

Government of the Northwest Territories' Closing Argument

for

EA1819-01

**Depositing Processed Kimberlite in Pits and Underground
at Diavik Diamond Mine**

Submitted to:

Mackenzie Valley Environmental Impact Review Board

200 Scotia Centre

PO BOX 938, 5102 – 50th Avenue

YELLOWKNIFE, NT X1A 2N7

October 4, 2019



Plain Language Summary

The Government of the Northwest Territories (GNWT) is an intervener in the Mackenzie Valley Environmental Impact Review Board's (Review Board) environmental assessment (EA) of Diavik Diamond Mines (2012) Inc.'s (DDMI) proposal to deposit processed kimberlite in pits and underground mine workings (the Project). The GNWT has developed this closing argument after active involvement in the EA process, including the participation in community and technical hearings, and the review of DDMI's Summary Impact Statement (SIS) and Information Request Responses (IRR), Interventions, and other materials on the public registry (PR). This closing argument summarizes the GNWT's conclusions, recommendations, and proposed measures with respect to the environmental assessment of the Project.

Water quality – The GNWT has concern, and notes that there has been similar concern from other interveners in the EA, regarding the mitigation strategies proposed by DDMI for potential impacts to water quality. The GNWT's primary concern is the potential for unacceptable water quality conditions in pit lakes once processed kimberlite (PK) is deposited into pits and underground mine workings. As such, the GNWT has proposed three (3) measures regarding water quality for the Review Board's consideration. The GNWT retains its water quality cumulative effects recommendation from its Intervention, because the GNWT continues to be unable to determine with confidence whether the Project is likely to have any significant adverse impacts on water quality. As stated in the GNWT's Intervention, the GNWT's inability to make this determination is a direct result of DDMI not providing sufficient information. If the Project proceeds to the regulatory phase, the GNWT will participate in any Wek'èezhìi Land and Water Board (WLWB) proceedings to resolve these concerns.

Wildlife – The GNWT has not identified likely significant adverse impacts to reviewed wildlife species within the GNWT's jurisdiction. The GNWT recognizes DDMI's commitments in relation to wildlife and has no additional recommendations for the Review Board to consider.

Social well-being – The GNWT maintains that DDMI needs to work more closely with Indigenous governments and organizations (IGOs): 1) to ensure potentially affected Indigenous communities are being provided opportunities to jointly determine appropriate monitoring for the Project, 2) to ensure open and consistent communication between communities and DDMI, and 3) to promote cultural continuity in relation to community well-being. The GNWT maintains its opinion that all potentially affected Indigenous communities need to be given the opportunity to identify potential mitigations to address their concerns regarding likely significant adverse impacts to the safety, quality, and health of Lac de Gras and the surrounding area. The level of concern expressed by IGOs throughout this EA and the lack of analyses and consideration of potential impacts on well-being, including cumulative effects, has been noted by the GNWT and has informed the GNWT's social well-being recommendations.

After considering the perception of risk as a result of the Project and potential cumulative effects resulting from this Project in addition to others, as well as the pathway from environmental effects to potential impacts on community well-being, the GNWT has concluded that increased community engagement and monitoring by DDMI is warranted. The GNWT believes that appropriate mitigations should include increased community engagement, which is jointly developed and agreed upon with IGOs, and; Indigenous/traditional knowledge based visual monitoring programs.

These mitigations should provide opportunities for regular, iterative feedback throughout the duration of the Project.

The GNWT has proposed social well-being recommendations because DDMI has not provided sufficient information during this EA proceeding. Due to this lack of information, the GNWT was unable to determine with confidence whether there are likely to be any significant adverse impacts on the environment with respect to cumulative effects and social well-being. The GNWT defers to the Review Board to determine whether the gaps in evidence and rationale from DDMI on these topics warrant application of the precautionary principle and the recommendation of measures to prevent likely significant adverse impacts on social well-being.

Table of Contents

| | |
|--|----|
| Plain Language Summary..... | 3 |
| Acronyms..... | 6 |
| 1 Introduction..... | 8 |
| 2 Wildlife..... | 9 |
| 3 Water Quality..... | 10 |
| 3.1 Alternatives to Deposition of PK into Pits and Underground Mine Workings..... | 10 |
| 3.1.1 Recommendation..... | 11 |
| 3.2 Establishment of an Independent Review Panel..... | 11 |
| 3.2.1 Recommendation..... | 12 |
| 3.3 Use of Narrative Statements to Describe Water Quality Acceptability..... | 12 |
| 3.3.1 Recommendation..... | 13 |
| 3.4 Cumulative Effects Assessment and Risk Assessment..... | 13 |
| 3.4.1 Recommendation..... | 14 |
| 3.5 Total Dissolved Solids Loads to North Inlet Water Treatment Plant | 14 |
| 3.6 A21 Pit..... | 14 |
| 4 Social Well-being..... | 15 |
| 4.1 Assessment of Project Interactions with Cultural Use and Assessment of Cumulative Environmental Effects | 15 |
| 4.2 GNWT’s Conclusions and Rationale..... | 16 |
| 4.3 Recommendations | 17 |
| 4.3.1 Recommendation..... | 18 |
| 5 Summary and Final GNWT Measures and Recommendations..... | 18 |
| 6 References..... | 21 |

Tables

| | |
|---|-----------|
| Table 1 Final GNWT measures and recommendations..... | 19 |
|---|-----------|

