Diavik Diamond Mines Inc.

Processed Kimberlite to Mine Workings

Closing Arguments

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Plain Language Summary

Diavik Diamond Mines (2012) Inc. (DDMI) is asking for approval for the deposition of processed kimberlite into one or more of two underground and/or open mine workings (A418 and A154) located at the Diavik Diamond Mine beginning in late 2021 (the proposal is also called PKMW Project in this document). Based on the current mine plan, A418 is the preferred and likely option and A154 is the alternate. The A21 mine working was removed from consideration during the Mackenzie Valley Environmental Impact Review Board's Review of the PKMW Project.

The PKMW Project will not alter the total amount or rate of production at Diavik or change the life of mine for the Diavik Project. If the PKMW Project is approved to proceed, stored processed kimberlite in mine workings will be a permanent part of the Diavik Mine at closure. The PKMW Project will: 1) eliminate the need to construct a 4 meter dam raise around the 6 kilometer Processed Kimberlite Containment Facility therefore reducing the amount of processed kimberlite stored in a less secure above-ground location and reducing the site closure footprint; 2) eliminate the long-term porewater release from the additional on-land storage of processed kimberlite therefore improving long-term water quality in Lac de Gras; 3) enable DDMI to investigate improved Processed Kimberlite Containment Facility closure options including possibly relocating the extra fine processed kimberlite to the mine working as suggested by the Traditional Knowledge Panel, covering the entire facility with clean rock, and starting the facility closure 3 years earlier – all of which reduce risk of caribou and other animals directly contacting processed kimberlite material in the short and long-term; and 4) reduce the amount of Lac de Gras water required to re-fill the mine workings at closure therefore reducing the risk of impacting the aquatic environment. If the PKMW Project is not approved to proceed, Diavik will continue to operate and produce diamonds with associated waste (processed kimberlite and country rock) until 2025 and sacrifice the benefits identified above.

In fact, DDMI is the only operating diamond mine in the Northwest Territories that does not have approval to deposit processed kimberlite in mine workings. Both the Ekati and Gahcho Kue Mines have regulatory approval to deposit processed kimberlite in mine workings. In the case of Ekati, the Beartooth pit has already been filled with processed kimberlite and Gahcho Kue have approved plans to deposit processed kimberlite into the mined out Hearn Pit before reconnection with Kennady Lake. In both examples, once operations are complete, mine workings will be reconnected with the receiving environment.

The PKMW Project can be summarized as follows. First, DDMI will deposit processed kimberlite in the form of a slurry into the mine workings. Most water deposited as part of the processed kimberlite slurry will be pumped out of the pit, but some of this "porewater" will remain on top of the processed kimberlite. DDMI will then add freshwater from Lac de Gras overtop of the processed kimberlite in the pits to create a deep pit lake where stable layers of water will form naturally, isolating the processed kimberlite from the surface environment. Over one to two years, this porewater will concentrate at the bottom of the pit lakes, leaving a deep clean freshwater layer overtop. The freshwater and porewater layers will not mix under normal conditions, effectively sealing the processed kimberlite and related porewater very deep in the lake. After re-filling the pits with lake water, DDMI will monitor the water quality in the pit lakes to verify that the top 40 meters of the water column is protective of fish, people and wildlife. Once near surface water quality has been confirmed to be safe, these pit lakes will be reconnected to Lac de Gras by creating several gaps in the dikes, allowing fish and water to move freely between the pit lake and Lac de Gras.

As part of the approval process for the PKMW Project, DDMI, on June 1, 2018, submitted an application to the Wek'èezhìi Land and Water Board to amend the Water Licence (WL2015L2-0001) for the Diavik Diamond Mine to include the proposed activities, after pre-application engagement with various stakeholders, including Indigenous Groups. During the pre-application engagement, DDMI did not receive opposition from stakeholders, including communities, on the project idea. In general, what we heard was support to "put it (processed kimberlite) back where it came from" as long as it could be done in an environmentally safe manner (see Traditional Knowledge Panel Session Report – Options for Processed Kimberlite; PR #85).

On February 19, 2019, after several rounds of public reviews including a 2-day technical session during the Wek'èezhìi Land and Water Board's preliminary screening of the application, the Mackenzie Valley Environmental Impact Review Board decided to conduct an environmental assessment (Review) on DDMI's proposed PKMW Project. Mackenzie Valley Environmental Impact Review Board's April 18, 2019 report "Scope of the Environmental Assessment and Reasons for Decision" noted that the scope of the PKMW Project for the Review consists of the following:

- Transporting, depositing, and storing processed kimberlite in pits and underground mine workings (includes A418, A154 and A21); and

- Closing and reclaiming any mine infrastructure related to the transport, deposition and storage of processed kimberlite in mine workings

The referral of the PKMW Project to a Review means that the Project may now only progress through the Wek'èezhìi Land and Water Board's regulatory/permitting phase after completion of the Mackenzie Valley Environmental Impact Review Board's Review process and approval of the PKMW Project by the Mackenzie Valley Environmental Impact Review Board and the Responsible Minister(s).

As part of the Review process, DDMI conducted an environmental assessment of the PKMW Project, which was presented in a Supplementary Impact Statement. DDMI's environmental assessment of the PKMW Project used a method developed by Stantec Inc. that has been used in environmental assessments across Canada, including all the northern territories. This environmental assessment method is based on a structured approach that: identifies potential effects; assesses and describes those effects after implementation of mitigation measures; identifies and assesses cumulative effects; and, finally assesses the significance of residual Project and cumulative effects on the environment.

DDMI assessed the potential effects of depositing processed kimberlite into open pits A418 (preferred location), A154 and A21 (alternate locations) on Lac de Gras, the Coppermine River, the Narrows and traditional land users and wildlife in the area. DDMI's environment assessment focused on valued components (specific parts of the environment of particular importance to people) as identified by the Mackenzie Valley Environmental Impact Review Board for this Review. The valued components that formed part of the Review are water quality; water quantity; fish and fish habitat; caribou, aquatic and migratory birds, and species at risk; and cultural use. However, DDMI considers water quality to be the primary effects pathway to all the other valued components.

Several interested parties and potentially impacted communities, including 11 Interveners, have been involved in the Mackenzie Valley Impact Review Board's Review of the PKMW Project to date. The Interveners are Deninu Kue First Nation; Environment and Climate Change Canada; Environmental Monitoring Advisory Board; Fisheries and Oceans Canada; Fort Resolution Métis Council; Government of Northwest Territories; Łutsel K'e Dene First Nation; North Slave Métis Alliance; Northwest Territory Métis Nation; Tłı̨chǫ Government; and Yellowknives Dene First Nation. A number of these interested parties raised specific concerns about the potential impacts to the environment, including wildlife, and to cultural / traditional

activities from the PKMW Project and the adequacy of water quality studies completed to date by DDMI.

Throughout the Review, DDMI has endeavoured to address concerns raised by interested parties through project clarifications, face-to-face meetings, tours of the Diavik Mine site to give stakeholders a first-hand idea of the location and size of the proposed PKMW Project, and responses to parties' questions. DDMI has also made commitments to address recommendations made by parties throughout the Review.

Due to stakeholder concerns with the potential for some adverse environmental impacts if the A21 pit were to be used for processed kimberlite deposition, DDMI has agreed with parties' recommendation to remove the A21 Open Pit from consideration for processed kimberlite deposition in the current Review.

DDMI acknowledges that all 11 Interveners associated with the PKMW Review, with the exception of Deninu Kue First Nation, recommend conditional approval of the PKMW Project. DDMI considers that its comprehensive list of commitments satisfy the conditional approval of the PKMW Project recommended by Interveners. Further, DDMI has reviewed measures recommended by Interveners for incorporation as conditions for Approval of the PKMW Project and provided its response, including its recommended measures. As part of the response, DDMI has recommended the following measures for the Mackenzie Valley Impact Review Board's consideration as conditions for Approval of the PKMW Project:

1. The minimum freshwater cap in pit lake(s) following processed kimberlite deposition shall be not less than 50 meters.

2. DDMI shall update water quality modelling before proceeding with each of the three main phases of the PKMW Project: 1) prior to commencing deposition as part of the Processed Kimberlite Containment in Mine Working Design Report 2) prior to pit filling with Lac de Gras water (incorporating as-built conditions); and 3) after pit filling but before dike breaching (to allow calibration of model inputs and assumptions).

3. DDMI shall conduct an independent review of updated modelling prior to deposition of processed kimberlite in the mine workings. An independent review will be established following the framework of the Diavik Geotechnical Review Board.

4. If pre-deposition modelling indicates AEMP benchmarks cannot be met in the top 40 meters of the water column in the pit lake(s) then processed kimberlite deposition in mine workings will not proceed.

5. DDMI shall conduct monitoring to confirm that water quality in the top 40 meters of the pit lake(s) is below AEMP benchmarks prior to reconnection of the pit lake(s) to Lac de Gras.

6. If post-deposition pit lake water quality monitoring indicates AEMP benchmarks cannot be met in the top 40 meters then fish from Lac de Gras will be prevented from accessing the pit lake(s).

7. DDMI shall develop and implement a DFO-approved Fish Habitat Offsetting Plan if the PKMW Project will result in impacts to fish habitat beyond what is approved by DFO under current fisheries authorizations for the Diavik Mine.

8. The Wek'èezhìi Land and Water Board shall establish the specific terms and conditions that will define the project design submission and monitoring programs related to the PKMW Project through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings Project.

9. DDMI shall not deposit processed kimberlite into the A21 Open Pit as part of the PKMW Project.

10. DDMI shall update the current Wildlife Monitoring Program to cover the construction, operation, closure and post-closure phases of the project and will assess wildlife-project interactions and resulting effects on wildlife. The Wildlife Monitoring Program will inform DDMI's Adaptive Management Measures for the protection of wildlife, including Caribou. This shall include the implementation of wildlife deterrence techniques to discourage wildlife from interacting with the Project.

11. DDMI shall undertake Engagement with potentially impacted Indigenous Groups to inform Project Design on the Construction, Operation, Closure and Post-Closure Phases of the Project. DDMI's framework for PKMW Project engagement shall be aligned with DDMI Commitment #24 (Appendix A).

12. DDMI shall engage with potentially impacted Indigenous Groups toward the development of Traditional Knowledge-based Acceptance Criteria for Re-

connection of the pit lake(s) to Lac de Gras as part of Closure and Reclamation Plan updates. DDMI's framework for engagement of Traditional Knowledge-based Acceptance Criteria for Re-connection shall be aligned with DDMI Commitment #25 (Appendix A).

