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

20 September 2019

Dear Mr. Cliffe-Phillips:

**Subject: DDMI Response to LKDFN's Recommendations from Hearing for the Environmental Assessment of the Processed Kimberlite to Mine Workings Proposal (MVEIRB File No.: EA1819-01)**

Diavik Diamond Mines (2012) Inc. (DDMI) is pleased to provide the Mackenzie Valley Environmental Impact Review Board (MVEIRB or the Board) with responses to Lutsel K'e Dene First Nation's (LKDFN) Recommendations in their Hearing Presentation as part of the Review of the Processed Kimberlite to Mine Workings Proposal (PKMW).

We thank the MVEIRB for the opportunity to provide additional clarification to LKDFN regarding the PKMW. Please do not hesitate to contact the undersigned or Kofi Boa-Antwi (867 447 3001 or [kofi.boa-antwi@riotinto.com](mailto:kofi.boa-antwi@riotinto.com)) if you have any questions related to this submission.

Sincerely,



Sean Sinclair  
Superintendent, Environment

cc: Catherine Fairbairn, MVEIRB  
Kate Mansfield, MVEIRB  
Ryan Fequet, WLWB  
Anneli Jokela, WLWB

**ATTACHMENT**

**DDMI Responses to LKDFN Recommendations in Hearing Presentation – Environmental Review for the Processed Kimberlite to Mine Workings Project Proposal**

Recommendation	DDMI Response
<b>General</b>	
1. DDMI shall revise the Engagement Plan to include specific engagement and participation in activities during closure and post-closure.	DDMI commits to continuing to engage with the LKDFN to identify alternative or complementary approaches to closure and post-closure activities associated with the PKMW Project. As part of this commitment, DDMI intends to work with the TK Panel, Participation Agreement organizations and communities, and other Indigenous Groups toward the development of TK-based acceptance criteria for re-connection of the pit lake(s) to Lac de Gras at closure/post-closure. These intended additional engagement activities will be reflected in the Engagement Plan for the Diavik Operations.
<b>Cultural Use</b>	
2. DDMI shall meaningfully engage with the LKDFN to identify and assess actual and perceived cultural use impacts and mitigation strategies.	DDMI commits to continuing to engage with the LKDFN, including elders and other Traditional Knowledge holders, to understand and identify approaches to assess and mitigate potential impacts on cultural use. DDMI has committed to proceed with the development of a TK-based approach to assessing pit lake conditions with respect to impacts on cultural use and will be seeking direct involvement from the TK Panel and EMAB. LKDFN is actively involved in both.
3. DDMI shall revise the AEMP to include benchmarks based on TK in order to assist land users in assessing the safety, quality, and health of Lac de Gras and pit lakes.	DDMI notes that AEMP benchmarks for individual projects undergo extensive consultation and review processes at the regulatory phase by the Wek'èezhì Land and Water Board (WLWB) with involvement of other regulatory bodies, and Indigenous Groups and communities, before the establishment of these

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	<p>AEMP benchmarks. The WLWB, as part of Water Licencing Processes, reviews and approves AEMPs and associated actions/mitigations to be taken if specific thresholds (action levels) of effects to aquatic valued components, such as water quality and aquatic life, are exceeded.</p> <p>DDMI acknowledges the importance to TK in the development of specific thresholds for the protection of valued components. For instance, DDMI agrees with the recommendation to develop TK-based criteria for assessing pit lake water quality that can be considered in addition to comparisons of measured water quality with AEMP benchmarks in any consideration of reconnecting fish from Lac de Gras with the pit lake.</p>
<b>Caribou and Other Wildlife</b>	
<p>4. DDMI shall revise the Wildlife Monitoring Program to include monitoring activities based on TK in order to mitigate impacts to caribou and other wildlife during operations.</p>	<p>DDMI does not expect any greater potential for wildlife, including caribou, interaction with pit water quality during operations of the PKMW Project than what is currently managed by DDMI for PKC pond water quality as part of the existing Diavik operations.</p> <p>However, DDMI commits to updating the wildlife monitoring program for Diavik to include the PKMW Project to validate/confirm predictions about potential for wildlife-project interaction. The updated monitoring program will support site monitoring during operations to determine whether wildlife, including caribou and migratory birds, interact with pit(s)/mine workings during infilling and prior to stabilization of water quality.</p> <p>DDMI will continue to implement its existing Standard Operating Procedures (SOPs) for the management of wildlife at site. To minimize wildlife interactions with the mine workings/pits during construction and operations:</p>

