

WORKING WITH THE PEOPLE FOR THE ENVIRONMENT



October 4, 2019

By Email

Mark Cliffe-Phillips
Executive Director
Mackenzie Valley Environmental Impact Review Board
P.O. Box 938
Yellowknife, NT X1A 2N7

Re: EMAB Closing Arguments – PKMW

Dear Mr. Cliffe-Phillips

The Environmental Monitoring Advisory Board (EMAB) is pleased to submit our closing arguments for MVEIRB File DDMI EA1819-01 for Diavik Diamond Mines Processed Kimberlite in Pits and Underground Environmental Assessment.

Please contact John McCullum at the EMAB office if you need more information.

Sincerely,

Charlie Catholique
Vice-Chair

Cc Board Members and Alternates (by email)
Parties to the Environmental Agreement (by email)
Catherine Fairbairn, MVEIRB (by email)
Kate Mansfield, MVEIRB (by email)
Ryan Fequet, Executive Director, WLWB (by email)

Environmental Monitoring Advisory Board

Closing Arguments to the Mackenzie Valley Environmental Impact Review Board

on

DDMI Diamond Mines' EA1819-01

Processed Kimberlite in Pits and Underground Environmental Assessment

September 27, 2019

Executive Summary

The Environmental Monitoring Advisory Board (EMAB) has reviewed all the recommendations made in our intervention in light of the evidence submitted since. EMAB concludes that most of the recommendations still stand.

EMAB continues to be concerned about the level of uncertainty regarding the predictions Diavik Diamond Mines (DDMI) has made with respect to significant adverse effects of the Depositing Processed Kimberlite in Pits and Underground Project (PKMW). The preliminary nature of the model the predictions are based on leaves many questions regarding their accuracy. If the model predictions are correct, Diavik fulfills its commitments and additional mitigation measures are carried out then EMAB does not believe the project will result in significant adverse effects.

In this document EMAB has developed proposed measures and suggestions for consideration by the Mackenzie Valley Environmental Impact Review Board (MVEIRB). These measures are intended to help reduce uncertainty about the effects of the PKMW Project and to prevent any potential significant adverse effects of the Project.

The measures are:

- Requirement to meet CCME guidelines for water quality and the protection of aquatic life
- Requirement to maintain suitability for traditional use
- Requirement to have approved closure objectives and criteria in place before depositing PK
- Requirement to validate the model and results
- Requirement for more comprehensive criteria for reconnecting the pit lake with Lac de Gras
- Requirement for comprehensive monitoring of the pit lake and areas of Lac de Gras affected by the Project
- Requirement for revised management and monitoring plans for wildlife
- Requirement for a more detailed contingency plan
- Requirement for guidance to regulators on definitions of significance
- Requirement to remove A21 pit from project description
- Requirement for annual progress reporting on fulfillment of measures and suggestions

Additional suggestions are:

- Diavik to investigate feasibility of relocating extra-fine PK from the PKC to the pits
- MVEIRB to make a recommendation on a permanent participant funding program
- MVEIRB to undertake a review of lessons learned during this environmental assessment with respect to information management.

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1. Introduction

The Environmental Monitoring Advisory Board thanks the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for the opportunity to participate in the review of DDMI Diamond Mines Inc (DDMI) Depositing Processed Kimberlite in Pits and Underground Project (PKMW).

EMAB has reviewed the evidence added to the Public Record since our intervention was submitted, including DDMI's responses to MVEIRB Supplementary Information Requests (PR#100 & PR#127), DDMI's response to interventions and commitments (PR#136), undertakings made during and following the hearings (PR#160, PR#163, PR#166 & PR#169), oral evidence provided at the Technical Hearings (PR#165 & PR#168) and DDMI's updated Table of Commitments (PR#172). EMAB has reviewed the recommendations in our intervention in light of the additional evidence.

For the most part EMAB's original recommendations from our intervention still stand (PR#107), with the exception of those in section 5 on the inclusion of the A21 pit in the PKMW project, which DDMI has committed to remove from the project proposal.

In our closing arguments EMAB proposes a number of measures and suggestions for MVEIRB's consideration. These measures and suggestions are not intended to replace the recommendations in EMAB's intervention.

There continues to be much uncertainty with respect to the model, and predictions based on the model results. DDMI has stated that the model used is preliminary, and has acknowledged its limitations. EMAB's view is that:

- if the predictions from the preliminary model, and information provided to support them, are shown to be correct; and
- DDMI meets the commitments presented in its Sept 20, 2019 Commitments Table and throughout the hearing process; and
- appropriate mitigation measures are in place,

then EMAB does not believe the project will result in significant adverse effects. We observe that DDMI has committed to develop a new model that will more realistically represent the actual activities and conditions of the project, has agreed to have the model and results evaluated by independent expertise, and to not put processed kimberlite (PK) into mine workings if the model shows water quality will not meet AEMP Benchmarks in the top 40 meters of the pit lake. We hope that this new model and these new predictions will go a long way to removing the uncertainty associated with the potential significant adverse effects of the project.