13. DDMI shall incorporate reporting related to the PKMW Project into the current reporting framework under the Water Licence and the Environmental Agreement for the Diavik Mine.

DDMI notes that Environment and Climate Change Canada and Fisheries and Oceans Canada, the federal departments with expertise in water quality and fish and fish habitat, respectively, have acknowledged that DDMI's assessment of the potential impacts of the PKMW Project is adequate for the Review stage of the approvals process. DDMI believes that additional project refinement, including fine-tuning of the current conservative (worse-case) water quality modelling, should be addressed by DDMI and stakeholders at the regulatory stage and throughout project execution. DDMI has committed to a 3-tiered approach to updating the modelling prior to the next required phases of project approval: 1) prior to commencing deposition as part of the Processed Kimberlite Containment in Mine Working Design Report (including an Independent Review of predictions); 2) prior to pit filling with Lac de Gras water (incorporating as-built conditions); and 3) after pit filling but before dike breaching (to allow calibration of model inputs and assumptions). DDMI also believes that the specific terms and conditions that will define the detailed project design and monitoring programs related to the PKMW Project, should be established by the Wek'èezhìi Land and Water Board through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings.

In conclusion, DDMI is of the opinion, based on its analyses of potential for environmental impacts, its proposed mitigation measures, and its additional commitments made to address parties' concerns during the Review, that the Processed Kimberlite to Mine Workings Project will not result in significant adverse effects and impacts to Water Quality, Water Quantity, Fish and Fish Habitat, Wildlife and Wildlife habitat, including Caribou and Species at Risk, and Cultural Use. In fact, throughout this Review DDMI has identified numerous positive effects and impacts this Project will have on the environment and DDMI has not identified any disadvantages that are not adequately mitigated by the current commitments. DDMI has a high level of confidence in its predictions of the potential for impacts to the environment and people.

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1. INTRODUCTION

1.1 Processed Kimberlite to Mine Workings Project

Diavik Diamond Mines (2012) Inc. (DDMI) is requesting approval for the deposition of processed kimberlite (PK) into one or more of two underground and/or open mine workings (A418 and A154) beginning in late 2021. The proposed Project is referred throughout this document as the Processed Kimberlite to Mine Workings Project, or PKMW Project. Based on the current mine plan, A418 is the preferred and likely option and A154 is the alternate. The A21 mine working was removed from consideration as a result of this Review.

As part of the process to gain required approvals to proceed with the PKMW Project, DDMI, on June 1, 2018, submitted an application to the Wek'èezhìi Land and Water Board (WLWB) to amend the Water Licence (WL2015L2-0001) for the Diavik Diamond Mine to include the proposed activities, after pre-application engagement with various stakeholders, including Indigenous Groups. DDMI notes that it did not receive opposition from communities or regulators during the initial engagement phase on the project concept prior to submission of an application for the PKMW Project to the WLWB. In general, what we heard was support to "put it (processed kimberlite) back where it came from" as long as it could be done in an environmentally safe manner (see Traditional Knowledge Panel Session Report – Options for Processed Kimberlite; PR #85).

After several rounds of Information Requests and a Technical Session during the WLWB's preliminary screening of the application, on February 19, 2019, the Mackenzie Valley Environmental Impact Review Board (MVEIRB or the Board) decided, on its own motion as per applicable provisions of the Mackenzie Valley Resource Management Act, to conduct an environmental assessment (EA or Review) on DDMI's proposed PKMW Project. The PKMW Project may now only progress through the regulatory/permitting phase after completion of the MVEIRB's EA or Review process and release of the PKMW Project by the MVEIRB and the Responsible Minister(s) i.e. if it is determined that the PKMW Project can proceed.

Several interested parties, including Indigenous Groups, have been involved in the MVEIRB's Review of the PKMW Project to date, including:

- Deninu Kue First Nation (DKFN)
- Environment and Climate Change Canada (ECCC)

- Environmental Monitoring Advisory Board (EMAB)
- Fisheries and Oceans Canada (DFO)
- Fort Resolution Métis Council (FRMC)
- Government of Northwest Territories (GNWT)
- Łutsel K'e Dene First Nation (LKDFN)
- North Slave Métis Alliance (NSMA)
- Northwest Territory Métis Nation (NWTMN)
- Tłı̨chǫ Government (TG)
- Yellowknives Dene First Nation (YKDFN)

Throughout the Review of the PKMW Project, DDMI has sought to address stakeholders' outstanding concerns through responses to Information Requests and Interventions, through visits to the proposed sites for the PKMW Project at the Diavik Mine, and through one-on-one meetings with parties to provide clarifications on the PKMW Project, project design, our environmental assessment approach, and proposed measures to mitigate impacts to valued components scoped into the Review by the MVEIRB (see Section 1.2).

Because of the size of East Island, the existing Processed Kimberlite Containment Facility (PKC) must expand vertically through successive dam raises, one of which is currently under construction. However, the amount of storage area left within the PKC after the current raise will not fit the amount of processed kimberlite (PK) that will be produced during the remaining years of mining i.e. to mine closure in 2025 (the development schedule for the PKMW Project is presented in Table 1). Based on the current mine plan at the Diavik Mine, the PKC will be full in 2021 without an additional dam raise. DDMI does have an approved conceptual dam raise design to the full height of 473 meters above sea level (masl) that will provide enough capacity for the PK that will be produced during the remaining years of mining, but DDMI believes that the PKMW provides a better solution for the long-term storage of PK.

If the PKMW Project is approved to proceed, stored PK in open pits will be a permanent part of the Diavik Mine at closure. As part of this process, DDMI has to show that doing this will not be harmful to the environment or people over a long time. The PKMW Project can be summarized as follows. First, DDMI will deposit PK

in the form of a slurry into the mine workings. Most water deposited as part of the processed kimberlite slurry will be pumped out of the pit to water management facilities at the Diavik site, but some of this “porewater” will remain on top of the PK. DDMI will then add freshwater from Lac de Gras overtop of the PK in the pits to create a deep pit lake where stable layers of water will form naturally, isolating the PK. Over one to two years, the porewater will concentrate at the bottom of the pit lake, leaving a deep freshwater layer overtop. The freshwater and porewater layers will not mix under normal conditions, effectively sealing the PK and related porewater deep in the lake. After re-filling the pits, DDMI will monitor the water quality in the pit lakes to confirm that the top 40 meters of the water column meets certain criteria (to be finalized and agreed before the process even starts) that are protective of fish, people and wildlife. Once near surface water quality has been confirmed to be suitable, these pit lakes will be reconnected to Lac de Gras by breaching the dikes, allowing fish and water to move freely between the two.

With or without approval of the PKMW Project, Diavik will continue to operate and produce diamonds with associated waste (processed kimberlite and country rock) until 2025. The PKMW Project will not alter the amount of production on site or change the life of mine for the Diavik Project. However, the PKMW Project would:

- eliminate the need to construct another on-land PKC dam raise.
- result in a smaller on-land PKC Facility.
- be the best option for Lac de Gras water quality.
- result in less chance of caribou directly getting in contact with PK material.
- allow on-land PKC Facility closure to start 3 years earlier.
- enable additional PKC Facility closure options.
- use less water from Lac de Gras to fill pit lakes.

The option to not proceed with the PKMW Project would:

- require the construction of an additional 4 meter dam raise over 6 kilometers long.
- increase the height of the Processed Kimberlite Containment Facility by 4 meters and contain an additional 5 million cubic meters of processed kimberlite.

- increase the amount of processed kimberlite stored in a comparatively less secure above-ground location.
- result in long-term porewater release from the additional on-land storage of processed kimberlite that would add to the surface run-off entering Lac de Gras.
- result in higher potential for direct contact of wildlife, including caribou, with processed kimberlite as closure of the on-land facility would be delayed by 3 years.
- limit options available for the closure of the on-land storage facility as there would no longer be an option to relocate the extra fine processed kimberlite (EFPK) for disposal in a more secure location in the mine workings.
- require more Lac de Gras water to fill the mine workings at closure.
- increase site runoff risk.
- expand closure and post-closure footprint.

The PKMW Project addresses concerns raised (e.g., the long-term stability and environmental risks of the PKC facility based on currently approved PK deposition/management methods) during past consultations and engagements with stakeholders, including Participation Agreement partners (Tłı̨chǫ Government; Łutsel K'e Dene First Nation; Yellowknives Dene First Nations; North Slave Métis Alliance; and Kitikmeot Inuit Association), potentially impacted communities, the Environmental Monitoring Advisory Board (EMAB), and Diavik's Traditional Knowledge Panel (TK Panel). Northwest Territories populations are (justifiably) concerned with the legacy of the now closed Giant Mine and much of the public concern on the PKMW Project appears to have been informed by that experience. Diavik submits that the PKMW Project can and should be clearly distinguished from the Giant Mine. For example, the present process incorporates the precautionary principle, Diavik will only proceed with each successive steps on the basis of up-to-date project-specific information and the mine waste generated by the Giant Mine is very different from PK.

DDMI further notes that it is the only operating diamond mine in the NWT that does not have approval to deposit processed kimberlite in Mine Workings. Both the Ekati and Gahcho Kue Mines have regulatory approval to deposit processed kimberlite in mine workings. In the case of Ekati, the Beartooth pit has already been filled with

processed kimberlite and Gahcho Kue have approved plans to deposit processed kimberlite into the mined out Hearn Pit before reconnection with Kennady Lake. In both examples, once operations are complete, mine workings will be reconnected with the receiving environment.

Table 1: Development Schedule for the PKMW Project

Development Phase	Activity	Start	End
Construction	Construction of PK Slurry Pipeline	June 2021	October 2021
Operations	Deposition of FPK into A418 and/or A154 Mine Workings	November 2021	2025
	Deposition of EFPK from PKC Facility	As early as 2023 if feasible	As late as 2028 if necessary
	Porewater decanting (dewatering) and management	Once water levels reach pumping infrastructure – estimated 2022	As late as 2028 if necessary with EFPK deposition
Closure	Infilling of A418 and A154 with freshwater from Lac de Gras	June 2026 (timeframe to be confirmed in Final Design)	6 months to two years (timeframe to be confirmed in Final Design)
	Natural stabilization of water in pit lakes; monitoring of water quality in pit lakes prior to reconnection with Lac de Gras	January 2027	Up to two years or as may be required to meet water quality criteria prior to reconnection
	Dike breaching and reconnection of pit	2029 or earlier	

Development Phase	Activity	Start	End
	lakes with Lac de Gras		
Post-closure	Ongoing Monitoring of pit lake water quality during ongoing interactions between deposited PK and lake water	2029	as required to demonstrate Reclamation Performance

1.2 Scope of the PKMW Review

MVEIRB's April 18, 2019 report "Scope of the Environmental Assessment and Reasons for Decision" noted that the scope of the PKMW Project for the Review consists of the following:

- Transporting, depositing, and storing PK in pits and underground mine workings (includes A418, A154 and A21[1]); and
- Closing and reclaiming any mine infrastructure related to the transport, deposition and storage of PK in mine workings.

