

Reviewer Comments and Proponent Responses

Project: Diavik

Board: Wek'èezhii Land and Water Board

Organization: Diavik Diamond Mines (2012) Inc.

| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |
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| Tlicho Government - LONGINUS EKWE | | | | |
| 1 | Closure Plan | DDMI has submitted a revised management plan and design report (with drawings) for the final stage of the PKC Facility. If approved, DDMI will place processed kimberlite in the PKC Facility under the design and management plan for the remainder of the mine life. Therefore, the Phase 7 design may influence or even dictate the final configuration of the PKC before closure activities begin. DDMI indicated in interim Closure and Reclamation Plan 4.1 that the company will be submitting it's proposed final closure plan for the PKC Facility (wet vs dry cover) by Q1 2021 for approval. The decision on closing the PKC Facility with a wet or dry cover has important implications on long-term physical and chemical stability. To our knowledge DDMI has not yet submitted the final CRP closure concept. We anticipate an opportunity to evaluate the merits of a wet cover vs a dry cover and other key PKCF closure aspects before a | 1. Can DDMI confirm that its proposed Phase 7 design and management plan will not close the door on closure options that should be considered by all parties and the Board (e.g., wet vs dry cover)? 2. When will DDMI be submitting the PCK Facility closure plan? 3. Can DDMI comment on the merits of reviewing the PKC Facility closure plan at the same time as the Stage 7 final design and management plan? | DDMI appreciates TG's initiative to have a discussion around these questions and to hear DDMI's responses in advance of submitting these comments. The following responses were provided to TG: 1. The Phase 7 design and management plan does not close the door on either the wet or dry (what we are now calling "freeze") option. 2. The PKC Closure Design /Plan will be submitted with Final CRP around October 2022 but we expect to initiate engagment on the proposed closure approach over the next ~6 months. 3. Certainly in an ideal world it would be preferable to review both at the same time but since the Phase 7 design and management plan inform closure designs (they set the starting conditions for closure) the final closure designs will be informed by the final raise design and management plans. |

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| | | decision on the closure plan is made. Given that this is the last stage of the PKC Facility construction, it may make sense to review the CRP closure plan at the same time as the design and management plan. (Diavik and TG staff met to discuss these comments and we appreciate Diavik also responding here for the Board and the public record.) | | |
| 2 | General | Now that PKMW has been approved, there is the possibility of removing extra fine processed kimberlite from the PKCF and depositing it into mine workings. | Can DDMI please confirm that this is still an option and explain whether this option would be affected by the Phase 7 design and management plan and PK deposition? | The Phase 7 design, management plan and PK deposition plan would not technically preclude the possibility of moving extra fine processed kimberlite from the PKC and depositing it into the mine workings. However, as discussed with TG, there are currently no plans to do this. |
| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |
| Wek' eezhii Renewable Resources Board - Mrs. Randi Jennings | | | | |
| 1 | Processed Kimberlite Management Plan Version 6 | The WRRB have no comments at this time. | The WRRB have no recommendations at this time. | N/A |
| 2 | Updated Design Reports for the Processed Kimberlite Containment Facility (PKCF) Phase 7 Dam Raise and Spillway | The WRRB have no comments at this time. | The WRRB have no recommendations at this time. | N/A |
| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |

| Environmental Monitoring Advisory Board - ... EMAB | | | | |
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| 1 | General Comment | DDMI has conditional approval for construction of a Phase 7 raise of the dams for the Processed Kimberlite Containment Facility (PKCF) – subject to review and approval of final design documents. However, the approved management plan and design did not consider the now approved plan for disposal of fine processed kimberlite (FPK) in the mine workings (A418 and A154 pits and underground). The PKMP v6 and Updated Design incorporate plans for disposal of FPK and coarse PK (CPK) in the PKCF until October 2022 and continued disposal of CPK until the end of planned mine life. The storage of FPK in mine workings reduces the overall required capacity in the PKCF, therefore leading to changes in the design for the final raise of dams. | See below | N/A |
| 2 | General Comment | The revised design entails construction of a small dam, 4 to 6 m in elevation and constructed of CPK, on top of PK at locations inside of the upstream liner on the existing PKCF dams. The proposed CPK dam will surround most of the PKCF, but will not extend to the northwest corner of the facility. At that location, the design includes a sump that will accumulate water from runoff and from PK, and a spillway to | See below | N/A |