2. Proposed measures

In this section EMAB proposes measures for consideration by MVEIRB. Much of the rationale for these measures is found in our intervention and supporting documentation (PR#107 & PR#108). Where additional comment or explanation is required we have included it with the proposed measure.

Note: references to the “pit lake” in these proposed measures refers only to the pit or pits in which PK has been deposited.

2.1 Maintain Water Quality

To prevent a significant adverse effect on water quality, and fish and fish habitat, the Wek’èezhii Land and Water Board will set conditions that require DDMI to ensure that CCME guidelines for protection of aquatic life are met in the pit lake to a minimum depth of 40 meters (and deeper if it is shown that aquatic life is using areas below 40 m), and in areas of Lac de Gras (LdG) exposed to water from the pit lake.

2.2 Maintain Suitability for Traditional Use

To prevent a significant adverse effect on cultural use of the area DDMI shall be required to make best efforts to ensure that all areas of the pit lake used by fish, and areas of LdG affected by the PKMW Project, are suitable for Traditional Use following filling of the pit lake with LdG water (see Commitment 16 - PR#172). The Wek’èezhii Land and Water Board will require DDMI to identify practical strategies to address concerns of potential indigenous users that would prevent them from carrying out Traditional Uses of the area affected by the PKMW Project.

2.3 Approved Closure Objectives and Criteria

To prevent a significant adverse effect on water quality; and fish and fish habitat; wildlife; and cultural use of the area, the Wek’èezhii Land and Water Board will set closure objectives and criteria for any mine workings affected by the PKMW project before any deposit of PK into mine workings occurs; relevant criteria regarding pre-deposit closure of the pit and underground will have been met and signed off by the Inspector before any deposit of PK takes place.

2.4 Validate Model and Results

To prevent a significant adverse effect on water quality, and fish and fish habitat, the Wek’èezhii Land and Water Board will require that DDMI run the “whole new model” it identified during the MVEIRB hearing on September 5, 2019 (PR#165 - description starting on page 54 of the transcript). This new model must address the deficiencies identified by Parties in the model presented in DDMI’s application. The new model and its outputs must be accepted as meeting the standards of best practice by expertise independent of DDMI (or a Panel of experts as required), as committed to by DDMI in its submission of August 22, 2019 (PR#136).

As committed to by DDMI in its August 22, 2019 submission (PR#136), if pre-deposition modelling shows that DDMI cannot meet AEMP benchmarks in the top 40 m of the pit lakes, DDMI will not put PK in the pit. This will be a condition of any regulatory approval by the Wek'èezhii Land and Water Board. Also as committed to in its August 22, 2019 submission (PR#136), the regulatory approval will require that DDMI re-run the model:

- prior to pit filling with LdG water, incorporating as-built conditions, and
- again after the pit has been filled but before the dike is breached

Each time the model is re-run it will be re-calibrated to reflect any new information or change in current conditions and inputs.

2.5 Criteria for Reconnection

To prevent a significant adverse effect on water quality, and fish and fish habitat, the Wek'èezhii Land and Water Board will set criteria for reconnecting the pit lake to LdG that include water quality, sediment quality, pit wall stability and Traditional Knowledge.

Assessment of whether the criteria for water and sediment quality have been met will be based on comprehensive monitoring as described in EMAB's proposed measure on pit lake monitoring below. Pit lake reconnection should only occur once monitoring confirms that water quality is suitable in all relevant locations in the pit, and through all seasons (suggest late winter, after spring turnover, late summer and after fall turnover) over a minimum two-year period.

2.6 Pit Lake Monitoring

EMAB does not agree that there is sufficient alignment on the general scope of the proposed monitoring to be consolidated into monitoring conditions for an amended Water Licence, as DDMI has stated in its submission of August 22, 2019 (PR#136). DDMI's proposed monitoring program is deficient in a number of ways including: duration and spatial extent of sampling; sediment quality sampling; scope of monitoring including fish use of the pit lake, especially below 40 meters; and aquatic health in the pit lake and of fish that use the pit lake.

EMAB draws MVEIRB's attention to the more detailed recommendations on water, sediment and aquatic life monitoring we have provided in sections 7 and 9 of our intervention (PR#107), that should be incorporated into the actual study design.