Acronyms

| | |
|--------------|--|
| AEMP | Aquatic Effects Monitoring Program |
| CEAA | Canadian Environmental Assessment Agency |
| COPC | Chemicals of Potential Concern |
| DDMI | Diavik Diamond Mines (2012) Inc. |
| DKFN | Denínu Kúé First Nation |
| EA | environmental assessment |
| EFPK | extra-fine processed kimberlite |
| ENR | Department of Environment and Natural Resources, GNWT |
| FRMC | Fort Resolution Métis Council |
| GNWT | Government of the Northwest Territories |
| IGOs | Indigenous governments and organizations |
| IR | Information Request |
| IRR | Information Request Response |
| MVEIRB | Mackenzie Valley Environmental Impact Review Board |
| MVLWB | Mackenzie Valley Land and Water Board |
| MVRMA | <i>Mackenzie Valley Resource Management Act</i> |
| NWTMN | Northwest Territory Métis Nation |
| ORS | Online Review System |
| PK | processed kimberlite |
| PKC Facility | Processed Kimberlite Containment Facility |
| PKMW | Processed Kimberlite to Mine Workings |
| PR | public registry |
| the Project | proposal to deposit processed kimberlite in pits and underground mine workings |
| Review Board | Mackenzie Valley Environmental Impact Review Board |
| SEMA | Socio-economic Monitoring Agreement |
| SIS | Summary Impact Statement |
| TDS | total dissolved solids |
| TK | traditional knowledge |

WLWB

Wek'èezhì Land and Water Board

1 Introduction

As set out in the Land Use and Sustainability Framework, the Government of the Northwest Territories (GNWT) is committed to making balanced land management decisions in the context of sound environmental stewardship, with consideration of ecological, social, cultural, and economic values to ensure maximum benefits to current and future generations. This responsibility is shared with Indigenous, federal, territorial and municipal governments, boards and agencies and all residents of the NWT.

The GNWT supports environmental impact assessment and the Mackenzie Valley Environmental Impact Review Board's (MVEIRB or Review Board) process as a planning tool to ensure that the impact to the environment from developments receive careful consideration before actions are taken in connection with them, and to ensure that the concerns of Indigenous people and the general public are taken into account.

This closing argument summarizes the GNWT's conclusions with respect to the Review Board's environmental assessment (EA) of Diavik Diamond Mines (2012) Inc.'s (DDMI) proposal to deposit processed kimberlite (PK) in pits and underground mine workings (the Project) [MVEIRB file number EA1819-01]. The GNWT has reviewed the Summary Impact Statement (SIS), parties' Interventions, and all other material posted to the Review Board's public registry for this proceeding. The GNWT has participated actively in all phases of the EA to date, including participating in scoping sessions, submitting and responding to Information Requests (IRs), and participating in the community and technical public hearings from September 3-6, 2019. This submission considers all documents posted to the Review Board's public registry (PR) for this proceeding as of 5 pm Monday, September 30, 2019.

The GNWT is committed to supporting social progress by improving education, training and youth development, the cost of living and community wellness and safety (GNWT 2017). The GNWT is also committed to environmental sustainability, economic development, and building strong governance. GNWT departments, including the Departments of Lands; Environment and Natural Resources (ENR); Health and Social Services; Industry, Tourism and Investment; Justice; and Executive and Indigenous Affairs, have reviewed DDMI's proposal in terms of the GNWT's overall mandate and the mandates of the individual departments.

The GNWT notes that the following agreements between the GNWT and DDMI apply to this development: the Environmental Agreement, signed by Canada, the GNWT, DDMI and Indigenous signatories March 8, 2000; the Socio-economic Monitoring Agreement (SEMA), signed by DDMI, the GNWT (Industry, Tourism and Investment) and Indigenous signatories and parties October 2, 1999; and the January 22, 2015 SEMA Amendment Agreement. The GNWT encourages DDMI to continue fulfilling the commitments from the SEMA related to training, hiring, and procurement for/from northerners for Operations¹ as defined in the SEMA. The GNWT is committed to a regulatory environment that enables businesses to operate efficiently and notes that allowing practical operational flexibility that is consistent with the other principles and factors under consideration in this EA contributes to the protection of the economic well-being of NWT communities and residents.

¹ "Operations" as defined in the 1999 SEMA "means every kind of work done in respect of the operation of the Project from the time it goes into commercial production until permanent closure of the Project and includes mining, processing, environmental protection, and site reclamation."

The GNWT is working closely with Canada to fulfill the shared duty to consult Indigenous peoples and, where applicable, accommodate potential adverse impacts of the Project on asserted or established Aboriginal and/or Treaty rights.

The GNWT appreciates the opportunity to express its views and provide recommendations to the Review Board for this EA.

Because the proposed development is wholly on territorial land, Canada's March 27, 2014 delegation of certain *Mackenzie Valley Resource Management Act* (MVRMA) authorities to the GNWT Minister of Lands applies. The Minister of Lands and ministers of other relevant GNWT departments will participate in the MVRMA section 130 EA decision process as responsible Ministers to fulfill their statutory decision-making responsibilities based on evidence provided during the EA and the results of the Review Board's deliberations as set out in its Report of Environmental Assessment. Fisheries and Oceans Canada has confirmed that it will be a responsible Minister. As required, the GNWT will work with federal Ministers and officials to facilitate the responsible Ministers' decision on any Review Board recommendation and report from this EA proceeding.

This closing argument is organized as follows:

Plain language summary

Section 1: Introduction

Section 2: Wildlife

Section 3: Water quality

Section 4: Social well-being

Section 5: Summary and final GNWT measures and recommendations

Section 6: References

2 Wildlife

The GNWT's position on potential effects of the proposed activities on wildlife, including species within the GNWT's jurisdiction, such as barren-ground caribou from the Bathurst herd, grizzly bear, wolverine, raptors, and insects, is provided in section 3 of the GNWT's Intervention (GNWT 2019a, PR#113) and remains unchanged following the community and technical hearings. The GNWT is confident that significant adverse impacts to wildlife and wildlife habitat, including species within the GNWT's jurisdiction, are unlikely after implementation of mitigations (DDMI 2019a, PR#53), which include the recommendations and measures proposed by the GNWT in this closing argument. If the mitigation and monitoring measures proposed by DDMI for this Project are later determined to be insufficient with respect to wildlife, the Minister of ENR has the authority to require changes to DDMI's existing wildlife plans under section 7.5 of the Diavik Environmental Agreement.