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| | | discharge excess water to Pond 3. The PKMP v6 envisions FPK discharged from spigots on the CPK dam will flow towards the spillway at the northwest corner of the PKCF, creating a PK beach that extends across the whole facility. The concept is referred to in the Updated Design as the “slope-to-spillway” concept. | | |
| 3 | General Comment | If it proceeds as planned, the slope-to-spillway concept appears to have merit from a closure perspective. The design envisions that FPK will flow across and displace the central pond in the PKCF, providing a FPK layer over the extra-fine PK (referred to as slimes) in that area. This may remove some closure challenges associated with the PKCF Pond, providing a surface that is more conducive to cover placement for closure, and a landscape that can promote runoff from the facility rather than water retention, ponding and infiltration. If successful, the proposed PKMP v6 and Updated Design could have an overall positive impact on the closure outcomes for the PKCF and the site. | See below | N/A |
| 4 | General Comment | At the same time however, the proposed plan appears to foreclose on any future opportunities to relocate Extra Fine PK into mine workings because those materials will likely be | See below | N/A |

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| | | quickly inundated by the newly deposited FPK. Disposal of Extra Fine PK in mine workings would provide secure long-term storage for materials that currently present closure challenges. | | |
| 5 | General Comment | Unfortunately, DDMI has not provided or described any detail for a revised closure plan for the PKCF, though the Updated Design references a February 2021 Closure Design. In the absence of a closure plan, it is not possible to reach conclusions about the likely balance of pros and cons related to closure of the facility and its effects on the overall closure plan for the site. | As with all mine planning, closure planning and design must be integral with mine development/operations planning. DDMI should be required to demonstrate that it has a practical and feasible closure plan for the proposed PKMP, and characterize the implications of the changes on the overall closure plan for the site. | Please see response to TG-1. The PKC Closure Design /Plan will be submitted with Final CRP around October 2022 but we expect to initiate engagement on the proposed closure approach over the next ~6 months. In an ideal world it would be preferable to review both the closure design and Phase 7 design at the same time but since the Phase 7 design and management plan informs closure designs (they set the starting conditions for closure) the final closure designs will be informed by the final raise design and management plans. |
| 6 | Differential Settlement | The creation of a landscape that will shed water across the PKCF and out the spillway (i.e., no pond) in the post-closure period is a significant advantage of the proposed slope-to-spillway concept. However, the long-term performance of the landscape, specifically maintaining slopes that will shed water, has significant uncertainty. The area of the PKCF Pond, with Extra Fine PK (i.e., slimes) will dewater and consolidate very slowly, likely over a time period of decades. As the Extra Fine PK consolidates, the closure surface will deform. Because the slopes of the FPK | See below | N/A |

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| | | <p>surface will be quite flat, the consolidation of Extra Fine PK may lead to ponding on the surface of the closure cover, potentially to depths that may be greater than the thickness of any rock cover. The variability in FPK characteristics across the PKCF (e.g., frozen layers, coarser/finer material, wetter/drier material, ice-entrainment) could lead to similar issues at other locations. Also, the thicker FPK adjacent to the proposed CPK dam with thinner FPK near the northwest corner of the PKCF will tend to flatten the final slope of the PKCF surface over time as the material consolidates. This flattening of a surface with an initial flat grade will likely affect the runoff-related performance of the surface.</p> | | |
| 7 | Differential Settlement | <p>The PKMP v6 refers to the 2011 Interim Closure and Reclamation Plan (ICRP) for additional details about plans for characterization of FPK (Section 4.2) and porewater (Section 4.3), including issues related to consolidation and settlement. Plans for characterization of PK will need to be updated to reflect the revised management plans.</p> | <p>Any approval of the PKMP v6 and the Updated Design should include requirements for monitoring and investigation of settling and consolidation and their variability across the PKCF. The monitoring should be used to support prediction of long-term settling characteristics, which can then form the basis for development of long-term monitoring and maintenance plans for the closure surface.</p> | <p>The consolidation and settling of the facility is a key component of the current ongoing closure design. This component will be included in the current closure designs for the PKCF, and incorporated into the PKMP at a later date.</p> |
| 8 | Construction | The PKMP and Updated Design | See below | N/A |

