

October 4th, 2019

Mark Cliffe-Phillips
Executive Director
Mackenzie Valley Environmental Impact Review Board
Box 938, #200 Scotia Centre, 5102- 50th Avenue
Yellowknife, NT, X1A 2N7

Re: Lutsel K'e Dene First Nation's Closing Arguments for Depositing Processed Kimberlite into Pits and Underground, Diavik Diamond Mine Inc. (EA 1819-01)

To, Mark Cliffe-Phillips:

The Lutsel K'e Dene First Nation (LKDFN) is pleased to submit our closing arguments for MVEIRB's File DDMI EA 1819-01 for Diavik Diamond Mines Processed Kimberlite in Pits and Underground Workings Environmental Assessment.

In this document, LKDFN has provided recommended measures and suggestions for careful consideration by the MVEIRB. These recommendations are intended to mitigate potential significant adverse socio-ecological impacts from the proposed project.

If you have any questions, please contact Chief Darryl Marlowe and the LKDFN's Director of Wildlife, Lands, and Environment Department.

Respectfully,

Chief Darryl Marlowe
Lutsel K'e Dene First Nation

Cc: Adeline Jonasson, LKDFN Sub-Chief and Councilor
Ron Desjarlais, LKDFN Councilor

Emile Saunders, LKDFN Councilor

Stephanie Poole, LKDFN Councilor

Ron Fatt, LKDFN Councilor

Mervin Abel, LKDFN Councilor

Director, LKDFN's Department of Wildlife, Lands, and Environment

Catherine Fairbairn, MVEIRB

Kate Mansfield, MVEIRB

Meaningful Participation and Consideration of Traditional Knowledge in Environmental Assessment Process

The environmental assessment process relies heavily of scientific data and analyses. The use of science to assess, monitor, and mitigate potential significant adverse impacts from proposed projects is necessary, but so is the application of Traditional Knowledge. In this environmental assessment, the proponent relied almost exclusively on science to evaluate, monitor, and mitigate potential impacts. The use of Traditional Knowledge was very minimal and relegated to short statements that do not reflect the depth, complexity, and value of Traditional Knowledge.

The inclusion of “community” hearings is a step in the right direction; however, the information available to community members is based almost entirely on science. This undermines the effectiveness of “community” hearings and the entire environmental assessment process.

Suggestion #1:

The environmental assessment process should to be modified to meaningfully include Traditional Knowledge throughout the entire process. In particular, the proponent should complete a Traditional Knowledge study (in addition to the technical report) to evaluate, monitor, and mitigate potential impacts using Traditional Knowledge.

Suggestion #2:

Funding should be made available for affected Indigenous governments and organizations to participate in the water licence and land use permit phase of the regulatory process in order to allow Indigenous parties meaningfully participate in the entire regulatory process.

DDMI's Engagement with LKDFN

Since the MVEIRB's decision to refer DDMI's proposal to deposit processed kimberlite into mined out pits and underground workings to environmental assessment, DDMI has held only one community meeting in Lutsel K'e in April 2019. DDMI provided very general information on the proposed project followed by a short question and answer period. In general, DDMI's engagement with LKDFN needs to be greatly improved. The lack of engagement is exasperated by the LKDFN's Wildlife, Lands, and Environment Department's severe financial and human capacity constraints, which makes it extremely difficult to monitor the ongoing environmental and socio-cultural performance of DDMI and other mines.

Recommended Measure #1:

To improve engagement with Environmental Agreement partners and other interested parties, DDMI will revise their Engagement Plan to include the type, frequency, audience, and cost of engagement activities. The revised Engagement Plan should be based on discussions with and comments from all affected Indigenous governments and organizations.

Recommended Measure #2

DDMI and any other parties to whom measures and suggestions have been directed, shall report annually to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) on progress made on the measures, suggestions, and commitments recorded in the Report on Environment Assessment for this project.

Cultural Use of the Area

Perceived Cultural Use Impacts

In the MVEIRB's *Final Scope and Reasons for Decision* document, it clearly states that the assessment of cultural use of the area includes, "Activities that may affect how traditional land users perceive the safety, quality, and health of Lac de Gras needs to be carefully considered, because *perceptions* can change how an area is used. Actual or

perceived effects to Lac de Gras that affect how people use the area *must* be identified and assessed so that, if necessary, impacts may be mitigated appropriately” (PR #40, p. 9, emphasis added). DDMI was supposed to assess both actual and perceived impacts of the proposed project on cultural use of the area. The only way to assess traditional lands users’ perceptions of effects to Lac de Gras from the proposed project is to ask them. DDMI did not ask traditional land users from the LKDFN how the proposed project would affect how they perceive the safety, quality, and health of Lac de Gras and how to mitigate those potential impacts. Instead, DDMI relied on publically available literature to assess potential cultural use impacts; however, traditional land users’ perception of the proposed project cannot be ascertained by extrapolating from other unrelated studies. In summary, DDMI failed to assess traditional land users perceptions of potential impacts to cultural use of the Lac de Gras area. This is a glaring omission that must be rectified.