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	<ul style="list-style-type: none"> <li>i. Monitoring/tracking of wildlife presence and/or proximity to the mine workings.</li> <li>ii. Training all site personnel to record and/or report incidental sightings of wildlife, including birds, in the general area of the mine workings during operations.</li> <li>iii. Employing deterrents such as herding as required.</li> <li>iv. Excavating ramps into the pit walls that will remain as a shoreline.</li> <li>v. Use of wildlife deterrence techniques such as truck horns, bear bangers, 12Ga cracker shells, 12Ga bean bags, scarecrows, decoy foxes and falcons, noise makers (Wetland Wailer Mk IV), and hanging screens down the high walls of the pits.</li> </ul> <p>DDMI also implements caribou-specific advisories as part of a caribou monitoring program to assemble information of caribou occurrence in the region, when caribou are near or approaching the Diavik site and when caribou are on the East Island. The Caribou Monitoring Program provides the following notifications to DDMI site personnel:</p> <ul style="list-style-type: none"> <li>• <b>No Concern (Green):</b> The notification issued to Diavik site managers that no caribou or fewer than 1000 caribou are present on the East Island.</li> <li>• <b>Caribou Advisory (Yellow):</b> The notification issued to Diavik site managers that between 100 and 1000 caribou are present on the East Island. Temporary road closure and various management actions may be required; technical procedures may be implemented, including modification, careful control or stoppage of traffic, construction and operation activities.</li> <li>• <b>Caribou Alert (Red):</b> The notification issued</li> </ul>

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	<p>to Diavik site managers that over 1000 caribou are present on the East Island. Temporary road closure or management actions may be required; technical procedures may be implemented, including modification, careful stoppage of traffic, construction and operation activities.</p> <p>Caribou herding procedures are to be applied when caribou move onto the dikes of the mine pits, either traveling over land or by swimming to the dike. Any number of caribou present on the mining dikes will trigger caribou herding action by DDMI personnel. DDMI’s caribou herding procedures to avoid interaction with the pit/mine workings areas are as follows:</p> <ul style="list-style-type: none"> <li>• Use a combination of a small truck and/or foot patrol as most appropriate for the local situation and terrain. The direction of herding is informed by the location of the caribou and the safest escape routes for caribou.</li> <li>• Personnel coordinating the caribou herding maintain communication with supervisors of operations with the pit/mine workings areas to facilitate modification of operations including temporary cessation of operations until the personnel coordinating the caribou herding announce the “All Clear” at the completion of the caribou herding procedures.</li> </ul> <p>Herding by vehicle and on foot entail approaching caribou at a slow speed (less than 5 km/hr for vehicles) and stopping when caribou show an alarmed response. Observations of caribou behavior will provide cues on when to proceed. DDMI personnel are to ensure that herding does not stimulate a very alarmed-panic escape response.</p>