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| | on PK | <p>propose construction of a CPK dam on top of existing unconsolidated PK materials, including previously created FPK beaches. These materials are variable, for example coarser and finer, frozen/unfrozen, wetter and drier, etc. As a result, the materials have varying strengths and performance as foundation materials for the proposed dam/embankment. The stability analyses presented in the Updated Design indicate that the material variability leads to associated variability in expected structural performance and stability. The stability analysis predicts low factors of safety for some areas of the West Cell Causeway, where the dam is partially constructed on top of undrained grit-poor FPK. DDMI proposes that the concerns about stability can be addressed through "controls to manage slope stability" (Updated Design, Section 8.6). Construction controls associated with these areas are described as follows in Section 9.1 of the design: "Where the upstream edge of the CPK road extends onto the FPK beach (West Cell Causeway), additional construction monitoring is recommended, and construction must be completed when the FPK beach is frozen. If possible,</p> | | |
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| | | <p>traffic should be limited on the upstream side of the CPK spigot road after construction and particularly if there is active deposition in the area or ponded water. The upstream pipe bench or safety berm should be widened to keep traffic away from the upstream side of the road."</p> | | |
| 9 | Construction on PK | <p>DDMI's Geotechnical Review Board, in its memo included with the Updated Design, notes the challenges associated with construction of the containment facilities on foundations of FPK and suggests that this will require a high level of engineering. The Review Board proposes several investigations, analyses, calibrations and design criteria that should be completed and incorporated into the design, and monitoring that should be conducted during and after construction. DDMI appears to have addressed many of the recommendations, e.g., experience with similar construction, presence of variable frozen and thawed ground. Others however have not been addressed, for example the recommendation for more conservative factors of safety to reflect uncertainties in FPK performance, or any detailed description of more intensive</p> | See below | N/A |

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| | | monitoring that will be done in areas constructed on FPK. | | |
| 10 | Construction on PK | <p>With respect to monitoring, the Quality Control and Quality Assurance Plan (Section 5 of the Construction Specifications in Appendix C of the Updated Design) describes monitoring and construction control activities. However, the monitoring related to CPK placement only appears to describe activities related to the raise of dams from elevation 473 m to 475 m, not the construction of the CPK dam/embankment. Section 2.7 of the Updated Design describes monitoring and response plans that have been used previously during construction on FPK beaches, but there is no clear indication that this same approach would be followed. The design, in Section 9.1, acknowledges that plans will be needed but does not provide details.</p> | <p>DDMI should describe specifically how it has addressed each of the suggestions from the Geotechnical Review Board about construction of the CPK embankment on FPK foundations. In addition, DDMI should provide details about construction quality assurance/quality control for the CPK embankment, including what construction monitoring, triggers and response plans will be applied in areas where material will be placed on FPK beaches.</p> | <p>DDMI and Golder met with the Diavik Geotechnical Review Board (DGRB) on 28 May 2021 to discuss the updated Phase 7 final raise and spillway designs, including supporting analyses and construction plans. Comments from the DGRB letter (28 May 2021) were addressed in the final version of the Golder Phase 7 final raise design and spillway design reports. As noted in the Table of Conformity to DGRB Recommendations on the Updated Phase 7 Raise and Spillway, comments from the DGRB relating to upstream CPK construction were related to construction safety and not related to concerns for potential loss of FPK containment. DDMI operations have been placing CPK over the FPK since degrit process was started in June 2016, and existing operational experience and procedures were used to inform the final design. Areas of stability concern have operational monitoring plans that were developed by Golder and DDMI and are currently being implemented.</p> |
| 11 | Closure Liability | <p>Although the slope-to-spillway concept provides opportunities for improved closure outcomes, it also creates interim conditions that may increase the closure liability while the mine is operating. During operations, the FPK beach will lead to a pond in the northwest corner of the PKCF. Once this geometry is in place, the creation of free draining closure</p> | <p>Any approval of the PKMP v6 should include a reconsideration of the peak closure liability that will accumulate during operations, including consideration of the costs associated with establishing free draining closure topography if the mine closes after the new plan is implemented, but before adequate FPK has been placed.</p> | <p>DDMI notes that the current topography of FPK in the PKCF already supports the slope-to-spillway concept if the mine closed today.</p> |

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| | | <p>topography will require placement of additional fill or other measures. As long as the mine plan proceeds as described, the topography will be created by placement of FPK. However, if the mine closes earlier than expected, implementation of a closure plan may require additional effort to establish appropriate topography on the PKCF.</p> | | |
| 12 | Coarse PK for Erosion Protection | <p>Sections 6.3 and 9.2 of the Updated Design describe a raise of the CPK road around the northwest corner of the PKCF and propose that this raise can function to provide freeboard for wave up-rush. The Updated Design describes the CPK as “fine- to coarse-grained sand as the major constituent with some fine-grained gravel as the minor constituent.” The sand material will likely be prone to erosion at the proposed slopes, and the minor component of gravel will likely not be sufficient to provide effective self-armouring. As a result, the CPK material may not be effective or appropriate for erosion protection from wave run-up.</p> | <p>DDMI should be required to provide analysis that demonstrates the suitability of CPK material for erosion protection in wave run-up conditions.</p> | <p>The CPK zone is approximately 50 m to 100 m wide upstream of the lined dams and provides a buffer between the pond and the lined dams. The pond will only be along the North and West Dams, and contained by the FPK beaches around the rest of the facility. An approximately 100 m section along the North Dam adjacent to the decant sump pond has a narrow (less than 10 m) zone of CPK, but is protected by CPK to the east and west. The North Dam is also buttressed by the NCRP downstream.</p> <p>We are planning to maintain a minimal PKC pond and the FPK sloped to spillway geometry will restrict the pond storage volume and location to the northwest corner of the facility. The size and depth of the pond will limit wave up rush. Potential wave erosion would only be over the short flood event duration (PMP or EDF), which is a 24 hour event. The Phase 7 final raise design includes a rockfill berm constructed around the perimeter of the elev. 469 m crest and along the sides of the spillway channel. The berm will be constructed to approximately elev. 471 m at the downstream toe of the CPK zone and provides additional protection</p> |