In its Final Scoping Document and Reasons for Decision, MVEIRB identified three questions to be answered by the environmental assessment:

1. Is storing PK in open pits and underground mine workings likely to be safe for the environment and acceptable to parties, including traditional users of the Lac de Gras area?
2. If PK is stored in open pits and underground mine workings, under what conditions, if any, should the pit lakes be reconnected with Lac de Gras?

[1] The A21 mine working was subsequently removed from consideration during the Mackenzie Valley Environmental Impact Review Board's Review of the PKMW Project.

3. How might changes to water quality resulting from reconnection to Lac de Gras affect the cultural use of the Lac de Gras area, fish and fish habitat or wildlife after closure?

The MVEIRB provided direction that these questions are to be addressed in respect of the effects of the PKMW Project on:

- Water quality
- Water quantity
- Fish and fish habitat
- Cultural use of the area
- Caribou, aquatic and migratory birds and wildlife species at risk

The Board specified that the effects assessment must also assess the effects of accidents and malfunctions and cumulative effects.

DDMI has accepted the focused Environmental Assessment (EA) scope as defined by the MVEIRB and the rationale provided and has endeavoured to provide information to meet the Board's requirements during the ongoing Review of the PKMW Project. DDMI understands that the scope of the assessment and related decisions from the ongoing Review does not include all mine activities and closure plans that have already been addressed through the federal government's rigorous environmental assessment/review for the Diavik Mine Project completed in 1999 and accordingly DDMI has not provided evidence specifically in support of those.

DDMI is of the opinion that with the implementation of proposed mitigation measures presented in the Summary Impact Statement and the additional DDMI commitments in its responses to Interventions and Interveners' recommended measures in their closing arguments, residual environmental effects and impacts to surface water quality; water quantity; fish and fish habitat; caribou, aquatic and migratory birds, and species at risk; and cultural use from the PKMW Project will not be significant and that the PKMW is a preferable solution for long-term PK storage than the already approved expansion of the PKC facility.

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2. OVERVIEW OF THE ENVIRONMENTAL ASSESSMENT

2.1 Valued Components Assessed

DDMI notes that the environmental assessment of the PKMW Project (the Summary Impact Statement) was prepared to meet the requirements of the Mackenzie Valley Resource Management Act and to facilitate a decision by the Mackenzie Valley Environmental Impact Review Board on the significance of impacts of the PKMW Project on the environment, including the impact of accidents or malfunctions, as well as the cumulative impacts of the PKMW Project combined with other developments in the vicinity of the Project.

Environmental assessment methods used to develop the Supplementary Impact Statement use a framework developed by Stantec Inc. that has been used in environmental assessments under the Canadian Environmental Assessment Act, 2012 (CEAA 2012), Nunavut Planning and Project Assessment Act, the Mackenzie Valley Resource Management Act, and Inuvialuit Final Agreement. These environmental assessment methods are based on a structured approach that takes a reviewer through the steps that: identify potential effects; assess and characterize those effects following the application of mitigation measures; identify and assess cumulative effects; and, finally assess the significance of residual Project and cumulative effects on the environment. These methods are fundamentally unchanged from those used by DDMI in its 1998 Comprehensive Study, which was developed to meet the requirements of the former (prior to 2012) Canadian Environmental Assessment Act.

DDMI assessed the potential effects of depositing processed kimberlite into open pits A418 (preferred location), A154 and A21 (alternate locations) on Lac de Gras, the Coppermine River, the Narrows and traditional land users and wildlife in the area. DDMI's environmental assessment focused on valued components (VCs) scoped by the Board for this Review i.e. water quality; water quantity; fish and fish habitat; caribou, aquatic and migratory birds, and species at risk; and cultural use; however, DDMI considers water quality to be the primary effects pathway to all the other VCs.

DDMI assessed these VCs using a common approach that:

1. Defines the scope of the VC assessment: identifies regulations specific to the VC; identifies the influence that consultation and engagement has on the assessment; identifies potential effects and pathways of effects; defines the

spatial and temporal boundaries of the assessment; describes methods to be used for characterizing residual effects; and defines significant effects.

2. Describes existing conditions for the VC.
3. Identifies project interactions with the VC and potential effects that will be assessed.
4. Assesses residual effects on the VC: analytical techniques; pathways for each effect; proposed mitigation for each effect; characterization of residual effects after implementation of proposed mitigation measures.
5. Assesses cumulative effects.
6. Determines significance of effects.
7. Evaluates confidence in predictions.
8. Summarizes follow-up and monitoring.

The assessment approach was modified for cultural resources to reflect the human aspect of this VC.

Project residual effects that are likely to interact cumulatively with past, present and reasonably foreseeable future projects and physical activities were identified and the resulting cumulative effects addressed. Where no residual effects exist no assessment of cumulative effects was completed.

Water Quality: the activities associated with the PKMW Project have the potential to result in changes to general chemistry, nutrients, trace metals, suspended sediments, and total suspended and dissolved solids in water. These changes can cause adverse environmental effects to drinking water quality or water quality for the protection of aquatic life.

Some measures proposed by DDMI to mitigate adverse effects to water quality from the Processed Kimberlite to Mine Workings Project include:

- Optimize the operational level of decant water, where practical, to manage seepage to other mine workings.
- Design and construct bulkheads to prevent the flow of Processed Kimberlite material or decant water into other mine workings.

- Optimize the depth of the water cap over the Processed Kimberlite to protect water quality of the upper 40 m of the water column of infilled pit(s).
- Monitor water quality within the pit lake prior to and after breaching the dikes. DDMI will only breach dikes of pit lake(s) A418 and A154 to reconnect with Lac de Gras once monitoring results confirm acceptable water quality (i.e., below Aquatic Effects Monitoring Program benchmarks).

Water Quantity: Withdrawal of water from Lac de Gras for the Processed Kimberlite to Mine Workings Project has the potential to interact cumulatively with withdrawal from one or more Operations at the Ekati Mine with resulting impacts to water quantity within the Lac de Gras watershed. To reduce the potential for cumulative effects, withdrawal rates for the Processed Kimberlite to Mine Workings Project that are protective of the aquatic environment, and consider other operations within the Lac de Gras watershed, will be established in discussion with regulators.

As part of closure and post-closure, DDMI is proposing to infill mine workings with freshwater from Lac de Gras. Infilling of mine workings is included in Diavik Mine's Interim Closure and Reclamation Plan (ICRP; version 4.0). Depositing PK into mine workings prior to infilling with water will reduce the void space within these mine workings and correspondingly the volume of water needed to fill them.

DDMI will continue to consider the impacts from Ek'ati on the PKMW Project during both the Operations and Closure phases. To reduce the potential for cumulative effects, withdrawal rates for the PKMW Project will be selected that are protective of the aquatic environment, and consider other operations within the Lac de Gras watershed. In DDMI's view, these rates should be established in discussion with regulators through the Wek'èezhìi Land and Water Board (WLWB) process updates/approvals to Diavik's Closure and Reclamation Plan.

Fish and Fish Habitat: the activities associated with the Processed Kimberlite to Mine Workings Project have the potential to result in changes to mortality rates of fish, or the plankton and benthic invertebrates, and changes to fish habitat due to adverse effects on water quality and water quantity.

DDMI will mitigate adverse effects to Fish and Fish Habitat from the Processed Kimberlite to Mine Workings Project through measures to promote stratification of the pit lake(s), that is, separating Processed Kimberlite affected water at the bottom of the pit lake(s) from non-Processed Kimberlite affected water at the top of the pit lake(s) such as only breaching the dikes to connect the mine workings to Lac de

Gras and allow fish access to the pit lake(s) after monitoring shows that water in the top 40 meters of the water column in the pit lake(s) is below the Aquatic Environmental Monitoring Program (AEMP) Effects Benchmarks.

The mitigation measure for the scenario where pit lake(s) are not reconnected to Lac de Gras at closure would be additional offsetting elsewhere in Lac de Gras or the larger region with the approval of Fisheries and Oceans Canada, informed by consultation with potentially impacted Indigenous Groups and Communities.

Wildlife and Wildlife Habitat: the activities associated with the Processed Kimberlite to Mine Workings Project have the potential to result in adverse impacts to Wildlife, including Caribou, aquatic and migratory birds, and Species at Risk, through changes to wildlife habitat, disruption of wildlife movement, changes to wildlife health and an increase in wildlife mortality risk.

Some measures proposed by DDMI to mitigate adverse effects to Wildlife and Wildlife Habitat from the Processed Kimberlite to Mine Workings Project include:

- Limiting the Project components, including pipeline alignment, to existing Diavik Mine footprint where mitigation and monitoring are currently applied and to avoid disturbance of additional land.
- Implementing wildlife deterrence techniques to discourage wildlife from approaching or gathering at Project locations such as the pit lakes during the infilling. These deterrents include visual and sound-making devices such as electronic noisemakers, bird distress calls, standing or pop-up effigies, eyespot balloons, and raptor models, and herding for caribou.
- Wildlife Monitoring Programs will cover the construction, operation, closure and post-closure phases of the Project and will assess wildlife-project interactions and resulting effects on wildlife. The Wildlife Monitoring Program will inform DDMI's Adaptive Management Measures for the protection of wildlife, including Caribou.

Cultural Use: the activities associated with the Processed Kimberlite to Mine Workings Project have the potential to result in changes to:

- Availability of traditional resources for cultural use, affecting the availability of species relied upon to exercise cultural use activities (e.g., hunting, trapping, fishing, and plant gathering);

- Access to traditional resources or areas for cultural use; or
- Sites or areas for cultural use through the disruption or alteration of a traditional use site or location (e.g., habitation areas, trails and travelways, and cultural or spiritual practices sites and areas).

Measures proposed by DDMI to mitigate adverse effects to water quality, water quantity, fish and fish habitat, and wildlife and wildlife habitat will reduce the potential for impacts to Cultural Use from the Processed Kimberlite to Mine Workings Project.

In addition, DDMI has committed to ongoing Engagement with potentially impacted Indigenous Groups to inform Project Design and the Construction, Operation, Closure and Post-Closure Phases of the Project, including a Commitment to working with potentially impacted Indigenous Groups toward the development of Traditional Knowledge-based Acceptance Criteria for Re-connection of the pit lake(s) to Lac de Gras at closure. The objective of this Engagement and associated measures is that at closure, with the PKMW Project, the Diavik mine site is not only safe for cultural use, but is also perceived as such.

