



Independent Environmental Monitoring Agency

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December 7, 2018

Joseph Mackenzie
Chair, Wek'eezhii Land and Water Board
#1-4905 48th St, Yellowknife, NT
X1A 3S3

Re: Potassium Toxicity Study Design and Potassium Response Plan Version 2.0

Dear Mr. Mackenzie,

The Independent Environmental Monitoring Agency (Agency) has reviewed the Potassium Toxicity Study Design and Potassium Response Plan Version 2.0 submitted by Dominion Diamond Ekati ULC (Dominion). Please see the comment below regarding the Potassium Toxicity Study Design. The Agency does not have any comments on the Potassium Response Plan v 2.0.

Potassium Toxicity Study Design

Water Temperature

The study design lists toxicity test water temperatures between 23 and 25°C. These temperatures are standard practice for toxicity tests and may be relevant for southern climates. However, the highest levels of potassium at Ekati occur in late winter or break up when water is in the range of 4-8°C. For the Ekati mine, lower toxicity test water temperatures would more appropriately represent actual field conditions. In addition, lab water temperature is an important factor since it plays a role in test species metabolism, specifically in relation to increased respiration rates, which could effect potassium toxicity results.

In terms of precedence, there was a 2004 toxicity test report conducted for the Ekati mine (titled *Acute and chronic toxicity of nitrate to early life stages of lake whitefish and lake trout. Draft report prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd. June 2004.*), that used water in the range of 7-8°C, indicating that it is possible to conduct a toxicity test at lower water temperatures that more appropriately reflect actual field conditions. A copy of the toxicity test report has been attached for reference.

Recommendation: The toxicity tests described in the Potassium Toxicity Study Design should be conducted with test water temperatures between 6-8°C in order to better represent the actual site field conditions.

Should you have any questions concerning these comments, the Agency is pleased to discuss these at your convenience.

Sincerely,



Jaida Ohokannoak
Chairperson

Cc: Dominion Diamond– Lucas Novy
Tłıchǫ Government – Violet Camsell-Blondin
Yellowknives Dene First Nation – Johanne Black
Łutsel K'e Dene First Nation – Lauren King
North Slave Metis Alliance – Nicole Goodman
Kitikmeot Inuit Association – Geoff Clark
Government of the Northwest Territories – Laurie McGregor
Indigenous and Northern Affairs Canada – Michael Roesch

Attachment: Acute and chronic toxicity of nitrate to early life stages of lake whitefish and lake trout.
Draft report prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd. June 2004.