To prevent a significant adverse effect on water quality, and fish and fish habitat, the Wek'èezhii Land and Water Board will require DDMI to carry out a comprehensive monitoring program in the pit lake and after breaching the dike that includes:

- Monitoring to verify water quality model calibration, inputs and assumptions, including porewater quality, pit lake water temperature, quality of supernatant water and groundwater (as possible).
- Water and sediment quality monitoring throughout the pit lake in all seasons (late winter, after spring turnover, late summer and after fall turnover), before and after breaching the dike measuring the parameters used in the AEMP. Monitoring should include the development and stability of the chemocline. Monitoring after the dikes are breached should extend to the depth used by fish or other aquatic life.

- Monitoring of the effects of mixing of pit lake water with LdG after breaching the dike.
- Monitoring of use of the pit lake by fish and other aquatic life, including the maximum depth of use.
- Monitoring of health of aquatic life that use the pit lake, including the health of large-bodied fish that are harvested in the area and spend part of their life in the pit lake. The large-bodied fish study should include metal concentrations in tissues that are consumed, and should be done using non-lethal testing where possible.

This monitoring program should be considered as a special study, not necessarily limited in scope to the design of DDMI's current Aquatic Effects Monitoring Program.

2.7 Wildlife

To prevent a significant adverse impact on wildlife, DDMI shall be required to meet its commitment in its submission of August 22, 2019 (PR#136) to revise its Standard Operating Procedures for deterring wildlife to include wildlife deterrents during pit filling. DDMI shall also be required to meet its commitment to update its wildlife monitoring and management plans to include the PKMW Project in its response to ECCC IR #6 (PR#83) and its meeting report with ECCC of July 12, 2019 (PR#94) as well as in Commitments 11, 13 and 14 of DDMI's Updated Commitments Table (PR#172). These updates will include management and monitoring of wildlife and waterfowl use of the pit lakes during operations and will include a response protocol for wildlife or waterfowl entering or approaching the pits where PK is being deposited. With respect to wildlife, DDMI will monitor water quality to determine whether water quality parameters are protective of wildlife. These updates will be submitted to the Minister of Environment and Natural Resources under the Wildlife Management and Monitoring Regulations section 13 pursuant to Section 95 of the Wildlife Act, and to EMAB and the Parties to the Environmental Agreement for the Diavik Diamond Mine under sections 6.1 and 7.1 of the Environmental Agreement.

2.8 Description of Contingency Plan

To prevent a significant adverse impact on water quality, and fish and fish habitat, the Wek'èezhii Land and Water Board will require that DDMI provide a description of its contingency plan to re-close the dike that is sufficiently detailed to allow assessment of the feasibility of executing the plan and the worst-case effect on LdG up to the time when the breaches have been closed.

2.9 Guidance on Definitions of Significance

To prevent a significant adverse effect on water quality, and fish and fish habitat MVEIRB should provide guidance to DDMI and WLWB on the implications or intent, if any, of definitions of significance of effects used in EA1819-01, on the establishment of mixing zones or other areas where water quality may not be required to meet AEMP Benchmarks / CCME Guidelines for Protection of Aquatic Life.

2.10 Removal of A21 Pit from Project Description

To prevent a significant adverse effect on water quality, and fish and fish habitat, the A21 Open Pit will be excluded from the scope of MVEIRB's review as committed by DDMI in its letter of August 22, 2019 (PR#136) to remove the A21 Open Pit from its Proposal.

2.11 Annual Progress Reporting on Measures and Suggestions

DDMI and any other parties to whom measures and suggestions have been directed, shall report annually to MVEIRB on progress made on the measures, suggestions and commitments recorded in the Report of Environmental Assessment for the PKMW Project.

3. Suggestions

In this section EMAB proposes suggestions for consideration by MVEIRB. The rationale for these suggestions is included in our intervention and supporting documentation (PR#107 & PR#108).

3.1 Investigation of Relocation of EFPK from PKC to Pit

DDMI should be required to evaluate the feasibility of relocation of the Extra-Fine PK (EFPK) from the Processed Kimberlite Containment Facility to the pits at the earliest possible opportunity as a condition of any project approval, to get a clear understanding of timing requirements as well as the potential effects and benefits of re-mining. If DDMI concludes that relocation of the EFPK should not be undertaken it should be required to provide a thorough justification.

3.2 Recommendation on Participant Funding

MVEIRB should make a recommendation on the value of participant funding and the need for permanent, adequately resourced participant funding programs for environmental assessment processes and any downstream regulatory processes, such as water licence proceedings.

3.3 Lessons Learned from EA 1819-01

MVEIRB should evaluate the information provided by DDMI in this assessment and the form it has been provided, and determine whether there are lessons to be learned for future assessments in terms of information management.