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| | | | | for wave uprush. During an extreme flood event, the maximum pond elevation is 468.9 m (2.1 m below the top of the rockfill berm), and the spillway invert is 468.2 m. |
| 13 | Spillway | The PKCF Phase 7 Spillway Design Update describes a spillway that is “expected to be in operation until the closure spillway is constructed.” Table 1 of the updated spillway design indicates that closure spillway design requirements have been adopted for the design of the Phase 7 spillway chute. Meeting the more robust closure design requirements for an operational spillway is a good approach. Nonetheless, there are some components of the operational spillway design that may not be appropriate in a closure and post-closure scenario and which would require re-design and modification as part of closure implementations. For example, the cemented rockfill erosion protection proposed for some portions of the operational spillway may not have a design life that is appropriate for closure. If retained it would have implications for long-term maintenance if retained for closure. | Any approval for the operational spillway should specifically state that approval is only for operational purposes and that updated design, rationale and potentially modification will be required to support closure. | The spillway design will be assessed as part of closure and the design will be updated, including rationale, as required to support closure. |
| 14 | Water Management Objectives | Section 3.2 of the PKMP v6 describes water management objectives, stating that: “The PKCF storage capacity (including Pond 3) is maintained to | DDMI should revise the objective statement to reflect the intent to store the IDF and to clarify the water management expectations. | Section 3.2 of the PKMP will be revised to state that DDMI continues to maintain enough storage to hold an IDF for the PKCF and Pond 3 catchments without |

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| | <p>ensure sufficient storage for a 1:500-year storm event (environmental design flood). In case of an extreme event, such as an Inflow Design Flood (greater than 1:500-year storm) the spillway permits excess water to discharge from the PKCF to Pond 3.”</p> <p>The objective s stated suggests that Pond 3 capacity is sufficient for storing a 1:500-year event, implying that water from an Inflow Design Flood (IDF) may exceed the capacity of the pond. The Updated Design identifies the IDF as “a Probable maximum precipitation (PMP) event (rain on snow). The objective as stated is not consistent with other statements in the plan. For example, Section 3.4.1 states: “DDMI continues to maintain enough storage to hold an IDF for the PKCF and Pond 3 catchments without discharge to Lac de Gras.” Similarly, Section 3.6 states: “Throughout this dam raise sequence the facility will maintain adequate freeboard to pass an IDF through the spillway to Pond 3 which will maintain sufficient freeboard to store an IDF for the combined PKCF and Pond 3 catchment without discharge to the environment.” The objective also states that the IDF will lead to flow from the PKCF to Pond 3. Since Pond</p> | | <p>discharge to Lac de Gras. The Updated Design for the IDF is a Probable maximum precipitation (PMP) event (rain on snow), which is significantly larger than a 1:500 year-event. DDMI requests that it be allowed to make this revision to the text in Section 3.2 in a PKMP V6.1 submission to the WLWB after Board approval of PKMP V6.</p> |
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| | | 3 provides the storage for the IDF as well as much smaller events(likely including a 1:500-year event), flow from the PKCF to Pond 3 would be expected at flows well below the IDF. | | |
| 15 | 2021 Freshet Activities | Section 3.5, PKCF Pond Management, describes several activities that are to be undertaken before and during freshet 2021. | Since freshet 2021 has passed, DDMI should describe the results of these activities and also describe plans for future freshets. | Following freshet in spring 2021, the water management of the facility was managed through a facility trigger action response plan (TARP), pumping, depositional strategy, and use of Pond 3 via the PKC spillway. The reporting conducted during freshet included biweekly (every two weeks) reports for the WLWB. Additional decanting infrastructure was setup for Pond 3 and ensured the water level could be managed with enough storage for the PKC facility IDF through Spring 2021. Future freshets will be managed with simialr robust controls. Additional water storage in the PKCF will be available for Spring 2022, as part of the completion of the Phase 7 spillway which will raise the spillway ~3.5m. |
| 16 | SEC Review | attached is a technical review of the documents | please see attached technical review from Slater Environmental | DDMI has addressed requests for clarifications in Section 7.0 of the referenced Technical Memo, prepared by Slater Environmental on behalf of EMAB, in our responses to EMAB # 14 and 15 above. |
| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |
| WLWB - Cassandra DeFrancis | | | | |
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| WLWB - Cassandra DeFrancis | | | | |
| 1 | Pond management | DDMI states in the cover letter that the CPK raise “will not retain a pond”; however, in section 9.2 of the Design Report, DDMI states that “the pond | Please describe the water management activities for the main cell pond. | The central pond in the main cell of the PKCF is managed and mitigated through deposition. Pond will be maintained below the lined dams at elevation 469 m in a slope-to-spillway configuration. Ongoing |