The GNWT recognizes the concerns expressed by several interveners at the community and technical hearings about the status of the Bathurst herd and about any additional adverse effects on

the herd. The GNWT is also concerned about the herd's trend and future. On January 22, 2019, the GNWT and the Tłı̨chǫ Government submitted a joint management proposal for the Bathurst herd to the Wek'èezhì Renewable Resources Board. This management proposal recommends a continued total allowable harvest of zero Bathurst caribou, implementation of the Bathurst Caribou Range Plan (PR#167), joint education and public awareness initiatives, expanded on the on-the-land programs, and enhanced research and monitoring.

Provided that water quality concerns are addressed, it is unlikely that adverse impacts on this herd or neighbouring herds will occur due to this Project. The possible causes of caribou avoidance of the diamond mines (noise, dust, blasting, traffic on roads) should diminish when the mine is closed. In the unlikely event of deceased caribou being found near the flooded pits, testing for contaminants (heavy metals and organic compounds) by ENR may be possible, depending on the physical condition of the caribou, under the Northern Contaminants Program; caribou could be necropsied by ENR and assessed as to condition using Circum Arctic Rangifer Monitoring and Assessment protocols.

3 Water Quality

The GNWT has reviewed information from DDMI and interveners during this EA and has provided advice on the water quality component of the Project throughout the EA process. The GNWT maintains its position that the GNWT is unable to assess the likelihood for significant adverse impacts for cumulative effects (Intervention recommendation #2, GNWT 2019a, PR#113) in Lac de Gras. The GNWT has amended recommendation #1 from its Intervention (GNWT 2019a, PR#113) to a recommended measure. The GNWT maintains recommendation #2, unchanged. As stated at the technical hearing, the GNWT is satisfied with DDMI's responses to recommendations #3 and #4 in the GNWT Intervention. The GNWT has included two (2) additional measures for the Review Board's consideration based on some of the questions and responses that occurred at the community and technical hearings (MVEIRB 2019a-d, PR#156, 159, 165, and 168) and on conversations with the Tłı̨chǫ Government in preparation of closing arguments. Details on these conclusions are presented below.

3.1 Alternatives to Deposition of PK into Pits and Underground Mine Workings

As detailed in the GNWT's Intervention (section 2.1.4, GNWT2019a, PR#113), the GNWT has concern regarding the appropriateness of modeling conducted to date and the effectiveness of the mitigation strategies proposed by DDMI to ensure acceptable water quality conditions post-deposition of PK into the pits and underground mine workings. Please note that the GNWT defines 'acceptable water quality' as being the agreed to criteria (be it the AEMP or other benchmarks) established by the Wek'èezhì Land and Water Board and stakeholders during the water licence amendment process should the Project be approved to proceed to the regulatory phase. The establishment of criteria would include consideration of traditional uses and the perceptions of traditional users. After PK deposition into the pits and the filling of the pits with water, if either (1) water quality in the pits is determined to be poorer than the existing modeling shows, (2) traditional users are unwilling to use the pit lake area, and/or (3) traditional users are unable to use the pit lake area, this would represent a likely significant adverse impact.

The GNWT suggested the deposition of PK to pits and underground mine workings should not be approved unless DDMI's water quality is acceptable. The GNWT would like to clarify that the GNWT's recommendation (#1) from its Intervention pertained to the results of additional water quality *modeling*, and not just to unacceptable water quality monitoring results post-deposition of

PK to pits and underground mine workings. Specifically, this recommendation would apply if future modeling results demonstrate that PK deposition would result in water quality that is unacceptable.

As previously stated, the GNWT supports the concept of deposition of PK to pits and underground mine workings, followed by the reconnection of the pits to Lac de Gras upon demonstration of acceptable water quality conditions. However, as seen in the GNWT's previous requests for certainty around modeling results, (GNWT June 20, 2019 IR, comment ID no. 7, MVEIRB 2019e, PR#83) and in interveners' concerns regarding water quality in the pits, the GNWT recommended in its Intervention that there should be additional discussion from DDMI on the potential or feasibility of 'alternative options'. These alternative options could be a traditional dam raise, or additional use of the Processed Kimberlite Containment (PKC) Facility instead of deposition of PK into pits and underground mine workings (section 2.1.4, GNWT2019a, PR#113). In their Response to Interventions, DDMI stated that "DDMI generally agrees with the GNWT that if PK deposition is expected to cause a change in water quality such that traditional users could no longer use the area for traditional purposes or would avoid the area because of the Project, then PK should not be deposited in pits and underground mine workings but continue to be deposited in the Processed Kimberlite Containment Facility" (section 4.1, DDMI 2019b, PR#136).

While DDMI's general agreement on PK deposition to pits based on acceptable water quality is appreciated by the GNWT, in order to ensure likely significant adverse impacts to water quality are effectively mitigated prior to the deposition of PK to the pits and underground mine workings, the GNWT believes that a measure is required and has amended its Intervention recommendation #1 to become recommended Measure #1.