Accidents and Malfunctions: Destratification of a pit lake from rock falls associated with a pit wall instability could result in the release of contaminants from the pit lake(s) into Lac de Gras and, depending on concentrations, there is a potential for interaction with wildlife. Pipeline failure could result in release of pipeline liquids to land or water and, depending on the scale of the failure, there is a potential for interaction with water quality, which may impact resources of importance to cultural practices/traditional activities.

The addition of Processed Kimberlite material to the underground mine voids and the addition of water will actually improve pit wall stability in the mine workings. DDMI has a robust integrity management program in place that supports safe operation of these pipelines and includes regular pipeline maintenance and inspections, pipeline integrity management, pipeline pressure monitoring, emergency response planning and operational training. The pipelines are located behind berms designed to prevent pipeline liquids from entering Lac de Gras or tributary streams to Lac de Gras.

2.2 Project-specific and Cumulative Effects and Project Monitoring

All Diavik environmental management and monitoring programs are based on the principles of adaptive management and each iteration undergoes significant public review, before implementation, by Indigenous Groups and regulatory agencies, including Fisheries and Oceans Canada.

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. Further, 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.

DDMI will undertake comprehensive monitoring programs as part of its regulatory closure requirements that will include consideration of effects from the PKMW Project.

3. PRECAUTIONARY PRINCIPLE AND CONSERVATIVE APPROACH

3.1 Project Design and Effects Assessment Approach

A conservative (or precautionary) approach was used in the design of the PKMW Project and in the assessment of potential for impacts to the environment. DDMI received several recommendations from its engagement with the Participation Agreement groups and communities and the TK Panel, and has considered these recommendations in project design, including the development of mitigation measures. DDMI's approach included the development of conservative assumptions (i.e., assumptions that err on the side of over-stating the magnitude, duration, geographic extent, frequency, and likelihood of an impact; for example, conducting sensitivity analysis, as part of water quality modelling, for scenarios ranging from plausible to improbable worst-case) and the design of mitigation measures that are more than adequate for reducing impacts to acceptable levels (for example, the proposed minimum 50 meter freshwater cap for pit lakes).

DDMI recognizes that the area around Lac de Gras was and continues to be highly valued by Indigenous groups for cultural and traditional uses and that the PKMW Project has the potential to affect traditional activities, sites and resources identified by Indigenous groups. DDMI understands that Lac de Gras is used for traditional activities like fishing and is known as a good source of fish. Apart from the Narrows, Indigenous groups engaged on the PKMW Project have not identified specific fishing sites or areas on Lac de Gras where travel by water or ice might be impeded or altered by the Project. Nevertheless, DDMI's environmental assessment adopts a

conservative approach and assumes that Indigenous groups may travel within the local assessment area, including travel by water and ice on Lac de Gras.

In summary, DDMI has adopted the following precautionary measures in the environmental assessment for the PKMW Project:

- Credible assumptions where scientific uncertainty exists.
- Conservative/precautionary approach in the assessment of environmental risk, including using upper bounds in modelling.
- Certainty and confidence in predictions are based on evidence from ongoing operations and on modelling results.

3.2 Conservative Approach in Water Quality Modelling

To date, DDMI has run several model scenarios with predicted water quality in the surface 40 meters (m) column of flooded pits remaining below Aquatic Effects Monitoring Program (AEMP) benchmarks including for several implausible worst-case or very rare scenarios. AEMP Benchmarks are protective of aquatic and terrestrial life.

To assess potential impacts to water quality from the PKMW Project and to meet requests by Wek'èezhìi Land and Water Board (WLWB), the Mackenzie Valley Environmental Impact Review Board (MVEIRB or Board), and various parties during the ongoing Review process and the preliminary screening stage of the preceding Water Licence Amendment process, DDMI has undertaken a series of water quality modelling, including pit lake modelling. Pit lake modelling analysis began with Golder 2018 (PR#11) and then continued with sensitivity analysis as requested by EMAB (PR#12 and PR#7). WLWB IR#5 provided water quality modelling results for the three scenarios requested by the WLWB. This modelling was only requested for the A418 mine area. All of these results were presented and discussed at the WLWB Technical Session at the preliminary screening stage of the WLWB process for DDMI's Water Licence Amendment Application. Three additional model scenarios (2a, 3a and 4a) were discussed and developed by parties at the Technical Session. DDMI was advised by several Parties at the Technical Session that it would be helpful to provide similar modelling results for A154 and A21. DDMI subsequently completed this technical work with all results (A418, A21, and A154) included in the Summary Impact Statement.

Hence, the final 9 model results were used as the basis for the Summary Impact Statement as requested in MVEIRB IR #1. DDMI modelled an additional 9 scenarios to consider the cumulative impact of the pit lakes that considered all reasonable foreseeable developments including Ekati and the Jay Project. The Summary Impact Statement provided detailed modelling results for the long-term storage of processed kimberlite (PK), including extra fine processed kimberlite (EFPK) from the Processed Kimberlite Containment Facility, in A418, A154, and A21 mine workings based on scenarios 2a, 3a, and 4a (see Table 1 below). Predictions of pit lake water quality for the period following PK deposition were made for the nine scenarios described in Table 1.

Table 1: Processed Kimberlite to Mine Workings Project Summary Scenarios

Summary Scenario	Total FPK Volume Deposited to A418, A154 and/or A21	Total Volume EFPK Optionally Deposited to A418, A154 and/or A21	Depth of Porewater Overlying PK (where PK is deposited)
2a	5 Mm^3	-	5 m
3a	5 Mm^3	5 Mm^3	5 m
4a	5 Mm^3	-	15 m

To determine if the pit lake water column would remain vertically stratified and to assess its long-term stability, a two dimensional, laterally averaged, hydrodynamic and water quality model (CE-QUAL-W2) was used. The model predicted changes in total dissolved solids, temperature, and two generic surrogate parameters: (1) a conservative water quality constituent that could be used to predict the concentrations of specific parameters (i.e., major ions, nutrients, and metals); and (2) a settleable constituent to predict the behavior of particulate materials. The model included meteorological and hydrological data, water quality data from Lac de Gras, and chemistry data for the PK porewater and extra fine PK (EFPK).

The water quality modelling completed to date used assumptions for the nine scenarios for planning purposes and will be refined further at the permitting/post-permitting stage and as part of closure planning. The water quality modelling

incorporated the following assumptions relating to the physical and chemical characteristics of the PKMW Project:

- Measured, modelled, or proxy water chemistry data used as inputs to the models are representative of its respective source and concentrations in the future (PK porewater is at the detection limits for constituents reported as non-detectable).
- There is upward displacement of porewater as PK is added to a mine working.
- Groundwater inflow volume and mass is assumed to be negligible in comparison to the flow exchange with Lac de Gras.
- There is no local runoff from the mine area (assumed to be minor).
- There is no (or negligible) runoff from the rock wall in comparison to other inflows.
- The model is assumed to be fully mixed at start of the simulation by water from Lac de Gras.
- Governing equations in CE-QUAL-W2 were laterally averaged and it was assumed that lateral variations in velocity, temperature, and constituents were negligible, and consistent with observations at another pit lake.
- Salt exclusion is anticipated to be minimal as a result of low total dissolved solids (TDS) in surface waters and the small volume of affected water relative to the pit volume.
- Bathymetry does not change as the consolidation process advances (this overestimates the mixing potential of the pit lake and TDS concentration within the vertical column).
- Calibration of the model is not yet possible as the pit lake does not currently exist; however, rates and constants from previous model calibrations in the region were applied and are consistent with the model set up for the Jay Project at the Ekati Mine and the pit lakes at the Gahcho Kue Project.
- The consolidation of PK is conceptual and based on estimates of the material properties of PK and average porewater chemistry (there are high consolidation rates).
- The open water season will be longer than is currently the case, which will over-estimate the potential for wind-driven mixing.

- Conservative assumption that there is no biological uptake or transformation of parameters (e.g., reduction of nitrate and sulphate in the anoxic bottom waters or oxidation of nitrite in surface waters).

Detailed modelling results of PK deposition scenarios were completed independently for the A418, A154 and A21 mine workings. Results demonstrate that water quality in the top 40 m of each of the flooded pits remained below the Aquatic Effects Monitoring Program (AEMP) benchmarks for the duration of all model scenarios, with the exception of nitrite in the A21 Mine Working. Modelling indicates that high concentrations of TDS in the bottom layer of the pit lake(s) will result in stable layers of water over the 100-year simulation period in pit lakes A418 and A154. For pit lakes A418 and A154, modelling predicts a neutral effect of negligible magnitude (in relation to AEMP benchmarks) within the project development area (PDA) during closure and post-closure for a continual period of time within a disturbed area (pit lake) following reconnection with Lac de Gras under the three scenarios (2a, 3a and 4a). Given that no adverse effects to pit lakes are anticipated, it is expected there will be no adverse effects to Lac de Gras. It is DDMI's opinion that if water quality in the top 40 m of each of the individual mine workings remained below AEMP benchmarks then any concurrent multi-pit release of pit water to Lac de Gras (LDG) would also result in LDG water quality below AEMP benchmarks.

The assumptions incorporated in the model and the sensitivity analyses done to increase the confidence in the model and results are evidence of DDMI's conservative approach to water quality modelling for the PKMW Project. The effect pathways for water quality are well known and the proposed mitigations are anticipated to be effective. Overall, there is a high degree of confidence that the change in water quality predicted for the pit lakes will not result in a significant adverse effect to water quality.

3.3 Removal of A21 Open-Pit from Review

DDMI accepts recommendations by a number of Interveners, including ECCC, to remove the A21 Open-Pit from consideration for processed kimberlite (PK) deposition in the current Review.

Based on the modelling and the significance definition developed for the environmental assessment of the original Diavik Mine Project and applied to the PKMW Project, with application of mitigation and environmental protection measures, significant adverse effects on water quality are not anticipated for the A21 pit lake for all scenarios of PK deposition modelled. However, while meromixis is

modelled to establish and remain over the 100-year simulation period in A418 and A154 (thereby isolating low quality water at the bottom of the pit), there is the potential for meromixis to break down 50 years post-closure in A21. This breakdown in meromixis would cause the surface water and pore water within the pit to mix, potentially leading to short term adverse effects on surface waters in Lac de Gras.

Overall, the A21 pit has the highest uncertainty for closure and post-closure water quality, for long term maintenance of meromixis, and is the only pit for which any adverse environmental effects are predicted. Hence, DDMI accepts views expressed by a number of Interveners to remove the A21 Open Pit from consideration in the PKMW Project Review.