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| | | may extend into the Main Cell upstream of the CPK zones along the North and West dams". In Section 3.5 of the PK Management Plan, DDMI states "Specifically, the pond is expected to be managed toward the NW corner of the Facility where an additional water management structure will be installed and progressively decrease the overall pond size" but does not comment on the main cell pond specifically. | | deposition in a slope to spillway configuration from the east, north, and south into the main cell has shifted the pond from a central location towards the northwest. With the pond shifted towards the NW the NW Decant Sump is used to manage the water levels for the main cell pond. |
| 2 | Figure 8-3 in Part 2 of 6 of the PKCF Phase 7 Design Reports | In section 9.2 of the Design Report, DDMI states that "DDMI will likely continue to operate the PKC Facility with a minimal pond in the decant sump area" but "the pond may extend into the Main Cell upstream of the CPK zones along the North and West dams". DDMI also states throughout the Report that the PKC pond will be maintained below the lined dam elevation at 469m. Figure 8-3 shows a cross-section of the South Dam with the CPK slope to an elevation of 475m but provides no indication of whether the pond will be in this area. It is unclear if PK pond water is expected at all on the south side of the facility. | Are there any circumstances where the pond could develop on the south side above the dam liner at 469m? If so, describe any implications to the integrity of the liner on the south side and any contingency measures that may be required to maintain the integrity of the liner. | As a result of CPK berm placement , and FPK slurry deposition from the CPK berm in a slope-to-spillway geometry, excess process water is to be directed towards the pond located in the northwest corner of the PKC Facility, with decant water reporting to the NW decant sump. If the FPK Deposition plan is followed there is not a condition for the main PKC pond to develop above the spillway invert of 468.2 m. In the final raise design report (Figure 8-3) a phreatic surface representing a worst case condition for saturated and thawed PK that could develop locally in an area of active deposition is shown. This condition was used as a conservative input to slope stability modelling. It is unlikely that active FPK deposition would result in saturation to this level and saturation above the main PKC pond elevation would only be a temporary condition, draining once deposition is complete and moved to another location. |
| 3 | Closure of the PKC Facility | In the Design Report, DDMI states "The PKC Facility closure prefeasibility level design (Golder 2021a) involves a | Since this change to the spillway appears to be a component of closure, and no Closure Design is approved for | The slope-to-spillway FPK deposition plan is beneficial to both "dry" and "wet" cover approaches to closure. One closure implication of note with regard to the FPK |

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| | | <p>placement of rockfill cover over the CPK and competent FPK” and that this “closure design is based on a slope to spillway FPK deposition geometry”. DDMI also states that the “Phase 7 final raise design was updated for a sloped to spillway FPK deposition geometry to advance towards the closure design”. Currently there is no approved Closure Design for the PKC Facility.</p> | <p>the PKC Facility Plan, please discuss the implications of proceeding with this step in advance of an approved Closure Design.</p> | <p>deposition is that it has fixed the location of the closure spillway. See also response to TG-1.</p> |
| 4 | Engineered spillway | <p>In the Diavik Geotechnical Review Board's (DGRB's) letter, the DGRB states that it “supports the strategy to slope the deposition surface toward the spillway; allowing the spillway to flow more routinely to Pond 3 under various freshet, summer melt and extreme rainfall events”. The DGRB recommended that “Since Pond 3 will be used more routinely to accept overflow from the PKC, an engineered spillway design should be considered, rather than a low spot in the dike”. DDMI responded that an “Assessment of Pond 3 was undertaken and the existing spillway was determined to be sufficient based on the capacity of Pond 3 and the facility risk rating”. It is unclear why the capacity of Pond 3 was a main factor in determining the need for an engineered spillway. The DGRB's recommendation appears to</p> | <p>Please describe what considerations were made in relation to whether an engineered spillway would be more effective for erosion control than a low spot in the dike.</p> | <p>Excess water from the PKC Facility reports to Pond 3 and is pumped on to the north inlet. The available storage capacity in Pond 3 was a key factor in evaluating whether the Pond 3 spillway needed to be upgraded because the pond storage capacity can be used to manage storm events (for the PKC Facility and Pond 3), such that the spillway is not used. Pond 3 storage is approximately 1.2 times larger than the IDF (PMP) volume (for the combined PKC Facility and Pond 3) and 2.5 times larger than the EDF volume. In the event of either an EDF or IDF, the excess storm runoff reports to Pond 3 where it can be stored and then pumped over time to the north inlet. DDMI has developed a water management monitoring and trigger action response plan (TARP) for the PKC Facility and Pond 3 to ensure that the water level in Pond 3 is maintained below an elevation to maintain storage for the IDF in Pond 3. The Pond 3 spillway is very unlikely to be used due to the large storage capacity and therefore is unlikely to have erosion. The PKC Spillway is expected to be used somewhat regularly for smaller flows (much less than the IDF);</p> |