3.1.1 Recommendation

Measure #1:

The GNWT asserts that updated water quality modeling is required as the modeling conducted to date to assess the deposition of PK into pits and underground mine workings is poor (i.e., characterized by DDMI as "preliminary" and "subject to further evaluation"). Updated modeling is required in order to assess whether the deposit of PK to the pits and underground mine workings should be approved as the significance of depositing PK into the pits and underground mine workings is not possible to adequately characterize at this time. The deposit of PK to the pits and underground mine workings should only occur if water quality is predicted by updated modeling to be acceptable to maintain traditional use of Lac de Gras and meet narrative statements outlined in Measure #3.

3.2 Establishment of an Independent Review Panel

In DDMI's Response to Interventions (DDMI 2019b, PR#136), DDMI has agreed to an independent review of final model predictions. However, DDMI has stated that this requirement would be part of a condition of an amended Water Licence in the Wek'èzhì Land and Water Board (WLWB) regulatory approval process.

As noted during the technical hearing on September 5, 2019 (pp.67-68, MVEIRB 2019c, PR#165), DDMI has not yet fully conceptualized how they see the independent review being conducted, other than following a format similar to their current independent geotechnical reviews. As outlined in the question and response of DDMI and interveners at the hearing, there is a great deal of interest in how this review panel will be selected, how the modeling will be run, how the independent review will be structured, and how the panel will report on the updated modeling. DDMI also stated during questioning that the yet to be completed modeling may take several months to complete and that a final decision to expand the PKC Facility with additional dam raises must be made by DDMI

“sometime next year” [i.e., 2020] (p.153, MVEIRB 2019c, PR#165). Therefore, to facilitate the modeling and the establishment and selection of the independent review panel, the GNWT is of the opinion that the Review Board should require an independent review panel and that the process of its establishment be included as a measure of this EA. This would be required to ensure that there are no regulatory or process delays.

The GNWT would be interested in collaborating with DDMI and any interested parties to develop a process for the design, composition and oversight function of the independent review panel. This would also allow parties to give advance input and recommendations on modeling updates prior to DDMI committing resources to update the model. This would ensure stakeholder comfort with the modeling. The next iteration of the model should be updated to reflect processes at levels of detail that are appropriate with assessing feasibility of the Project and resultant water quality rather than modeling to conceptualize the plan.

3.2.1 Recommendation

Measure #2:

The GNWT recommends that the Review Board apply the precautionary principle and include a measure requiring DDMI to establish an independent review panel collaboratively with all interested parties. This collaborative process would include:

- **establishing the composition of the independent review panel;**
- **establishing how the review panel would select the water quality model and inputs;**
- **documenting how the independent review of the modeling results will be structured;**
- **documenting the process for the independent review panel reporting; and,**
- **a process for incorporating the recommendations of the independent review panel actions, which would also include the modeling and monitoring conducted during the placement of the processed kimberlite into pits and underground mine workings.**

3.3 Use of Narrative Statements to Describe Water Quality Acceptability

At the community and technical hearings, the Review Board questioned various interveners about significance characterizations. The Review Board questioned whether the interveners, through their assessment of DDMI’s analysis, agreed with DDMI’s assertion that water quality in the pit, once the PK was deposited and the pit filled with water, will meet acceptable criteria. The Review Board also noted that it is the role of the Review Board to make a decision about significance after taking into account the evidence put forth by interveners and DDMI (MVEIRB 2019c-d, PR#165, 168). Further, after the hearing, the Tłıchǝ Government engaged with the GNWT to discuss narrative statements as measures in EAs, which the GNWT has taken into consideration in its proposed measure below. It is the GNWT’s opinion that the acceptable criteria (by way of narrative statements) should be a measure of this EA to avoid likely significant adverse impacts from the Project on water quality. This would, should the Project proceed to the regulatory phase, provide guidance to the WLWB as they derive criteria for closure and make their determination as to whether PK disposal to the pits and underground mine workings can be approved once the updated modeling is completed. Based on other previously approved projects in the NWT (e.g., Fortune Minerals, Canadian Zinc), the GNWT is recommending the measure below.

3.3.1 Recommendation

Measure #3:

The GNWT recommends that the deposit of processed kimberlite into pits and underground mine workings should not be approved unless the updated modeling and independent review (Measure #2) indicates that the following narrative statements will be achieved:

- water quality within the pits meet established water quality benchmarks;
- that both the ecological and hydrological changes to pit water and Lac de Gras are of low magnitude during closure and post-closure; and,
- that traditional water users are not adversely affected from the deposition of processed kimberlite into the pits, now and into the future.

3.4 Cumulative Effects Assessment and Risk Assessment

The GNWT maintains that DDMI has not conducted a cumulative effects assessment as previously requested by the GNWT (Intervention recommendation #2, GNWT 2019a, PR113). The response from DDMI with respect to conducting a cumulative effects assessment is that:

“DDMI’s consultant (Stantec Inc.) for the preparation of the Summary Impact Statement (SIS) notes that the cumulative effects methods and the general environmental assessment approach in the SIS aligns with that in DDMI’s 1998 Comprehensive Study for the original Diavik Mine Project and that these methods do not fundamentally deviate from approaches currently used in environmental assessments under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), *Nunavut Planning and Project Assessment Act*, MVRMA and Inuvialuit Final Agreement” (section 4.1.2, DDMI 2019b, PR#136).

This statement, without supporting rationale, does not satisfy the GNWT’s request for a cumulative effects assessment.