4. STAKEHOLDER ENGAGEMENT

DDMI engaged with the Participation Agreement groups and communities and the TK Panel for Diavik as part of initial/conceptual project design to confirm the acceptability of the general concept of PK deposition into the mined out pits. Stakeholders engaged by DDMI as part of initial/conceptual project design was based on the Wek'èezhìi Land and Water Board's Engagement Distribution List. Stakeholders engaged by DDMI included our Participation Agreement partners (Tłı̨chǫ Government; Łutsel K'e Dene First Nation; Yellowknives Dene First Nations; North Slave Métis Alliance; Kitikmeot Inuit Association) and potentially impacted communities. The potential for impacts, proposed mitigation measures, the acceptability of residual impacts, and how mitigation might be enhanced were discussed during these stakeholder engagements. DDMI's stakeholder engagement efforts included in-person meetings, teleconferences, and open houses, and site visits. In general, DDMI does not pay honoraria for community members to participate in engagement efforts, as was the case for these events. Presentations and visual aids were used to explain technical information related to the PKMW Project to enable meaningful engagement with stakeholders of different backgrounds. DDMI also hosted a Traditional Knowledge (TK) Panel focused on the proposed PKMW Project. DDMI does pay honoraria for participation in events such as the TK Panel where the specific purpose is to develop new data and information. TK panel input/recommendations were considered in project design, including the development of mitigation measures for potential impacts.

DDMI received several recommendations from its engagement with the Participation Agreement groups and communities and the TK Panel, and has considered these recommendations in project design, including the development of mitigation measures.

DDMI held meetings with stakeholders to specifically solicit input on its water licence amendment application for the PKMW Project. Most stakeholder engagement related to the PKMW Project was initiated in December 2017 and continued up to February 2018, prior to submission of the water licence amendment application to the WLWB in June 2018. Additional meetings were held in April 2019. DDMI focused on engagement with the following First Nation and Métis groups. These groups are signatories to a Participation Agreement with DDMI:

- the Łutsel K'e Dene First Nation (LKDFN)
- the North Slave Métis Alliance (NSMA)
- the Tłı̨chǫ Government (TG)
- the Kitikmeot Inuit Association (KIA)
- the Yellowknives Dene First Nation (YKDFN)

Additional meetings were held with parties involved in the MVEIRB's Review of the PKMW Project to provide project clarifications and to address stakeholder concerns. In addition to engagement with the Diavik Participation Agreement Indigenous Groups, DDMI engaged a number of non-signatory Indigenous Groups and government regulators and advisory bodies, including:

- Deninu Kue First Nation (DKFN)
- Fort Resolution Métis Council (FRMC)
- Environmental Monitoring Advisory Board (EMAB)
- Government of Northwest Territories (GNWT)
- Mackenzie Valley Environmental Impact Review Board
- Wek'èezhìi Land and Water Board (WLWB)
- Department of Fisheries and Ocean (DFO)
- Environment and Climate Change Canada (ECCC)

During the course of the MVEIRB's Review of the PKMW Project, DDMI hosted representatives from regulators, including the MVEIRB, departments of the Government of Northwest Territories, and departments of the Federal Government, as well as signatory and non-signatory Indigenous Groups on various dates at the Diavik Mine. These site tours provided stakeholders with a first-hand look at the sites proposed for the PKMW Project and afforded the reviewers an appreciation of the scale of the proposal.

5. KEY ISSUES

DDMI has identified and addressed the following key issues and concerns raised by parties and Interveners during the MVEIRB's Review of the PKMW Project.

5.1 Potential Impacts to Water Quality and Adequacy of Water Quality Modelling

During the Information Request, Intervention, Hearing, and Closing Argument stages of the Review, several parties expressed concerns about the potential for the PKMW Project to cause adverse impacts to water quality and the effectiveness of the mitigation measures proposed by DDMI, and provided recommended measures to mitigate impacts to water quality. Some parties also indicated concerns regarding the adequacy of the water quality modelling undertaken by DDMI to date to support the Review, and recommended measures to address information gaps in water quality modelling.

Specifically, Interveners such as NSMA, EMAB, NWTMN, and FRMC expressed concerns about the long-term potential impact of any associated changes to water quality and recommended that regulatory authorities prioritize water quality as primary criteria in determining the suitability for reconnection of the pit lake(s) to Lac de Gras. GNWT, in particular, raised concerns about the effectiveness of mitigation measures proposed by DDMI to ensure acceptable water quality conditions post-deposition of PK into pits and underground mine workings. While FRMC recommended that DDMI be required to fund and support the documentation of qualitative water quality objectives for each affected Indigenous group.

Several interveners, including NSMA, EMAB, GNWT, TG, DKFN, LKDFN, YKDFN, and FRMC expressed concern about the adequacy of the water quality modelling undertaken by DDMI at the current Review stage of the approval process for the PKMW Project. Specifically, some of these interveners indicated that there are uncertainties about model accuracy and that the sensitivity analyses conducted by DDMI to date was limited. To address this concern, several interveners, including GNWT, EMAB, TG, and LKDFN recommended that updated water quality modeling be conducted, either as part of the ongoing Review by the MVEIRB or as part of the Water Licencing Process by the Wek'eezhii Land and Water Board (WLWB) given that the modeling conducted to date to assess the deposition of processed kimberlite ("PK") into pits has been characterized by DDMI as "preliminary" and "subject to further evaluation". A number of these interveners also recommended that the updated water quality modelling undergo a third party or independent review either at the Review stage or at the permitting (Water Licence Amendment) stage in order to ensure that the methods and assumptions used, and the results generated, are

reasonable and reliable prior to DDMI being allowed to proceed with the deposition of PK in the mine workings.

LKDFN recommended that 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 should not be allowed to deposit processed kimberlite into the pit(s), and that this be made a condition of any regulatory approval of the WLWB. This sentiment was echoed by a number of other interveners including YKDFN and GNWT.

A number of interveners, including EMAB and NSMA, expressed concerns about the adequacy of the DDMI's proposed water quality monitoring plan for the Project. To address this issue, EMAB recommended that the Wek'èezhìi Land and Water Board set closure objectives and criteria for any mine workings affected by the PKMW Project before any deposit of PK into mine workings occurs and that relevant criteria regarding pre-deposit closure of the pit and underground will have been met and signed off by applicable Inspector before any deposit of PK takes place. NSMA indicated that its members are very interested in participating in community-based monitoring initiatives respecting the closure and post-closure processes at the Diavik Mine.

Some interveners recommended what they considered to be an adequate period for closure and post-closure monitoring of the PKMW Project. For instance, FRMC recommended that the DDMI be required to conduct a 5 to 10 year monitoring of water layers within the pit(s) after infilling prior to consideration of a hydrologic connection to Lac de Gras, and that this consideration be informed by best available science. NWTMN recommended that DDMI monitor water quality and fish and fish habitat for at least 100 years, post closure.

Finally, NSMA, in its closing argument, indicated a need for a change in significance rating criteria and significance thresholds, including for water quality, used by DDMI in the effects assessment for PKMW Project.

Regarding concerns about the long-term potential impact of any associated changes water quality, DDMI notes that current conservative water quality modelling does not suggest there is a significant risk of poor pit lake water quality preventing reconnection to Lac de Gras. If reconnection is not possible, this area would no longer be available as fish habitat. Possible contingency measures that would be considered if water quality in the pits does not reach established criteria includes the evaluation of insitu treatment options. Mine workings would not be reconnected to

Lac de Gras until established criteria are met, which may result in the need to identify alternate fish habitat compensation efforts with collaboration with DFO and affected Indigenous Groups.

Regarding concerns about the adequacy of the water quality modelling undertaken by DDMI at the current Review stage and the recommendation that an independent review be conducted for updated water quality modelling, DDMI notes that it has consistently advised that the modelling work presented to date is preliminary and intended to address information requirements for the Preliminary Environmental Screening (now Environmental Assessment) and the Water License Amendment Application. DDMI plans to conduct additional modelling in the future to reflect updated information, including results from the University of Alberta PK consolidation studies. DDMI expects to submit updated modelling results in support of revised management plans and project designs that we anticipate being identified as a condition of an Amended Water License (i.e. not before Amending the Water License) for the Diavik Mine before commencement of the PKMW Project (actual PK deposition in mine workings).

DDMI has a high level of confidence in conclusions drawn from the collection of modelling results to date. Our view is supported by modelling and water quality experts who have conducted the modelling and advised DDMI of the conservative nature of the modelling structure, the worst-case of model input assumptions and the model sensitivity analysis. Despite this confidence, if the PKMW Project receives Environmental Assessment and Water License Amendment approval, work will continue to verify these conclusions with additional modelling and monitoring programs before each important step in the PKMW Project.

Further, DDMI accepts the recommendation from a number of interveners for an Independent Review of water quality modelling at the post-Water License Amendment / pre-operation stage of the PKMW approval process. Hence, DDMI recommends that the independent review be conducted on the updated modelling that DDMI has committed to submitting to the WLWB for approval as part of the Processed Kimberlite Containment in Mine Working Design Report prior to depositing PK in mine workings. The updated modelling is expected to address the specific concerns noted. The independent review could be similar in concept to the independent reviews required for key engineered structures at the Diavik Mine.

Regarding intervener recommendations that reconnection of pit lakes to Lac de Gras should not be allowed if pre-deposition water quality modeling results show that

water quality in the top 40 m in the pit lake(s) cannot meet all AEMP benchmarks, DDMI predicts that surface water quality will remain below AEMP Benchmarks for all parameters at both surface and 40 m depth under all modelled scenarios, and that resulting surface water quality from the deposition of PK in Mine Workings is not likely to cause significant adverse impacts to aquatic life. However, in the unlikely scenario where water quality in the top 40 m in the pit lake(s) cannot meet all AEMP benchmarks, DDMI commits to not reconnect the pit lake(s) with Lac de Gras until such a time that water quality in the top 40 m in the pit lake(s) meets AEMP benchmarks.

With respect to the adequacy of the monitoring program proposed by DDMI for the PKMW Project, DDMI notes that it already plans to undertake comprehensive monitoring programs as a part of its regulatory closure requirements at Diavik, including the PKMW Project. DDMI is working with the Traditional Knowledge Panel to develop approaches to TK-based closure monitoring. In DDMI's view, the specific terms and conditions that will define the monitoring plans related to the PKMW Project should be established by the Wek'èezhìi Land and Water Board (WLWB) through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings and the specific environmental monitoring and management plans should be established through updates, reviews and approvals to Diavik's Closure and Reclamation Plan, AEMP Design Plan and related Environmental Management Plans.