When asked by the LKDFN’s Wildlife, Lands, and Environment Department staff, Lutsel K’e Denésoliné water users stated they would not feel safe consuming water and fish from Lac de Gras if processed kimberlite is deposited into the mined out pits.

Availability of Healthy Caribou

DDMI did not adequately respond to the LKDFN’s concerns regarding access to and availability of *healthy* caribou and other wildlife. Lutsel K’e Denésoliné need to know if caribou and other wildlife are safe to consume. Lutsel K’e Denésoliné have expressed strong concerns regarding the health of caribou and other wildlife that may come into contact with mineral resource extraction projects. For example, caribou or other wildlife could be negatively impacted by the proposed project by drinking contaminated water during pit filling and before meromixis is established. If for some reason, meromixis cannot be established and be maintained, caribou and other wildlife exposure to contaminates is even greater.

Recommended Measure #1:

Working with the Department of Environment and Natural Resources, Government of the Northwest Territories, DDMI will revise the Wildlife Monitoring Program to include an opportunistic CircumArctic Rangifer Monitoring and Assessment (CARMA) sampling program for any caribou that are found dead or killed within the mine site and zone of influence (30 km radius). CARMA sampling program results will be reported in the annual wildlife report and at community meetings.

Recommended Measure #2:

Given the likely small sample size of DDMI's CARMA sampling program, DDMI will partially fund an LKDFN-led CARMA sampling program for at least a three-year period as outlined in LKDFN's Yúnethé Xá ʔetthën Hádi (Caribou Stewardship Plan) in order to collect more samples and increase the reliability and validated of the study.

Recommended Measure #3:

Affected Indigenous governments and organizations will be notified within 24 hours or less of a dead or killed caribou or any other wildlife found within the mine site and zone of influence (30 km radius) and the cause of death.

Water Quality**Preliminary Water Quality Model Uncertainty**

The LKDFN is still very concerned about the viability of meromixis as a containment strategy for processed kimberlite in the very long term. Based on "preliminary" water quality modeling results, DDMI claims that meromixis will likely be established and maintained long enough (approximately 100 years) for fine and extra fine processed kimberlite to settle at the bottom of the pit lake and remain there for at least a 100 years. DDMI claims that, unlike natural lakes in the arctic, pit lakes A154 and A418 are unlikely to mix. The proponent also claims that pit wall fracture is highly unlikely, despite the existence of a fault line. DDMI's confidence in the viability of meromixis and

their ability to meet AEMP benchmarks is surprising since only a “preliminary” water quality model has been conducted to-date. The LKDFN is very concerned that the “preliminary” water quality model done for the environmental assessment does not provide sufficient information to make an informed recommendation to the Review Board.

Lack of Traditional Knowledge in AEMP

The LKDFN believes that the existing Aquatic Effects Monitoring Program (AEMP) does not adequately integrate Traditional Knowledge into water quality, fish, and fish habitat monitoring. DDMI has suggested that “visual observation by the TK Panel” will be part of their AEMP for this project. It is LKDFN’s opinion that the Diavik Traditional Knowledge Panel is an advisory group, not a component of an environmental monitoring program. Based on the understanding of LKDFN’s representative on the TK Panel, Panel members asked to view the pit lake(s) so that they can provide good advice and make strong recommends to DDMI based on their observations. It is the LKDFN’s opinion that DDMI has misconstrued the Panel’s request and is using their request to their advantage in this environmental assessment. The LKDFN believes that the Panel’s request to view the pit lakes should be granted; however, their observations are not part of a Traditional Knowledge component of the AEMP.

Qualitative Water Quality Criteria

The Review Board has specifically asked interveners to provide qualitative water quality objectives based on what the water will be used for and how clean the water needs to be (PR #). The simple answer is - all life forms rely on clean water for life. Water is used by everything. The LKDFN believes that a more appropriate question would have been – what would water not be used for?

Assessing Cumulative Impacts of Processed Kimberlite on Lac de Gras

DDMI did not conduct cumulative effects assessment based on the potential cumulative impacts of processed kimberlite from the PKC facility and pit lakes A154 and A418 at Diavik Diamond Mine and the PK facility and Beartooth, Panda, and Koala pits at Ekait Diamond. The potential for cumulative significant adverse impacts to Lac de Gras from both mines is likely quite high.

Recommended Measure #1:

The LKDFN recommends that updated water quality modeling be conducted as the modeling done to date, to assess the deposition of processed kimberlite, has been characterized by DDMI as “preliminary” and “subject to further evaluation.” An updated model is required, before a new water licence is approved, in order to assess if the deposit of processed kimberlite into open pits and mine workings should be approved as potential significant adverse impacts from this project cannot be adequately assessed at this time.