At the technical hearing, the Tłıchǵ Government stated that the principle of “substantially unaltered” water quality applies to the Project (p.58, MVEIRB 2019d, PR#168). The Łutsel K’e Dene First Nation also mentioned baseline water quality as a desirable objective (p.75, MVEIRB 2019d, PR#168). Both interveners’ statements reflect a very high valuation of water. In the 1999 Comprehensive Study Report (Canada 1999), effects consistent with a 20% exceedance of the then current water quality guidelines, within 1 km of East End, were used to define a high magnitude effect within the local study area. This contrasts with accepted practices today where, for operational discharges, Aquatic Effects Monitoring Program (AEMP) benchmarks must be met at the edge of a mixing zone that is measured in hundreds of metres, not kilometres (p.63, MVEIRB 2019c, PR#165). Although the proposed closure option for the Project is not active discharge, rapid uncontrolled losses of Chemicals of Potential Concern (COPCs) entrained in the monimolimnion could occur due to an overturn scenario. These COPCs are derived primarily from leachate from the deposited PK, but also include contributions from pit wall geochemical processes and constituents of connate water that will enter the pit lake. In the context of a closed mine, losses of COPCs are arguably discharges; therefore, some of the guiding principles from the Mackenzie Valley Land and Water Board Water and Effluent Quality Management Policy (MVLWB 2011) should apply.

Further, the proposed in-pit deposition of PK will lead to incremental loads to Lac de Gras that should be contextualized by the expected diffuse losses of COPCs from the site. This contextualization has not been done to date by DDMI and is one reason that the cumulative effects

assessment for water quality conducted to date is still not acceptable to the GNWT. The interaction between an overturned pit lake and proximal water quality from site runoff (at closure) that is predicted to have the potential to be acutely lethal should be assessed (section 5.2.6.6, Rio Tinto 2017; and Appendix V, EMAB 2019a, PR#108). In an ecological effects perspective only – that is without considering social, cultural, and spiritual significance – the magnitude of effect associated with uncontrollable losses of COPCs from an in-pit deposition scenario would be defined by the incremental risk associated with cumulative effects such as uncontrolled diffusive COPCs losses from the site. DDMI dismissed this missing pathway identified as inconsequential relative to their worst-case scenario, but did not provide any evidence (p.64-65, MVEIRB 2019c, PR#165, p.34, MVEIRB 2019e, PR#83). The missing pathway, coupled with the value of water in Lac de Gras expressed at the community and technical hearings, suggest that DDMI’s assertion may not hold in the post-closure period.

It is for these reasons that the GNWT recommends that the magnitude, geographic extent, and duration definitions used during the original 1999 environmental assessment be reconsidered, given the changes in environmental knowledge and best practices over the last 20 years. This assessment should consider the irrevocable nature of the proposal and that the decision pertains to a closure, not an operational scenario.

3.4.1 Recommendation

Recommendation #1 (maintained unchanged and renumbered from GNWT’s Intervention recommendation #2):

The GNWT is unable to assess the significance of changes to the water quality as a result of cumulative effects from the Jay Project and the Diavik Mine at this time. Should updated modeling predict water quality conditions in the pit lakes or within Lac de Gras in the vicinity of the mine are of such poor quality that traditional users could either avoid the area or no longer use the area for traditional purposes, the placement of PK into the pits and underground mine workings should not be approved.

3.5 Total Dissolved Solids Loads to North Inlet Water Treatment Plant

The GNWT’s Intervention noted there was concern that the total dissolved solids (TDS) loads could impact water quality conditions as a result of the deposition of PK to the pit lakes (GNWT 2019a, PR#113). Since speaking with DDMI, there is better understanding of the expected TDS loads from the pit lakes and the GNWT is satisfied that there are likely no significant adverse impacts from TDS loads on Lac de Gras as a result of placing PK into the pits and underground mine workings (DDMI 2019c, PR#134). The GNWT’s recommendation from section 2.3.3 of its Intervention (GNWT 2019a, PR#113) is no longer required. However, as noted throughout this process, the GNWT will actively participate in the water licensing amendment process, should the Project be approved, to ensure agreed to water quality thresholds or benchmarks are achieved and maintained in Lac de Gras.

3.6 A21 Pit

The GNWT, along with other interveners, was concerned with DDMI’s original proposal that could have included using the A21 pit for the deposition of PK and extra-fine processed kimberlite (EFPK). These concerns were based on DDMI’s stated water quality conclusions for the A21 pit. DDMI has since committed to removing A21 from the Project (DDMI 2019b, PR#136). Therefore, the GNWT’s recommendation in section 2.4 of the GNWT’s Intervention is no longer required (GNWT 2019a, PR#113).

4 Social Well-being

The GNWT recognizes that the health and well-being of Indigenous peoples and communities is linked to the health of the biophysical environment. The Project area is socially, culturally, and spiritually important to Indigenous peoples. This has been reaffirmed by IGOs who were interveners in the environmental assessment and was further demonstrated in the comments and questions from the public and IGOs during the community and technical hearings.

The GNWT considered the Project's interactions with and impacts on cultural use in the Project area. In particular, the GNWT considered how potential impacts to water quality may have an impact on cultural users' ability and decision to access and use the Lac de Gras area, as well as the potential impacts that the Project would then have on the well-being of Indigenous residents and communities.

4.1 Assessment of Project Interactions with Cultural Use and Assessment of Cumulative Environmental Effects

For the detailed GNWT discussion of DDMI's analyses of potential impacts to cultural use, please refer to the GNWT's Intervention (GNWT 2019a, PR#113). The GNWT finds the lack of evidence in the SIS to support DDMI's conclusions (that the impact on IGOs choosing to not pursue cultural activities near the Project for "personal, practice, aesthetic, and spiritual reasons," is negligible) is not consistent with the concerns raised by the IGOs. The scope of this EA includes the perception of risk to the biophysical environment and its effects on cultural use, cultural continuity, and well-being, and not just quantifiable risk.