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| | | be concerned with potential erosion of the PKC spillway material from increased use and DDMI's response did not address this. | | however, erosion is unlikely because the spillway has been designed to manage much higher flows (IDF). |
| 5 | DGRB comment on bedding material for the spillway chute | The DGRB commented that "The use of bedding material for the rockfill protective layer may provide additional resilience for the spillway chute". DDMI responded that "A finer-grained bedding layer below the spillway chute rockfill lining material is not considered necessary" because "The rockfill has been sized for the flows and a finer grained bedding layer would not be expected to provide additional resilience". DDMI also stated that the "chute will be inspected following significant flow events to confirm performance". | If the rockfill material does not perform as intended, please comment on whether adding a protective bedding material after construction of the spillway could be considered as a contingency and describe any additional contingencies for the spillway chute. | The rockfill erosion protection layer in the PKC spillway chute is designed to provide protection during flows from an IDF (PMP) event. Flows through the spillway and chute that are expected to occur somewhat regularly will be much less than IDF flows, so erosion is very unlikely. The rockfill lined chute will be inspected regularly and repaired as required with suitable rockfill for erosion protection that is available on site if any areas of erosion are observed. |
| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |
| GNWT-ENR (Environment and Natural Resources) - Mr. Patrick Clancy | | | | |
| 1 | PKMP Ver 6.0 - Updated Phase 7 DRSDR | ENR Cover Letter | ENR Cover Letter | N/A |
| 2 | Topic: General Design | ENR retained Brodie Consulting Ltd. to review the PKCF Phase 7 Design report. ENR has incorporated comments from BCL below. In general, the design appears to BCL and ENR to have been conducted with considerable diligence and attention to detail. | None | N/A |
| 3 | Topic: Pond | ENR supports the modification of the | 1) ENR recommends that DDMI | Flows from the PKC Facility that report to Pond 3 may |

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| | Capacity | <p>tailings surface by sloping towards the closure spillway, with a progressively smaller pond as this will enhance the implementation of the closure cover. However, it appears that there is a risk should there be a severe flood event when pond volume is reduced to the minimal capacity of 500 m3. ENR notes that it is likely that runoff from exposed PK beaches will have elevated TSS, and if there is water that cannot be managed at Pond 3, there could be an overflow from Pond 3 to the environment.</p> | <p>confirm sufficient storage volume and/or pumping capacity to manage the runoff from the PKCF.</p> | <p>have elevated TSS, but this water would be managed and settled in Pond 3 before being pumped to the north inlet. The available storage capacity in Pond 3 is sufficient to manage storm events (for the PKC Facility and Pond 3), such that the spillway is not expected to be used. Pond 3 storage is approximately 1.2 times larger than the IDF (PMP) volume (for the combined PKC Facility and Pond 3) and 2.5 times larger than the EDF volume. In the event of either an EDF or IDF, the excess storm runoff would report to Pond 3 where it can be stored and then pumped over time to the north inlet. DDMI has developed a water management monitoring and trigger action response plan (TARP) for the PKC Facility and Pond 3 to ensure that the water level in Pond 3 is maintained below an elevation to maintain storage for the IDF in Pond 3.</p> <p>Sediment in Pond 3 and the North Inlet will be addressed as part of closure.</p> |
| 4 | Topic: Cemented Rock-fill (CRF) Spillway | <p>ENR notes that the CRF proposed for closure is proposed to be 20cm thick. ENR is uncertain if the cement binder may crack due to thermal effects and/or settlement.</p> | <p>1) ENR recommends that DDMI clarify the potential for the cement binder to crack due to thermal effects and/or settlement and describe how this could affect spillway stability.</p> | <p>The Phase 7 spillway is an operational spillway with a design life of approximately 5 years, and not the closure spillway. The CRF is constructed over filter compatible granular materials, so erosion is unlikely even if there is localized cracking and some seepage gets through. Seepage is expected to report to Pond 3. If cracking is significant enough that extensive seepage is getting through and there are concerns for erosion or disruption to spillway flows, the cracking can will be mitigated with localized grouting or other methods to seal the cracks. Performance of the CRF was evaluated with the Phase 6 spillway design and construction and no significant issues were encountered over the past year.</p> |

| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |
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| Environment and Climate Change Canada (ECCC) - Melissa Pinto | | | | |
| 1 | Processed Kimberlite Containment Facility - Updated Phase 7 Final Raise Design, Section 2.6.1 Evaluation of Thermal Conditions in FPK | <p>The proponent indicates that some thawed layers were encountered in the test holes, and that these thawed layers in the upper 5 m of the Fine Processed Kimberlite (FPK) were typically 0.3 to 0.8 m thick and that are some layers below the 5 m depth were up to 3.5 m thick.</p> <p>Generally, a thawed layer means that all layers are not frozen as would have been expected, or that there is an internal heat source causing the layers to thaw. If an unfrozen layer is large enough, it may cause instability of the structure or potentially lead to metal laden seepage. The extent of or how large and common these layers are may indicate or point to the causes.</p> <p>No explanation is offered for the presence of the thawed layers in the test pits, or how extensive the thawed layers are. In addition, the proponent does not provide any mitigation that will be implemented to address the presence of the thawed layers.</p> | ECCC recommends the proponent clarify what the causes are of the thawed layers and what mitigation will be implemented to address any resulting issues from these thawed layers. | FPK deposition out of the spigots is a thawed warm slurry. Areas of FPK beach that are thawed (above 0° C) have not yet frozen since being deposited. FPK generally freezes shortly after deposition in the winter, but areas deposited during above 0 °C ambient temperatures are thawed and then progressively freeze over time. This results in interlayered frozen and thawed layers in the FPK beach. Frozen conditions in the FPK beach provide the lowest risk for potential upstream slope instability (construction safety) during CPK placement, but frozen conditions are only a requirement in areas where CPK placement extends over the FPK beach beyond the current upstream CPK zone. Installation of thermistors is planned to confirm thermal conditions in the FPK foundation below the upstream CPK zone to support construction safety. Downstream slope stability of the Phase 7 final raise that could be associated with a potential FPK release is not affected by thermal conditions in the FPK beach. |
| Fisheries and Oceans Canada (DFO) - Nicholas Wasilik | | | | |
| 1 | Processed Kimberlite | Fisheries and Oceans Canada has reviewed the information provided | Fisheries and Oceans Canada has no recommendations at this time. | N/A |

| | | | | |
|--|---|-----------------------------------|-------------------------|--------------------|
| | Management Plan, Version 6.0, and Updated Phase 7 Dam Raise and Spillway Design Reports | and has no comments at this time. | | |
| No | Topic | Reviewer Comment | Reviewer Recommendation | Proponent Response |
| Diavik Diamond Mines (2012) Inc. - Kyla Gray | | | | |
| 1 | | See DDMI's Attached Cover Letter | N/a | |

Diavik Diamond Mines (2012) Inc.
P.O. Box 2498
Suite 300, 5201-50th Avenue
Yellowknife, NT X1A 2P8 Canada
T (867) 669 6500 F 1-866-313-2754

Joseph Mackenzie, Chair
Wek'èezhii Land and Water Board
PO Box 32
Wekweètì, NT X1A 3S3
Canada

07 September 2021

Dear Mr. Mackenzie:

Subject: DDMI Response to Reviewer Comments on the Processed Kimberlite Management Plan, Version 6

Please find attached Diavik Diamond Mines (2012) Inc.'s (DDMI) response to Reviewer comments on the Processed Kimberlite Management Plan Version 6 (PK Management Plan V6) and the related designs for the updated Phase 7 Final Raise and Spillway for the Processed Kimberlite Containment Facility (PKCF).

DDMI wishes to highlight the following points included in its response to Reviewer comments:

- Commitment to revisions/updates to specific text in the PK Management Plan V6;
- Water in the PKCF will be maintained below the lined dams at elevation 469 m;
- Once operational, the rockfill lined chute of the PKCF Spillway will be inspected regularly and repaired as required with suitable rockfill for erosion protection that is available on site if any areas of erosion are observed;
- The slope-to-spillway deposition plan for fine processed kimberlite (FPK) allows flexibility regarding closure options i.e. this deposition approach will be beneficial to either a “dry” or a “wet” cover design for the PKCF; and
- While the implementation of the Phase 7 design, the PK Management Plan V6, and the slope-to-spillway deposition approach for FPK would not technically preclude the possibility of moving extra fine PK from the PKCF and depositing it into the mine workings, there are currently no plans to re-mine the extra fine PK for this purpose.