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	DDMI further commits to continuing to engage with the LKDFN to identify alternative or complementary approaches to limiting wildlife, including caribou, interaction with the PKMW Project during the operations phase.
5. DDMI shall revise the Wildlife Monitoring Program to include an opportunistic CircumArctic Rangifer Monitoring and Assessment (CARMA) sampling program for caribou that are killed or found dead within the mine site and ZOI.	DDMI’s assessment of potential Project effects on caribou including existing and proposed mitigation measures as well as a commitment to continue the existing Wildlife Monitoring Program, demonstrates a high level of sensitivity to the ecological and socio-cultural importance of caribou in the region. Given that this assessment has demonstrated the PKMW project will have no significant effects to wildlife, including caribou, it is unclear why DDMI should assess the cause of death and overall health of any animals found deceased within the zone of influence of the mine. In DDMI’s view, the current Annual Diavik Wildlife Monitoring Program and Report adequately addresses monitoring requirements for wildlife within the zone of influence and any changes to this program are reviewed and adaptively managed through annual updates to the program. DDMI will consider collaborating with proponents of other projects in the Lac de Gras area to determine cause of death of caribou if an upward trend in mortality of caribou herds overlapping the Lac de Gras area is observed with an associated PKMW effect pathway following commencement of the PKMW Project.
6. DDMI shall partially fund a 3-year CARMA caribou sample program led by LKDFN as outlined in our Caribou Stewardship Plan / Yúnethé Xá ʔetthën Hádi.	DDMI recognizes the importance of the Bathurst caribou herd to northern residents and indigenous communities as stated in Section 7.1.1.1 of the Summary Impact Statement. DDMI’s assessment of potential Project effects on caribou including existing and proposed mitigation measures as well as a commitment to continue the on-going Wildlife Monitoring Program, demonstrates a high level of

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	<p>sensitivity to the ecological and socio-cultural importance of caribou in the region.</p> <p>Overall, with the application of project design features as well as existing mitigation and monitoring, the PKMW Project is not expected to result in a measurable change in habitat, sensory disturbance, change in movement, or increased mortality risk for barren-ground caribou with ranges overlapping the Lac de Gras area.</p> <p>In DDMI's view, the current Annual Diavik Wildlife Monitoring Program and Report adequately addresses monitoring requirements for wildlife, including caribou, within the zone of influence and any changes to this program are reviewed and adaptively managed through annual updates to the program. Since the PKMW Project is not expected to result in a measurable change in habitat, sensory disturbance, movement, or increased mortality risk for barren-ground caribou with ranges overlapping the Lac de Gras area, DDMI does not see value in partially funding a 3-year CARMA caribou sample program led by LKDFN.</p>
<b>Fish and Fish Habitat</b>	
<p>7. The TK fish and fish habitat monitoring components of the AEMP should be described in sufficient detail (e.g. who, what, where, when, and how) in order to determine the health, safety, and quality of fish and fish habitat in Lac de Gras and the pit lakes.</p>	<p>In DDMI's view, the specific terms and conditions that will define the monitoring plans related to pit lake(s), including those associated with the AEMP, should be established by the Wek'èezhli Land and Water Board (WLWB) through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings and the specific monitoring plans should be established through updates, reviews and approvals to Diavik's Closure and Reclamation Plan and AEMP Design Plan. In general, once a pit has been filled, DDMI has proposed to monitor water quality following an established Surveillance Network Program (SNP). DDMI believes there is sufficient</p>

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	<p>alignment on the general scope of the proposed monitoring such that it could be consolidated into monitoring Conditions within an Amended Water License.</p> <p>All Diavik monitoring programs are based on the principles of adaptive management and each iteration undergoes significant public review by Indigenous Groups and regulatory agencies, including Fisheries and Oceans Canada, before implementation.</p>
<p>8. DDMI shall revise the AEMP to include a fish use of pit lakes monitoring component in order to assess the ability of fish to live in pit lakes and the health of fish in pit lakes.</p>	<p>In DDMI’s view, the specific terms and conditions that will define the monitoring plans related to fish and fish habitat in pit lake(s) should be established by the Wek’èezhìi Land and Water Board (WLWB) through the review of the Processed Kimberlite to Mine Workings Water Licence Amendment and the specific monitoring plans should be established through updates, reviews and approvals to Diavik’s Closure and Reclamation Plan and AEMP Design Plan. In general, if monitoring of fish use in the pit is determined to be necessary and valuable, DDMI expects that acoustic monitoring is likely the most effective method to monitor for use. DDMI would like to emphasize that fish use of the pit lake cannot be a requirement as this cannot be guaranteed regardless of pit lake access, water quality or general ecological health. Further, scientific and TK evidence documented by DDMI to date suggest that fish will not actively use the deep (&gt;40 m) areas.</p>
<b>Water Quality</b>	
<p>9. DDMI shall use pre-mining, baseline conditions in Lac de Gras for AEMP benchmarks.</p>	<p>With respect, while we acknowledge mine operations have caused small changes in Lac de Gras, all monitoring (including TK monitoring) demonstrates the Lac de Gras is currently safe for aquatic life, fish and fish habitat. DDMI expects that with the completion of mining operations in 2025 and closure of the mine workings, that the operational water quality changes to Lac de Gras will reverse. With or</p>