DDMI did not adequately analyze, discuss and develop mitigations to support Indigenous communities' perceptions of adverse impacts to the safety, quality, and health of Lac de Gras and the surrounding area. DDMI did not provide sufficient rationale and/or evidence in the SIS to support its conclusion that further assessment of cumulative effects on cultural use was not warranted. DDMI also did not provide comments on pathways between cumulative effects on cultural use or community well-being.

The GNWT recognizes that DDMI, in its Response to Interventions (DDMI 2019b, PR#136) expanded on its position in regards to 'Expanded engagement with non-signatory Indigenous Groups', 'Reconnection criteria to define culturally acceptable pit-lake conditions', 'Pit Lake Monitoring - operations, after filling, after re-connection', and 'Monitoring Plans'. That being said and as stated at the technical hearings, the GNWT is of the opinion that:

- DDMI's commitment to meet annually with the Fort Resolution Métis Council (FRMC), Northwest Territory Métis Nation (NWTMN), and Denínu Kúé First Nation (DKFN) to provide updates on the Project and closure planning is a first step. However, it is unclear if this commitment to meet with these IGOs will result in collaboratively involving these three IGOs in the Project or include the IGOs and their knowledge in the Project implementation and related closure planning process. Given the significant concerns that these IGOs have raised, the GNWT is of the opinion that a more iterative process for engagement and opportunities for feedback and recommendations among parties related to Project concerns, traditional knowledge, and traditional use may be warranted. This process should be jointly created and agreed upon by DDMI and the IGOs.
- The EA has demonstrated that concerns with the Project exist despite the existing engagement that occurs by way of the EA, the Environmental Monitoring Advisory Board (EMAB), and the SEMA. The GNWT is of the opinion that increased engagement specific to

the Project – and not solely around TK based criteria – may be warranted, as requested by IGOs.

- DDMI has stated during this proceeding that it “commits to working toward the development of acceptance criteria for re-connection that are TK-based” (p.2, DDMI 2019b, PR#136). However, DDMI’s approach to developing these criteria is not inclusive of all intervener IGOs. The GNWT is of the opinion that DDMI should offer FRMC, NWTMN, and DKFN the same opportunities as it does to those IGOs that have community agreements (SEMA, Environmental Agreement, and Participation Agreements) with DDMI and currently participate on the EMAB and in the TK Panel.
- There is a lack of clarity in DDMI’s responses to interveners’ recommendations and their commitments around monitoring. DDMI states that it “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,” (pp.2-3, DDMI 2019b, PR#136). It is not clear from DDMI’s responses to interveners where DDMI sees that their approaches to monitoring are “sufficiently aligned” and where DDMI plans to “consolidate”. The IGOs do not appear to have been included in DDMI’s determination that the proposed monitoring scope and conditions are sufficiently aligned. The GNWT is of the opinion that these decisions should be reached collaboratively and made jointly with IGOs. A requirement for monitoring programs that will be collaboratively developed between IGOs and DDMI should be clearly identified during this EA. Development of monitoring programs would ensure that IGOs who have received funding to participate in this EA (and may not have the capacity to participate in the water licensing process) have clear responses to their monitoring concerns for the Project and clear expectations regarding how monitoring activities and programs will be developed going forward. The GNWT’s recommendation regarding monitoring programs (see section 4.3) is consistent with the recommendations made by IGOs and supports their role in identifying mitigations.

4.2 GNWT’s Conclusions and Rationale

The GNWT stands by the conclusions, rationale, and recommendations submitted to the public registry and discussed at the public (community and technical) hearings regarding social well-being. The totality of DDMI’s responses throughout the assessment process have not provided adequate information or commitments to address the GNWT and other interveners’ concerns in this area. It is the opinion of the GNWT that current best practices are that local Indigenous knowledge and monitoring programs are critical, modern and reasonably practicable approaches that can be applied to this Project and closure planning in general. Indigenous monitoring programs are progressive, are rooted in Indigenous knowledge, beliefs, rights and culture, and can readily be applied in a manner consistent with sustainable development principles while supporting continued cultural use in the area and overall community well-being. As observed in the public registry, Indigenous peoples and IGOs have identified significant concerns regarding the perception of risk and/or potential adverse impacts (e.g., pp.23-24, MVEIRB 2019e, PR#83). The initial effect pathway related to these concerns was not fully analyzed by DDMI, nor did DDMI propose potential mitigations in the SIS.

The GNWT notes that DDMI has engaged with potentially impacted IGOs that are signatories to the Environmental Agreement, the SEMA, and/or Participation Agreements on Project design through the TK Panels and that these Panels’ reports are available through the WLWB. The GNWT also notes that DDMI has indicated in this EA that it will *consider* responses from Indigenous peoples and IGOs who are not signatories to the Environmental Agreement or SEMA. In the absence of clear and

strong commitments that represent a marked effort to collaboratively address concerns submitted by all IGOs and the GNWT around improved engagement and communication throughout the Project, the GNWT is unclear as to how DDMI will consider IGO responses. The GNWT stands by its recommendations for increased engagement and the IGOs' role in jointly developing engagement frameworks, mitigations, and monitoring programs. The GNWT does not agree with DDMI's position that DDMI's commitments to improve engagement and jointly develop monitoring could be made late during the licence amendment phase (i.e., during regulatory). The GNWT is of the opinion that in order to mitigate potential impacts to the social well-being of Indigenous peoples and IGOs, DDMI should commit now to improved engagement on this Project. This commitment should include developing a framework for engagement jointly agreed upon by DDMI and IGOs. The GNWT supports the concerns raised by the IGOs and the position that they play a key role in identifying mitigations.