Regarding the appropriate duration of closure and post-closure monitoring for the PKMW Project, DDMI shares parties' objective of having Lac de Gras water quality safe for aquatic life, fish and fish habitat in as short a period of time as possible. DDMI's assessment is that a two year monitoring period is required from the time the pit lakes are filled with Lac de Gras water until they can be reconnected with Lac de Gras. This proposed two year period is planned regardless of whether processed kimberlite has been deposited. DDMI expects the duration of post-closure monitoring to be guided by and adaptively respond to results obtained. DDMI does not expect that depositing processed kimberlite will prolong the time until the pit lake(s) can be safe for aquatic life, fish and fish habitat or adversely impact water quality in Lac de Gras.

In response to NSMA's outstanding concern, in its closing argument, about a need for a change in significance rating criteria and significance thresholds, including for water quality, DDMI wishes to emphasize that water quality remaining below AEMP benchmarks in the surface 40 m of the pit lakes is clear evidence of no significant

adverse impact. The Comprehensive Study Report for the Diavik Diamonds Project (Canadian Environmental Assessment Agency, 1999) defined a significant adverse impact as being high magnitude, irreversible and extending to throughout Lac de Gras. The predicted water quality results are consistently low magnitude (below benchmarks) and remain local to the East Island. AEMP benchmarks were developed to be protective of all aquatic life including fish.

DDMI notes that ECCC considers water quality-related issues it raised as part of the Review to be resolved based on DDMI's commitments (see Appendix A), including additional studies to be completed at the regulatory phase to address specific water quality-related project uncertainties.

Finally, DDMI notes that while we acknowledge mine operations have caused small changes in Lac de Gras, all monitoring (including TK monitoring) to date demonstrates that 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, the operational water quality changes to Lac de Gras will reverse. With or without deposition of processed kimberlite Lac de Gras will continue to be safe for aquatic life, fish and fish habitat.

DDMI's commitments to mitigate potential impacts to water quality are provided in Appendix A.

5.2 Potential Impacts to Fish and Fish Habitat

During the Information Request, Intervention, Hearing, and Closing Argument stages of the Review, several parties expressed concerns about the potential for the PKMW Project to cause adverse impacts to fish and fish habitat.

Specifically, some interveners, including NSMA, DKFN, EMAB, and YKDFN, indicated concern about the level of confidence in DDMI's prediction that fish will be limited to the top 40 m of pit lakes. These and a number of other interveners recommended that DDMI provide an evidence-based depth threshold for fish (especially fish species such as slimy sculpin known inhabit deeper waters) in the pit lakes undertaking studies to confirm DDMI's predictions, and that if the Project is approved to proceed, DDMI should undertake monitoring to assess presence of fish and fish habitat below the 40 m surface layer of the infilled pits and implement adaptive measures if fish are found below the 40 m depth threshold.

A number of interveners, including LKDFN, recommended that in order to minimize fish and human exposure to processed kimberlite over the long- and very-long term, pit lake(s) containing processed kimberlite should not be reconnected with Lac de Gras. YKDFN also recommended that, for the protection of fish and fish habitat and aquatic life, if AEMP benchmarks cannot be met after PK deposition in mine workings and infilling of pits with water, then the pit(s) should remain isolated and not reconnected to the rest of Lac de Gras.

DFO recommended that DDMI continue to work with DFO-FFHPP to amend the existing authorization to reflect the proposed changes to the mine, and update their offsetting accordingly to ensure that any outstanding impacts to fish habitat are adequately offset. DFO also recommended that DDMI update monitoring plans related to fish, fish habitat, and offsetting that have the potential to be impacted by the proposal to deposit processed kimberlite into the pits and underground mine workings, should the MVEIRB determine that the proposal may proceed to the regulatory phase. A number of other interveners, including LKDFN, also recommended that DDMI collaborate with DFO and affected Indigenous Groups to identify fish habitat improvements elsewhere in order to offset the loss of fish habitat in pit lake(s).

Regarding some interveners' concerns about DDMI's prediction that fish will be limited to the top 40 m of pit lakes, DDMI notes that while Slimy Sculpin in lakes have been reported to inhabit deeper waters in Canada, to our knowledge, Slimy Sculpin prefer shallower depths and have more limited mobility in northern locations (Arciszewski et al 2015, Grey et al 2018). Bradbury et al. (1999) reports Northwest Territories (NWT) Slimy Sculpin populations limited to shallow rocky areas of lakes, and purports that temperature appears to be a critical factor determining Slimy Sculpin distribution in deeper water (as well as available habitat). McDonald et al. (1982) specifically indicate that Slimy Sculpin prefer cold, well oxygenated habitats where they feed on benthic invertebrates. Therefore, in Lac de Gras (and the filled pits at closure in particular) Slimy Sculpin would be expected to migrate to deeper waters only if (1) well oxygenated water of adequate temperature, (2) prey items (i.e., benthic invertebrates), and (3) suitable habitat (i.e., rocky or gravel substrate) were all available in the deeper waters of the pit lakes. Such habitat is not expected to exist at depth inside the pit lakes, with or without the PKMW Project. Oxygen concentrations are expected to be less in the deeper waters of the pit than in the main basin of Lac de Gras due to limited mixing. Benthic invertebrate communities are not expected to establish themselves within the pit lakes with adequate density to support a resident Slimy Sculpin population because of anoxic conditions at depth

and an expected lack of suitable habitat for colonization. Finally, the preferred habitat for Slimy Sculpin is not expected to be present inside the pit lakes; the walls of the pits will be relatively steep slopes with little opportunity for sedimentation and limited gravel or rocky substrate. As noted in Gray et al. 2005, Slimy Sculpin are not expected to inhabit deep water.

Also, if monitoring of fish use in the pelagic zone is determined to be necessary and valuable, DDMI expects that acoustic monitoring is likely the most effective method to monitor for use (see DDMI's Response to WLWB's Post-Technical Session IRs; PR #16).

References:

Arciszewski, T., Gray, M.A., Hrenchuk, C., Cott, P.A., Mochnacz, N.J., and Reist, J.D. 2015. Fish life history, diets, and habitat use in the Northwest Territories: freshwater sculpin species. Can. Manuscr. Rep. Fish. Aquat. Sci. 3066: vii + 41 p.

Bradbury C, Roberge MM, Minns CK. 1999. Life history characteristics of freshwater fishes occurring in Newfoundland and Labrador, with major emphasis on lake habitat requirements. In: Department of Fisheries and Oceans Canadian Manuscript Report of Fisheries and Aquatic Sciences.

Gray M, Munkittrick K, Palace V, Baron C. 2005. Final report: Assessment of Slimy Sculpin (Cottus cognatus) collected from East Island, Lac de Gras, NWT. 30 p.

Gray MA, Curry RA, Arciszewski TJ, Munkittrick KR, and Brasfield SM. 2018. The biology and ecology of slimy sculpin: A recipe for effective environmental monitoring. FACETS 3: 103–127.

McDonald ME, Cuker BE, Mozley SC. 1982. Distribution, production, and age structure of slimy sculpin in an Arctic lake. Environmental Biology of Fish 7(2):171-176

With respect to some interveners' recommendation that pit lake(s) containing processed kimberlite should not be reconnected with Lac de Gras due to potential for exposure of fish and humans to processed kimberlite over the long- and very-long term, DDMI notes that current water quality modelling does not suggest there is a significant risk of pit lake water quality preventing reconnection to Lac de Gras. If reconnection is not possible, this area would no longer be available as fish habitat.

This would result in a reduction of fish habitat of less than 1% of Lac de Gras which is not anticipated to have an ecological impact. Possible contingency measures that would be considered if water quality in the pit(s) does not reach established criteria includes the evaluation of insitu treatment options. Mine workings would not be reconnected to Lac de Gras until established criteria are met.

Regarding DFO's recommendation that the potential for an update to the offsetting plan for the Diavik Mine to mitigate any impacts to fish habitat from the PKMW Project be considered, DDMI appreciates DFO's willingness to work with DDMI to consider alternative fish habitat offsetting plans should pit lake(s) reconnection no longer be considered acceptable. DDMI commits to developing and implementing a DFO-approved Fish Habitat Offsetting Plan if the PKMW Project will result in impacts to fish habitat beyond what was approved by DFO under fisheries authorizations for the Diavik Mine.

DDMI will start advancing alternative offsetting plans by February 1, 2020 if:

- There is a high likelihood that predicted pit-lake water quality conditions will not meet scientific or TK-based pit-lake criteria for reconnection; or
- It is determined that TK-based acceptance of pit-lake reconnection can only be determined by visually inspecting the pit-lake making it not possible to confirm acceptability based on predicted water quality; or
- The MVEIRB determines that DDMI should not breach the dike and allow access to the pit-lake.

Finally, DDMI acknowledges DFO's conclusion that the PKMW, as proposed, is not anticipated to result in additional negative impacts to fish and fish habitat not already covered under the existing Fisheries Act authorization for the Diavik Mine.

Water withdrawal rates that are protective of the aquatic environment, including fish and fish habitat, will be developed by DDMI in discussion with regulators. In DDMI's view, the final withdrawal rate should be established by the Wek'èezhìi Land and Water Board through updates, reviews and approvals to Diavik's Closure and Reclamation Plan.

If monitoring reveals that pit water quality does not meet AEMP benchmarks (Dissolved Oxygen, etc.) in the top 40 m, an investigation will be triggered. In situ

treatment options will be evaluated and, if ineffective, the breaches will be closed to isolate the pit lake from Lac de Gras. Isolation will occur through placement of rocky material in the breaches using heavy equipment. This material will prevent passage of fish while maintaining a hydraulic connection to allow for passive pit lake water level management.

DDMI's commitments to mitigate potential impacts to fish and fish habitat are provided in Appendix A.

5.3 Potential Impacts to Caribou and Other Wildlife

During the Information Request, Intervention, Hearing, and Closing Argument stages of the Review, several parties expressed concerns about the potential for the PKMW Project to cause adverse impacts to caribou and other wildlife.

Interveners, including NSMA, LKDFN, EMAB, FRMC, and NWTMN indicated that there is potential for impacts to wildlife, with particularly emphasis on caribou, as a result of the PKMW Project. For instance, NSMA recommended the MVEIRB require DDMI to refine its management plans to incorporate specific requirements for wildlife monitoring and response protocols related to waterfowl and wildlife use of pits during the operational period. Interveners, such as LKDFN, FRMC, and NWTMN, recommended that DDMI incorporate TK in monitoring activities for wildlife, including caribou. NWTMN and YKDFN recommended that physical barrier be erected around the pit lake(s) containing processed kimberlite to prevent wildlife, including caribou, interaction with the project. EMAB and LKDFN recommended that revise its Standard Operating Procedures for deterring wildlife to include wildlife deterrents during the operations, closure, and post-closure phases.

