

Our File: EA1819-01

July 26, 2019

Mr. Sean Sinclair
Superintendent, Environment
Diavik Diamond Mines (2012) Inc. (DDMI)
P.O. Box 2498
Suite 300, 5201-50th Avenue
Yellowknife, NT X1A 2P8

Via email: sean.sinclair@riotinto.com

Dear Mr. Sinclair:

Re: Supplemental information requirements: Depositing Processed Kimberlite in Pits and Underground

Diavik Diamond Mines Inc. (Diavik) proposes to put processed kimberlite into pits and underground and to reconnect the pits to Lac de Gras at closure if water quality in the pits is acceptable. The Mackenzie Valley Environmental Impact Review Board (Review Board) has issued several information requests (IRs) related to reconnection of the pit lakes to Lac de Gras. The Review Board has also asked about the impacts of not reconnecting the pits to Lac de Gras, or of re-isolating the pit lakes from Lac de Gras after they have been connected.

Based on Diavik's responses to IRs, the Review Board requires clarity and more detailed information on several topics. Specifically, the Review Board wants to ensure that all parties have a shared understanding of Diavik's preferred closure option as well as alternatives that may be proposed by Diavik or other parties. This relates directly to understanding project design, the potential impacts of the project, and the effectiveness and feasibility of any proposed mitigations.

As a result, the Review Board is issuing the following five supplemental IRs to Diavik. The Review Board believes that this information is important to have before the hearing, and requests that Diavik indicate when it can respond to each of these IRs. The Review Board requests that your reply to the IRs be written as clearly as possible for non-technical readers, so that all parties can better understand your project design and predictions.



Supplemental Information Request 1

In response to Review Board IR30, Diavik indicated that it is necessary to have a hydrological connection between the pit lake(s) and Lac de Gras (for example, by fracturing the water-retaining plastic concrete wall that forms the core of the dike).

- a) Please confirm Diavik's understanding and intent of pit "isolation". For example, does isolation mean preventing fish from swimming into the pit(s) or does it mean preventing water exchange between the pit(s) and Lac de Gras?
- b) Please provide support for Diavik's position that the pits need to be hydrologically connected to Lac de Gras in some way.
- c) Please describe the methods that Diavik would use to connect the pit(s) to Lac de Gras if the dikes were not breached.

Supplemental Information Request 2

Diavik indicated in its response to Review Board IR31 that if pit water quality is determined to pose a risk to water quality, fish and fish habitat, caribou, humans, or cultural land uses, it could 're-isolate' the pit lake from Lac de Gras. Please clarify if water connectivity would still be required and how the re-isolation would proceed.

Supplemental Information Request 3

Diavik has used the Aquatic Effects Monitoring Program benchmarks for determining the safety of the pit water. Please clarify and discuss how these relate to:

- a) chronic and toxic effects to aquatic life
- b) Canadian Council of Ministers of the Environment guidelines for the protection of aquatic life
- c) drinking water quality guidelines

Supplemental Information Request 4

Please discuss the risk (in terms of likelihood and consequence) that water from the pits will mix with Lac de Gras if the dikes are not breached and the walls are not fractured. Please describe the possible pathways of water exchange between the pit lake and Lac de Gras (for example, from water level in pit rising so that it overtops the dike, or from weathering and eventual failure over the very long term).



Supplemental Information Request 5

Using deposition scenario 3A for pit A418¹ as a basis for modelling, please provide responses to the following:

Scenario 1: pit lake remains completely isolated from Lac de Gras (that is, no water flows between the pit lake and Lac de Gras).

Please provide:

- a) long term water quality modelling results (from closure until pit lake water quality stabilizes). Include modelled maximum water quality concentrations in the pit lake at surface and 40 m depths, and describe when those maximums would occur.
- b) a description of how this would change the effects assessment provided in the *Summary Impact Statement*.

Scenario 2: dikes are not breached, but water from the pit lake can still mix with Lac de Gras (for example, as a result of fracturing the water-retaining plastic concrete wall that forms the core of the dike).

Please provide:

- a) long term water quality modelling results (from closure until pit water quality reaches equilibrium [as defined in Diavik's response to IR12]).
 - Include modelled maximum water quality concentrations in the pit lake at surface and 40 m depths, and describe when those maximums would occur.
 - Describe the size of the mixing zone, if any.
 - Describe predicted changes to water quality for the mixing zone and far field areas of Lac de Gras.
- b) a description of how this would change the effects assessment provided in the *Summary Impact Statement*.

¹ This scenario includes the largest volume of processed kimberlite and the shallowest freshwater cap for pit A418, which is Diavik's preferred location for depositing kimberlite.



We look forward to receiving Diavik's responses to these IRs. Please contact Catherine Fairbairn (867-766-7054, cfairbairn@reviewboard.ca) or Kate Mansfield ((867-766-7062, kmansfield@reviewboard.ca) with any questions.

Sincerely,

Joanne Deneron
Chair
Mackenzie Valley Review Board