4.3 Recommendations

The GNWT maintains that it is critical that DDMI work closely with all potentially affected IGOs to ensure that all potentially affected Indigenous peoples and IGOs receive timely communications in plain language and are provided opportunities to monitor the Project (e.g., depositing of PK in pits and underground mine workings). Best practices would also include IGOs monitoring final approved closure plans and identifying questions or issues that need to be addressed and offering IGOs the opportunity to iteratively identify potential mitigations. These mitigations would allow for Indigenous communities' perception of adverse impacts to the safety, quality, and health of Lac de Gras and the surrounding area to be addressed. The GNWT is of the opinion that strong monitoring programs can contribute to well-being and mitigate likely significant adverse impacts. The purpose of the recommendations regarding social well-being is to confirm that the IGOs are actively engaged and communicated with throughout the Project; are able to jointly monitor activities in person and mitigate concerns in their communities; are provided opportunities for iterative discussion with DDMI; and are able to identify criteria collaboratively based on their knowledge and culturally appropriate approaches.

As stated in the technical hearing (MVEIRB 2019d, PR#168), meeting once a year during the deposition of PK to pits and underground mine workings is not considered active engagement given the increased perception of risk as a result of the Project. The existing engagement mechanisms have not adequately addressed these project specific concerns and the perception of risk affects how traditional users perceive the safety, quality, and health of the area. This may create a pathway effect that can result in adverse impacts such as traditional users not accessing, utilizing, and positively conceptualizing Lac de Gras and the Lac de Gras area. This could impact traditional use, as well as the social and cultural significance of the area for traditional users. The GNWT's understanding of the perception of risk was informed by the Review Board's *Scope of EA and Reasons for Decision* (p.9, MVEIRB 2019f, PR#40) and is further described in the GNWT's IR response to the Review Board (GNWT 2019b, PR#73). The GNWT's IR response also details why the GNWT believes the perception of risk is an important consideration and why the GNWT developed recommendations which can be considered by the Review Board as a means to mitigate this perception through a more collaborative and engaged approach.

Overall, the GNWT still has insufficient information to determine whether the Project is likely to have significant adverse impacts on social well-being related to the perception of risk as it is connected to biophysical impacts and cultural use of the area. Due to the insufficient information, the GNWT has put forward recommendations regarding social well-being and defers to the Review Board to determine whether the gaps in evidence and insufficient rationale from DDMI warrant

application of the precautionary principle and, if so, whether measure(s) should be recommended by the Review Board.

The GNWT makes the following recommendations to support social well-being; these two recommendations are slightly altered versions of recommendations # 5 and #6 from the GNWT's Intervention:

4.3.1 Recommendation

Recommendation #2 (reworded from GNWT's Intervention recommendation #5):

The GNWT recommends that DDMI work with IGOs 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. This framework and plans created from this framework should be developed collaboratively with potentially affected IGOs and clearly identify how DDMI will actively work with communities to ensure that their community concerns regarding potential adverse impacts to the safety, qualities, and health of Lac de Gras from this Project are addressed. The updated framework could also be used by DDMI as engagement required during the regulatory phase and include opportunities for iterative feedback, meetings, and recommendations among parties.

Recommendation #3 (reworded from GNWT's Intervention recommendation #6):

As IGOs have indicated a preference for visual 'on the ground' monitoring of the Project, DDMI should include potentially affected IGOs 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.

5 Summary and Final GNWT Measures and Recommendations

The GNWT has proposed three measures to address likely significant adverse impacts to water quality. The proposed water quality measures are regarding: (1) alternatives to deposition of PK into pits and underground mine workings depending on results of updated modeling; (2) establishment of an independent review panel to address water quality modeling; and, (3) use of narrative statements to describe water quality acceptability. The GNWT's earlier recommendations from its Intervention regarding total dissolved solids loads to the North Inlet Water Treatment Plan and pit A21 have been adequately addressed by DDMI and are no longer applicable to the GNWT's closing argument.

The lack of acceptable information provided by DDMI has resulted in the GNWT being unable to determine with confidence whether there will be any likely significant adverse impacts on the environment with respect to water quality cumulative effects and social well-being. Due to this inability to make significance determinations for water quality cumulative effects and social well-being impacts, the GNWT is not proposing any measures to the Review Board on these topics, but has made three recommendations which have been slightly revised since the GNWT's Intervention. The GNWT defers to the Review Board to determine whether the gaps in DDMI's evidence and rationale, from DDMI as identified in this closing argument warrant application of the precautionary principle and, if so, the recommendation of measures intended to prevent likely significant adverse impacts on the environment.

The GNWT's final measures and recommendations for the Review Board's consideration are presented in Table 1.

Table 1 Final GNWT measures and recommendations

| ID Number | Section | GNWT Recommendation |
|---------------|---------|--|
| Water quality | | |
| Measure #1 | 3.1.1 | <p>The GNWT asserts that updated water quality modeling is required to be conducted as the modeling conducted to date to assess the deposition of PK into pits and underground mine workings is poor (i.e., characterized by DDMI as “preliminary” and “subject to further evaluation”). Updated modeling is required in order to assess whether the deposit of PK to the pits and underground mine workings should be approved as the significance of depositing PK into the pits and underground mine workings is not possible to adequately characterize at this time. The deposit of PK to the pits and underground mine workings should only occur if water quality is predicted by updated modeling to be acceptable to maintain traditional use of Lac de Gras and meet narrative statements outlined in Measure #3.</p> |
| Measure #2 | 3.2.1 | <p>The GNWT recommends that the Review Board apply the precautionary principle and include a measure requiring DDMI to establish an independent review panel collaboratively with all interested parties. This collaborative process would include:</p> <ul style="list-style-type: none"> • establishing the composition of the independent review panel; • establishing how the review panel would select the water quality model and inputs; • documenting how the independent review of the modeling results will be structured; • documenting the process for the independent review panel reporting; and, • a process for incorporating the recommendations of the independent review panel actions, which would also include the modeling and monitoring conducted during the placement of the processed kimberlite into pits and underground mine workings. |
| Measure #3 | 3.3.1 | <p>The GNWT recommends that the deposit of processed kimberlite into pits and underground mine workings should not be approved unless the updated modeling and independent review (Measure #2) indicates that the following narrative statements will be achieved:</p> <ul style="list-style-type: none"> • water quality within the pits meet water quality objectives or benchmarks; • that both the ecological and hydrological changes to pit water and Lac de Gras are of low magnitude during closure and post-closure; and, • that traditional water users are not adversely affected from the deposition of processed kimberlite into the pits, now and into the future. |