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	<p>without deposition of processed kimberlite Lac de Gras will continue to be safe for aquatic life, fish and fish habitat.</p> <p>The AEMP Benchmarks have been approved by the WLWB as an important effects benchmark for triggering adaptive management. It is DDMI's view that AEMP Benchmarks are also appropriate for Environmental Assessment determination of significance.</p>
<p>10. Before any PK is deposited into mined out pit(s) at Diavik Diamond Mine, the viability of meromixis must be proven at Ekati Diamond Mine in beartooth pit or another similar pit lake containing PK with at least a 40 m fresh water cap in the Arctic. Within the demonstration pit lake, meromixis must be established and maintained over at least one open water season.</p>	<p>In DDMI's view, the specific terms and conditions that will define the timing for infilling of the pit lakes with water from Lac de Gras should be established by the Wek'èezhì Land and Water Board (WLWB) through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings and the specific monitoring plans should be established through updates, reviews and approvals to Diavik's Closure and Reclamation Plan and Aquatic Effects Monitoring Program (AEMP) Design Plan. DDMI also emphasizes that the development and maintenance of meromixis or a chemocline is not required for the protection of aquatic life, rather water quality in the top 40 m of the water column should remain below AEMP Benchmarks.</p> <p>DDMI further notes that LKDFN's recommendation that PK deposition in mined out pit(s) at Diavik should be contingent on confirmation of outcomes of similar deposition at the Beartooth Pit at the Ekati Mine is not feasible as it would require that Beartooth be closed and flooded in 2020. DDMI contacted Ekati to determine if Beartooth would be flooded in 2020 and they confirmed it was still in use and would definitely not be flooded in 2020.</p>
<p>11. DDMI shall revise the Interim Closure and Reclamation Plan to include goal(s), objective(s), and</p>	<p>DDMI will undertake comprehensive monitoring programs a part of its regulatory closure requirements. DDMI is working with the Traditional</p>

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<p>criteria based on TK.</p>	<p>Knowledge Panel to develop approaches to TK-based closure monitoring. DDMI expects the duration of post-closure monitoring to be guided by and adaptively respond to results obtained.</p> <ul style="list-style-type: none"> <li>• DDMI recognizes the importance of the views of Indigenous Groups to the decision on whether to breach the pit lakes and re-join with Lac de Gras.</li> <li>• DDMI commits to working toward the development of acceptance criteria for re-connection that are TK-based.</li> <li>• DDMI will:               <ol style="list-style-type: none"> <li>i. Seek the TK Panel’s permission to change the scope of the September 12-16, 2019 TK Panel session to instead develop recommended TK-based re-connection criteria;</li> <li>ii. Ask that the Environmental Monitoring Advisory Board (EMAB) facilitate the revision/support of the recommended TK-based criteria with the five (5) Indigenous Parties represented on EMAB;</li> <li>iii. Provide opportunity for Indigenous Groups that are not represented on EMAB to review and comment on TK-based criteria;</li> <li>iv. Submit the TK-based re-connection criteria to the Wek’èezhì Land and Water Board (WLWB) for public review and approval as a closure criteria.</li> </ol> </li> </ul>