Recommended Measure #2:

To prevent significant adverse impacts on water quality, fish and fish habitat, and cultural use of the area, DDMI will establish an independent review panel collaboratively with all interested parties. This collaborative process shall include:

- Establishing the composition of the independent review panel;
- Determining how the review panel will select the water quality model and inputs;
- Deciding how the independent review of the modeling results will be structured;
- Documenting the process for the independent review panel report; and
- Identifying the process for incorporating the recommendations of the independent review panel into the modeling and monitoring conducting prior to, during, and after the placement of processed kimberlite into pits.

Recommended Measure #3:

If pre-deposition water quality modeling results show that DDMI cannot meet all AEMP benchmarks in the top 40 m in pit lake(s), DDMI will not deposit any processed

kimberlite into the pit(s). This will be a condition of any regulatory approval of the Wek'eezhii Land and Water Board.

Recommended Measure #4:

The water in Lac de Gras must be as close to pre-mine conditions as humanly possible. The water quality in Lac de Gras must be able to support all life forms that live in and access the lake.

Traditional water users are not adversely affected from the deposit of processed kimberlite into pits, now and in perpetuity.

Recommended Measure #5:

DDMI will co-develop AEMP benchmarks, based on Traditional Knowledge, with all interested parties, in order to assist Indigenous water users in assessing the safety, quality, and health of water in Lac de Gras and pit lake(s) that may contain processed kimberlite based on Indigenous knowledge systems.

Recommended Measure #6:

The fresh water cap should be no less than 100 m deep to reduce the likelihood of mixing and extend the length of time before meromixis breaks down in order to increase the likelihood that fine and extra fine processed kimberlite remain at the bottom (monimolimnion layer) of the pit lake(s).

Recommended Measure #7:

Before any other mined out pits and underground mine workings in the Northwest Territories are approved for the deposition of processed kimberlite, the Cumulative Impacts Monitoring Program, Government of the Northwest Territories, will work with existing mines that have authorization to deposit processed kimberlite into mined out pits and underground mine workings to assess cumulative impacts on water quality in pit lakes and Lac de Gras, fish and fish habitat, and traditional water users. The results from

this cooperative study will contribute to the regulatory systems ability to make sound, evidence-based decisions about land and water use in the Northwest Territories.

Suggestion #1:

The LKDFN strongly suggests that in the future the MVEIRB should require more rigorous water quality modeling be conducted during the environmental assessment process so the Review Board can make more informed recommendations to the Minister.

Fish and Fish Habitat

Fish Habitat in Pit Lake(s) Containing Processed Kimberlite

In the event, however unlikely, that meromixis is not established in the pit lake(s) or all AEMP benchmarks are not met, fish habitat may be reduced by the necessity to isolate pit lakes containing processed kimberlite from Lac de Gras. Since pit lake A418 is sufficient in size to store all of the processed kimberlite until the end of life of the mine, there is no need to use pit lake A154 to store processed kimberlite and potentially reduce fish habitat in A154. Not placing processed kimberlite in pit A154 would also eliminate the need for DDMI and DFO, in conjunction with Indigenous governments and organizations, to identify and improve fish habitat elsewhere to offset potential loss of fish habitat in pit lake A154 if meromixis is not established and/or maintained.

Recommended Measure #1:

To minimize potential significant adverse impacts to fish and fish habitat, DDMI is only permitted to deposit processed kimberlite into pit lake A418. Processed kimberlite will not be deposited and stored in pit lakes A21 and A154.

Recommended Measure #2:

To minimize fish, wildlife, and human exposure to processed kimberlite due to an unforeseen mixing event over the long- and very-long term, pit lake(s) containing processed kimberlite will not be reconnected with Lac de Gras.

Recommended Measure #3:

Based on the measure #2 above, DDMI, DFO, and affected Indigenous governments and organizations will identify fish habitat improvements elsewhere in order to offset the loss of fish habitat in pit lake A418.

Recommended Measure #4:

The existing “fish palpability and texture” monitoring activities will be incorporated into the AEMP in sufficient detail, including who, what, where, when, and how, in order to assess the quality and health of fish in Lac de Gras and pit lakes during construction, closure, and post-closure phases.

Wildlife

LKDFN and other Indigenous governments and organizations at the technical hearing expressed concerns regarding caribou and other wildlife coming into contact with pit lakes that may contain processed kimberlite and the need to establish a barrier around pit lakes containing processed kimberlite in order to minimize the possibility of wildlife coming into contact with potential contaminated water.

Recommended Measure #1:

DDMI will update the Wildlife Monitoring Program, before processed kimberlite is transported to pit(s), to include methods to block wildlife from the pit lake containing processed kimberlite during operations, closure, and post-closure phases. Methods employed to block wildlife from pit lakes should be based on the best available Traditional Knowledge and science. Traditional Knowledge should be collected through a literature review and engagement with affected Indigenous governments and organizations.