| | | |
|---|--------------|--|
| <p>Recommendation #1 (maintained unchanged and renumbered from GNWT's Intervention recommendation #2)</p> | <p>3.4.1</p> | <p>The GNWT is unable to assess the significance of changes to the water quality as a result of cumulative effects from the Jay Project and the Diavik Mine at this time. Should updated modeling predict water quality conditions in the pit lakes or within Lac de Gras in the vicinity of the mine are of such poor quality that traditional users could either avoid the area or no longer use the area for traditional purposes, the placement of PK into the pits and underground mine workings should not be approved.</p> |
| <p>Social well-being</p> | | |
| <p>Recommendation #2 (reworded from GNWT's Intervention recommendation #5)</p> | <p>4.3.1</p> | <p>The GNWT recommends that DDMI work with IGOs 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. This framework and plans created from this framework should be developed collaboratively with potentially affected IGOs and clearly identify how DDMI will actively work with communities to ensure that their community concerns regarding potential adverse impacts to the safety, qualities, and health of Lac de Gras from this Project are addressed. The updated framework could also be used by DDMI as engagement required during the regulatory phase and include opportunities for iterative feedback, meetings, and recommendations among parties.</p> |
| <p>Recommendation #3 (reworded from GNWT's Intervention recommendation #6)</p> | <p>4.3.1</p> | <p>As IGOs have indicated a preference for visual 'on the ground' monitoring of the Project, DDMI should include potentially affected IGOs 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.</p> |

6 References

- Canada. 2019. Federal Government response to Review Board IRs. (PR#78).
- Canada. 1999. Comprehensive Study Report, Diavik Diamonds Project, June 1999.
- Denínu Kúé First Nation (DKFN). 2019. DKFN response to Review Board IRs. (PR#75).
- Diavik Diamond Mines Inc. (DDMI). 2019a. Summary Impact Statement, Processed Kimberlite Workings Project. (PR#53).
- DDMI. 2019b. DDMI Response to Interventions for the Environmental Assessment of the Processed Kimberlite to Mine Workings Proposal. (PR#136).
- DDMI. 2019c. Processed Kimberlite to Mine Workings Project Communication Record Form with GNWT. (PR#134).
- DDMI. 2019d. Index for Attachments to the Information Request-ORS Comments for DDMI's Depositing Processed Kimberlite in Pits and Underground (EA1819-01) (Part 1 of 3). (PR#84).
- DDMI. 2019e. Appendix G Response to Session #7 Recommendations Presentation. (PR#85).
- Environmental Monitoring Agency Board (EMAB). 2019a. Attachments for Intervention from EMAB. (PR#108).
- EMAB. 2019b. EMAB response to Review Board IR. (PR#70).
- Fort Resolution Métis Council. 2019. FRMC response to Review Board IRs. (PR#77).
- GNWT. 2019a. GNWT Intervention for EA1819-01 (PR#113).
- GNWT. 2019b. GNWT response to Review Board IR. (PR#73).
- Łutselk'e Dene First Nation (LKDFN). 2019. LKDFN response to Review Board IRs. (PR#72).
- Mackenzie Valley Environmental Impact Review Board (MVEIRB). 2019a. Public Hearing Transcript, Behchokò, NT, September 3, 2019. (PR#156).
- MVEIRB. 2019b. Public Hearing Transcript, Dettah, NT, September 4, 2019. (PR#159).
- MVEIRB. 2019c. Public Hearing Transcript, Yellowknife, NT, September 5, 2019. (PR#165).
- MVEIRB. 2019d. Public Hearing Transcript, Yellowknife, NT, September 6, 2019. (PR#168).
- MVEIRB. 2019e. Information Requests - ORS Summary. Depositing, processed kimberlite in pits and underground – EA1819-01. (PR#83).
- MVEIRB. 2019f. Scope of the Environmental Assessment and Reasons for Decision – EA1819-01. (PR#40).
- Mackenzie Valley Land and Water Board (MVLWB). 2011. Water and Effluent Quality Management Policy.

- North Slave Métis Alliance (NSMA). 2019. NSMA response to Review Board IRs. (PR#76).
- Northwest Territory Métis Nation (NWTMN). 2019. NWT Métis Nation response to Review Board IRs. (PR#74).
- NWT Treaty 8 Tribal Corporation. 2019. Akaitcho IMA Office response to Review Board IRs. (PR#82).
- Rio Tinto. 2017. Closure and Reclamation Plan – Version 4.0. Diavik Diamond Mines (2012) Inc. April, 2017.
- Thorpe Consulting Services. 2019. Our youth, our future: monitoring our land, water, fish and air. Report of the Diavik Diamond Mine Aquatic Effects Monitoring Program Traditional Knowledge Study. Prepared for DDMI. (PR#86).
- Tłıchǫ Government (TG). 2019. TG response to Review Board IRs. (PR#71).
- Yellowknives Dene First Nation (YKDFN). 2019. YKDFN response to Review Board IRs. (PR#69)