of nitrate in the LLCF was just over the interim guideline value at about 3.5 mg/L.

BHP Billiton recognizes that nitrate concentrations in the LLCF could continue to increase and, therefore, continues to monitor nitrate levels and evaluate plans to ensure the long-term protection of the environment at EKATI. BHP Billiton will be sharing further information regarding nitrate and possible mitigative plans later in 2008. The development of the new guideline from CCME will be monitored by BHP Billiton through 2008 for any implications that this may have on possible mitigative plans.

Closing

The information in this letter has been provided so that all parties can share in BHP Billiton's confidence that water quality in the LLCF is being diligently managed and that the downstream environment is being adequately protected. BHP Billiton is committed to providing long-term and lasting value to all of the parties and communities that are involved with the EKATI mine. The information provided here displays another aspect of how BHP Billiton strives to balance all of the needs of an operating mine to ensure a strong future for EKATI.

Yours sincerely,
BHP Billiton Diamonds Inc.

Eric Denholm
Superintendent – Traditional Knowledge and Permitting
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