A number of interveners such as LKDFN recommended that DDMI notify affected Indigenous Groups of dead or killed caribou or any other wildlife found within the mine site and zone of influence and determine the cause of death. Also, some interveners, including FRMC and NWTMN, recommended that DDMI fund community-based caribou-monitoring programs focused on TK.

Regarding some interveners' concerns about potential for impacts to wildlife, including caribou, from the PKMW Project, as well as measures to mitigate wildlife interaction with the PKMW Project, DDMI acknowledges the potential for wildlife to encroach on the pits/mine workings during the operations and closure phases of the PKMW Project. DDMI also notes that this potential already exists and is adequately managed within the current operation whereby DDMI minimizes wildlife interaction

with the Processed Kimberlite Containment Facility. To minimize wildlife interactions with the mine workings during operations, DDMI will continue to apply the existing wildlife, monitoring and management procedures for Diavik, which include the following measures:

- Monitoring/tracking of wildlife presence and/or proximity to the mine workings.
- Training all site personnel to record and/or report incidental sittings of wildlife, including birds, in the general area of the mine workings during operations.
- 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

Measures proposed to mitigate the potential for alteration of wildlife, including caribou, movement within the project site include the following:

- Installing above-ground pipelines to parallel existing infrastructure generally at heights below 0.5 m or above 2 m (bottom of pipe) and furnish pipelines with within the 0.5 to 2 m range with granular ramps spaced at strategic locations to facilitate passage of caribou and other large wildlife.
- Temporarily suspending construction activities when caribou safety is threatened and using appropriate herding techniques to remove caribou from hazardous areas before resuming activities.

Wildlife interaction with the pit lake(s) will be adaptively managed as the PKMW Project progresses. At this time there is no evidence to suggest that the pit lakes will be unsafe for wildlife such that physical barriers would be justified. Monitoring evidence from the PKC suggests that expansion of current mitigation measures to the PKMW Project will be successful in minimizing physical contact. DDMI will continue to implement its existing and proven successful Standard Operating Procedures for the management of wildlife at site. These procedures will be adaptively updated as required based on changing conditions or newly demonstrated risks to wildlife. In DDMI's view, these changes should be managed and reviewed through updates to the Annual Diavik Wildlife Monitoring Program and Report.

In DDMI's view, the current Standard Operating Procedures adequately mitigate the risks to wildlife and any changes to this work should be reviewed and adaptively managed through annual updates to the Diavik Wildlife Monitoring Program and Report. DDMI commits to updating the wildlife monitoring program for Diavik to include the PKMW Project. The updated monitoring program will support site monitoring to determine whether migratory birds, including waterfowl, interact with pit(s)/mine workings during infilling and prior to stabilization of water quality. An updated Contingency Plan will also be implemented to mitigate impacts to wildlife in the unlikely event of spill related to the PKMW Project.

Regarding some interveners' concerns about potential for impacts to wildlife, including caribou, and their recommendation for additional caribou monitoring programs, DDMI notes that its 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. DDMI's assessment, as presented in the Summary Impact Statement, has demonstrated the PKMW Project will have no significant effects to wildlife, including caribou, therefore additional monitoring beyond current efforts is not justified. Through continuous adaptive management updates to the current Wildlife Monitoring Program, DDMI will consider additional monitoring if there is an observed impact to wildlife with an associated PKMW effect pathway following commencement of the PKMW Project.

DDMI acknowledges that monitoring of caribou will be an important aspect of the closure and post-closure monitoring program at Diavik. As part of DDMI's closure planning, DDMI is hopeful that the Traditional Knowledge (TK) Panel will assist in developing the acceptance criteria for re-connection of the pit lakes to Lac de Gras and possibly implementing TK-based or community-based closure and post-closure monitoring programs that are of relevance to indigenous communities.

5.4 Perceived Impacts to Environment and Cultural Use

During the Information Request, Intervention, Hearing, and Closing Argument stages of the Review, several parties expressed concerns about the potential for the PKMW Project to cause actual and perceived adverse impacts to the environment and to cultural use.

For instance, LKDFN, YKDFN and NWTMN indicated that perceived project effects to Lac de Gras have not been identified and assessed to appropriately mitigate impacts to cultural use, including traditional harvesting practices.

To address the concern regarding perceived impacts to the environment and cultural use, interveners, such as LKDFN and FRMC recommended that DDMI undertake meaningful engagement to identify and assess actual and perceived cultural use impacts and that DDMI be required to show evidence to WLWB and GNWT that it is working with Indigenous Groups through various forums to identify mitigation appropriate for preventing, reducing or compensating/offsetting harms to cultural use. On a related subject, EMAB recommended that the Wek'èezhìi Land and Water Board 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.

DDMI notes that in its engagement over the years and more specifically as part of the Environmental Assessment for the PKMW Project, DDMI identified key environmental resources (wildlife, fish, and water), with measurable parameters, that may influence traditional/cultural use and assessed the potential for the Project to impact these resources.

DDMI's assessment of the potential effects of the PKMW Project on cultural use, assumes that cultural use by Indigenous groups depends on the health and abundance of traditionally harvested species and the continued availability of and access to traditional use sites and areas. Hence, as part of the assessment of potential impacts to cultural use, DDMI assessed how the Project may result in a change in availability of traditional resources and/or a change in access to resources and areas for cultural use. To evaluate the potential for the Project to result in these changes to cultural use, DDMI focused on the potential for impacts to key resources (water quality, fish and fish habitat, and wildlife) of value to traditional activities and practices such as hunting, trapping, fishing and navigation. DDMI assessed the potential for project-specific residual impacts to these key resources to interact cumulatively with residual impacts to these same resources from other land use activities in the region and predicted that the project-specific residual effects are unlikely to interact cumulatively with residual environmental effects from other projects (past, present, and reasonably foreseeable). This is because the PKMW Project is predicted to only have negligible effects on these key resources and, therefore, cultural use. DDMI has a high level of confidence in conclusions that project-specific and cumulative effects will not pose a threat to the long-term

persistence and viability of species relied upon for cultural use in the region, or change fish habitat that would result in loss of access to fishing areas for cultural use.

Although DDMI has high level of confidence in the conclusions regarding the potential for project-specific and cumulative impacts to cultural use, DDMI acknowledges that perceptions are difficult to quantify. Indigenous groups may still choose not to pursue cultural use activities near the mine site post-closure for a variety of personal, practical, aesthetic, and spiritual reasons with or without implementation of the PKMW Project, which is only a small component of the Diavik project that will result in a smaller on-land disturbance and be the best option for Lac de Gras water quality.

To address the challenging issue of perceived impacts, DDMI will continue to engage with potentially affected Indigenous Groups through the TK Panel Sessions and other engagement activities to better understand Indigenous perceptions about the safety, quality, and health of Lac de Gras and identify practical strategies to address these concerns and improve perceptions to match actual impact.

5.5 Engagement with Indigenous Groups and Use of Traditional Knowledge

During the Information Request, Intervention, Hearing, and Closing Argument stages of the Review, several parties expressed concerns about the adequacy of DDMI's engagement with Indigenous Groups, and the level of incorporation of Traditional Knowledge in the design of the PKMW Project and in the related effects assessment.

For instance, NSMA, NWTMN, TG, and FRMC recommended that DDMI undertake studies and monitoring with Indigenous Group involvement to accommodate their interests and to ensure that follow-up programs associated with the PKMW Project include appropriate TK and that they inform adaptive management and improve the effectiveness of DDMI's mitigation of cultural impacts.

To ensure environmental performance of the PKMW Project is informed by TK, a number of interveners, including EMAB and LKDFN recommended that TK be considered in established environmental performance criteria, including criteria for reconnecting the pit lakes to Lac de Gras at closure of the PKMW Project.

LKDFN recommended that, to improve engagement with Environmental Agreement partners and other interested parties, DDMI be required to revise its 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.

As noted in Section 4 of this document, DDMI has and continues to engage communities during the Review of the PKMW Project. DDMI commits to continue with this engagement during all phases of project implementation.

As part of DDMI's closure planning, DDMI is hopeful that the Traditional Knowledge Panel will assist in developing closure and post-closure monitoring programs and criteria that are of relevance to indigenous communities, including monitoring programs directly related to any pit lakes that have deposited processed kimberlite.

DDMI commits to continued engagement with signatory and non-signatory Indigenous Groups to clarify aspects of the PKMW Project, provide updates on future regulatory submissions, and consider recommendations these Indigenous Groups may choose to provide during these engagements. Please see Appendix A for a list of DDMI's commitments specific to ongoing Indigenous engagement for the PKMW Project.

5.6 Potential Impacts to Social Well-being

At the Intervention, Hearing, Closing Argument stages of the Review, GNWT expressed concerns about the potential for the PKMW Project to impact social well-being of communities within the zone of influence of the Diavik Mine.

To address this concern, GNWT recommended that:

- DDMI work with Indigenous Groups to collaboratively develop and publicly provide an updated framework for community engagement that would detail participation in closure planning and the closure phase for the Project.

- DDMI should include potentially affected Indigenous Government Organizations in the visual monitoring of all phases of the Project and publicly report on these monitoring activities to ensure that potentially affected Indigenous communities are well-informed and aware of Project design, activities, and potential effects for the life of mine.

To address GNWT's recommendations, DDMI commits to continuing to engage with the signatory and non-signatory Indigenous Groups 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.

DDMI commits to continuing to engage with Indigenous Groups, 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.

6. RECOMMENDED POST-REVIEW REQUIREMENTS

DDMI has reviewed measures recommended by Interveners for incorporation as conditions for Approval of the PKMW Project and provided its response in Appendix B. As part of the response in Appendix B, DDMI has recommended the following measures for the Mackenzie Valley Impact Review Board's consideration as conditions for Approval of the PKMW Project:

1. The minimum freshwater cap in pit lake(s) following processed kimberlite deposition shall be not less than 50 meters.

2. DDMI shall update water quality modelling before proceeding with each of the three main phases of the PKMW Project: 1) prior to commencing deposition as part of the Processed Kimberlite Containment in Mine Working Design Report 2) prior to pit filling with Lac de Gras water (incorporating as-built conditions); and 3) after pit filling but before dike breaching (to allow calibration of model inputs and assumptions).

3. DDMI shall conduct an independent review of updated modelling prior to deposition of processed kimberlite in the mine workings. An independent review will be established following the framework of the Diavik Geotechnical Review Board.

4. If pre-deposition modelling indicates AEMP benchmarks cannot be met in the top 40 meters of the water column in the pit lake(s) then processed kimberlite deposition in mine workings will not proceed.

5. DDMI shall conduct monitoring to confirm that water quality in the top 40 meters of the pit lake(s) is below AEMP benchmarks prior to reconnection of the pit lake(s) to Lac de Gras.

6. If post-deposition pit lake water quality monitoring indicates AEMP benchmarks cannot be met in the top 40 meters then fish from Lac de Gras will be prevented from accessing the pit lake(s).

7. DDMI shall develop and implement a DFO-approved Fish Habitat Offsetting Plan if the PKMW Project will result in impacts to fish habitat beyond what is approved by DFO under current fisheries authorizations for the Diavik Mine.

8. The Wek'èezhìi Land and Water Board shall establish the specific terms and conditions that will define the project design submission and monitoring programs related to the PKMW Project through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings Project.

9. DDMI shall not deposit processed kimberlite into the A21 Open Pit as part of the PKMW Project.

10. DDMI shall update the current Wildlife Monitoring Program to cover the construction, operation, closure and post-closure phases of the project and will assess wildlife-project interactions and resulting effects on wildlife. The Wildlife Monitoring Program will inform DDMI's Adaptive Management Measures for the protection of wildlife, including Caribou. This shall include the implementation of wildlife deterrence techniques to discourage wildlife from interacting with the Project.

11. DDMI shall undertake Engagement with potentially impacted Indigenous Groups to inform Project Design on the Construction, Operation, Closure and Post-Closure Phases of the Project. DDMI's framework for PKMW Project engagement shall be aligned with DDMI Commitment #24 (Appendix A).

12. DDMI shall engage with potentially impacted Indigenous Groups toward the development of Traditional Knowledge-based Acceptance Criteria for Re-connection of the pit lake(s) to Lac de Gras as part of Closure and Reclamation Plan updates. DDMI's framework for engagement of Traditional

Knowledge-based Acceptance Criteria for Re-connection shall be aligned with DDMI Commitment #25 (Appendix A).

13. DDMI shall incorporate reporting related to the PKMW Project into the current reporting framework under the Water Licence and the Environmental Agreement for the Diavik Mine.

DDMI believes that the details of the monitoring plans for the PKMW Project are best addressed through the review of plans submitted through the water license as the project progresses and more information (especially project-specific information) is acquired. Additional project refinement, including updates to water quality modelling, and specific conditions related to project monitoring can be addressed more concretely by DDMI and stakeholders at the regulatory stage and throughout project execution.

The objective of these monitoring plans will be to ensure that DDMI continues to meet Aquatic Effects Monitoring Program (AEMP) criteria. Because AEMP thresholds respond to potential impacts of the applicable indicator and are not associated with any specific mine design or construction, the current AEMP is equally relevant with or without the PKMW Project. Accordingly, DDMI intends to apply the same AEMP Action Response Plan that is currently applied to the Diavik Operations with some adaptation of actions for the closure and post-closure phase. DDMI notes that AEMP benchmarks for individual projects, before they are established, undergo extensive consultation and review processes at the regulatory phase by the Wek'èezhìi Land and Water Board (WLWB) with involvement of other regulatory bodies, and Indigenous Groups and communities. 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. DDMI notes that under the AEMP Action Response Plan, actions must be taken long before the AEMP limit is reached.

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 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.

Further, any change to aquatic biota surveys should be established by the WLWB through updates, reviews and approvals to Diavik's AEMP Design Plan. These updates may be informed by terms and conditions set by the WLWB through the review of the Water Licence Amendment for the Processed Kimberlite to Mine Workings.

As presented in response to interventions, DDMI reiterates its recommended conditions to be included in an Amended Water Licence or as Follow-up Measures for the PKMW Project, if the MVEIRB recommends that the PKMW Project be allowed to proceed and the Responsible Minister(s) approve the Board's recommendation:

a. Additional modelling of pit water quality.
   - DDMI commits to providing updated modelling estimates:
     i. for WLWB approval prior to commencing deposition as part of the Processed Kimberlite Containment in Mine Working Design Report;
     ii. prior to pit filling with Lac de Gras water (incorporating as-built conditions); and
     iii. after pit filling but before dike breaching (to allow calibration of model inputs and assumptions).

b. Independent Review of final model predictions.
   - DDMI recognizes the importance of water quality modelling in the decision to deposit PK in mine workings. DDMI would also like to ensure confidence in the model predictions. DDMI commits, as a condition of an amended Water License, to submit a review prepared by an Independent expert. The review would be of the updated modelling that would be submitted as part of the Processed Kimberlite Containment in Mine Working Design Report for the WLWB approval prior to commencement of PK deposition. Similar conditions exist in DDMI's Water License for independent geotechnical reviews of critical engineering designs.

c. Pit Lake monitoring – operations, after filling, after re-connection.
   - DDMI has provided proposed monitoring programs for PKMW Project. Interveners have provided monitoring recommendations that DDMI has reviewed and responded. DDMI believes there is sufficient alignment on the general scope of the proposed monitoring that they could be consolidated into monitoring conditions for an amended Water License.

d. Wildlife management.

- DDMI has Standard Operating Proceedures for deterring wildlife. DDMI commits to revising these to include wildlife deterrents during pit filling. DDMI will submit these to the Government of Northwest Territories and EMAB for review and will address any recommendations that might come from this review as governed by the Environmental Agreement.

e. Monitoring Plans.
   - In DDMI's view, the specific terms and conditions that will define the monitoring plans related to the PKMW Project should be established by the WLWB through the Water Licence Amendment Process. The terms and conditions may include updates to existing environmental management and monitoring programs plans for the Diavik Diamond Mine.

DDMI commits to undertaking comprehensive monitoring programs a part of its regulatory closure requirements. DDMI is working with the Traditional 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.

As approvals and permitting of the PKMW Project will likely result in an amendment to the existing Water Licence for Diavik, DDMI anticipates that reporting for the PKMW Project will be part of existing reporting for the Diavik.

DDMI's proposed updates to monitoring and management plans:

1. Monitoring Plan Updates:
   a. Surveillance Network Plan during Operations
   b. Aquatic Effects Monitoring Plan and post closure site monitoring

2. Management Plan Updates:
   a. Processed Kimberlite Containment Plan: Processed Kimberlite Containment Facility and Mine Workings (formerly the Processed Kimberlite Containment Facility Plan)
   b. Water Management Plan and Site Water Balance
   c. Contingency Plan
   d. Closure and Reclamation Plan
   e. Waste Management Plan

7. SIGNIFICANCE OF IMPACTS TO VALUED COMPONENTS

DDMI acknowledges that all 11 Interveners associated with the PKMW Review, with the exception of DKFN, recommend conditional approval of the PKMW Project.

DDMI believes that the fundamental question to be answered is whether the PKMW Project will result in significant adverse impacts to water quality; water quantity; fish and fish habitat; wildlife and wildlife habitat, including species at risk; and cultural use. DDMI also believes that water quality is the primary effects pathway to all valued components scoped in this Review.

DDMI is of the opinion that it has addressed the MVEIRB's three questions in its Final Scoping Document and Reasons for Decision, i.e.:

1. Is storing PK in open pits and underground mine workings likely to be safe for the environment and acceptable to parties, including traditional users of the Lac de Gras area?

2. If PK is stored in open pits and underground mine workings, under what conditions, if any, should the pit lakes be reconnected with Lac de Gras?

3. How might changes to water quality resulting from reconnection to Lac de Gras affect the cultural use of the Lac de Gras area, fish and fish habitat or wildlife after closure?

DDMI has assessed the significance of effects and impacts to valued components from the transport, deposition, and storage of PK from all sources (including processed kimberlite from the PKC Facility) in the mine workings. Studies conducted by DDMI to support the design of the Project, including water quality modelling, likely operational conditions during deposition and storage of PK, environmental effects assessments, and alternatives analysis, have been informed by plans to transport and deposit PK from both the processing plant and the PKC Facility to mine workings on site. DDMI understands that the scope of the assessment and related decisions from the ongoing Review does not include all mine activities and closure plans that have already been addressed through the federal government's rigorous environmental assessment/review for the Diavik Mine Project completed in 1999 and accordingly DDMI has not provided evidence specifically in support of those.

In DDMI's opinion, the assessment of the PKMW Project has confirmed that water quality in the top 40 m of the water column will meet criteria for the protection of aquatic life and people after depositing processed kimberlite into A418 and/or A154 mine workings and filling them with water, including through the creation of stable layers of water in the pit lakes.

DDMI's assessment concluded that:

- There will be no significant effects to water quality in Lac de Gras.
- There will be less water needed from Lac de Gras to fill mine workings than if processed kimberlite were not to be deposited to mine workings.
- Water withdrawal rates that are protective of the aquatic environment, including fish and fish habitat, can be developed in discussion with regulators.
- There will be no significant effects to fish in Lac de Gras.
- There will be no significant effects to wildlife, including caribou, birds and species at risk.
- There will be no significant effects to cultural land use.
- There will be no transboundary effects.

DDMI notes that Environment and Climate Change Canada and Fisheries and Oceans Canada, the federal departments with expertise in water quality and fish and fish habitat, respectively, have acknowledged that DDMI's assessment of the potential impacts of the PKMW Project on these valued components is adequate for the Review stage of the approvals process. Both federal departments consider DDMI's environmental impact predictions related to their respective mandates to be sound. DDMI reiterates that water quality is the key pathway to fish and fish habitat and to the other Valued Components scoped in this Review by the MVEIRB.

Overall, DDMI concludes that, based on the modelling of various plausible and implausible worst-case scenarios and the sensitivity analyses completed to date, the proposed mitigation measures presented in the Summary Impact Statement, additional DDMI commitments in responses to Information Requests, Interventions, questions at the Hearing, undertakings, and Interveners' closing arguments during this Review (see Appendix A), and DDMI's recommended measures for the

Mackenzie Valley Impact Review Board's consideration (see Appendix B), DDMI has a high degree of confidence that the Processed Kimberlite to Mine Workings Project will not result in significant adverse effects and impacts to Water Quality, Water Quantity, Fish and Fish Habitat, Wildlife and Wildlife habitat, including Caribou and Species at Risk, and Cultural Use.

DDMI submits that it should be allowed to proceed to the next stage (Water Licencing) of the Processed Kimberlite to Mine Workings Project on the basis described in these arguments.

RioTinto

APPENDIX A

Final List of DDMI Commitments for the Processed Kimberlite to Mine Workings Review

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APPENDIX B

DDMI Response to Interveners' Recommended Measures for the Processed Kimberlite to Mine Workings Review