DDMI requests that it be allowed to submit an updated PK Management Plan as Version 6.1 that addresses its commitment to updates/revisions to specific text on conclusion of the Board's current review process. As noted in the original submission of the referenced package to the Board, if the PK Management Plan V6 and associated design reports are approved by the WLWB, DDMI intends to commence and complete construction of the Phase 7 final raise and Phase 7 spillway within the short construction window in late Summer/early Fall 2021 before the Winter months. Prior to construction, DDMI will submit

a written notification regarding the planned earthworks as per Part E, Condition 5 of the Diavik Water Licence.

DDMI's response to Reviewer comments has been uploaded to the Board's Online Review System. If you have any questions regarding the attached submission, please contact the undersigned.

Yours sincerely,



Kofi Boa-Antwi
Superintendent, Environment

cc: Anneli Jokela, WLWB
Kassandra De Francis, WLWB

Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5100 000 015/006
WLWB File: W2015L2-0001



August 31, 2021

via online review system

Kassandra DeFrancis
Regulatory Specialist
Wek'èezhii Land and Water Board
1-4905 48th Street
Yellowknife, NT X1A 3S3

Dear Kassandra DeFrancis:

RE: W2015L2-0001 – Diavik Diamond Mines Inc. – Diavik Diamond Mine – Processed Kimberlite Management Plan Version 6.0 and Phase 7 Dam Raise and Spillway Design Reports

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Wek'èezhii Land and Water Board (WLWB) regarding the above mentioned plan and reports. This letter and the attached comments provides ECCC's specialist advice based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*.

If you need more information, please contact me at 867-445-5384 or Melissa.Pinto@ec.gc.ca.

Sincerely,

[original signed by]

Melissa Pinto
Senior Environmental Assessment Coordinator

Attachment(s): ECCC Comments Excel Sheet

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)



Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5100 000 015/006
WLWB File: W2015L2-0001



August 31, 2021

via online review system

Kassandra DeFrancis
Regulatory Specialist
Wek'èezhii Land and Water Board
1-4905 48th Street
Yellowknife, NT X1A 3S3

Dear Kassandra DeFrancis:

RE: W2015L2-0001 – Diavik Diamond Mines Inc. – Diavik Diamond Mine – Processed Kimberlite Management Plan Version 6.0 and Phase 7 Dam Raise and Spillway Design Reports

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Wek'èezhii Land and Water Board (WLWB) regarding the above mentioned plan and reports. This letter and the attached comments provides ECCC's specialist advice based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*.

If you need more information, please contact me at 867-445-5384 or Melissa.Pinto@ec.gc.ca.

Sincerely,

[original signed by]

Melissa Pinto
Senior Environmental Assessment Coordinator

Attachment(s): ECCC Comments Excel Sheet

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)





August 31, 2021

Joseph Mackenzie
Chair
Wek'èezhì Land and Water Board
#1-4905 48th Street
Yellowknife, NT
X1A 3S3

Dear Mr. Mackenzie,

**Re: Diavik Diamond Mines Inc.
Water Licence – W2015L2-0001
Processed Kimberlite Management Plan Version 6.0 and
Updated Phase 7 Dam Raise and Spillway Design Reports
Request for Comment**

The Department of Environment and Natural Resources, Government of the Northwest Territories has reviewed the information at reference based on its mandated responsibilities under the *Waters Act*. ENR comments and recommendations have been submitted to the On-line Review System for the consideration of the Board.

Comments and recommendations were provided by ENR technical experts the Water Management and Monitoring Division and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Environmental Stewardship and Climate Change Division.

Technical questions on this submission can be addressed by:

Laura Malone: Regulatory and Science Advisor, Water Management and Monitoring Division by email at Laura.Malone@gov.nt.ca or (867) 767-9234 Ext: 53105.

For general questions about this submission, please contact Patrick Clancy, Environmental Regulatory Analyst by email at Patrick.Clancy@gov.nt.ca or 867-767-9234 Ext. 53096.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Clancy', written in a cursive style.

Patrick Clancy
Environmental Regulatory Analyst
Environmental Assessment and Monitoring Section
Environmental Stewardship and Climate Change Division
Department of Environment and Natural Resources
Government of the Northwest Territories

Executive Summary

Slater Environmental Consulting reviewed DDMI's *Processed Kimberlite Management Plan, Version 6.0 (PKMP v6)*, including the *Processed Kimberlite Containment Facility, Updated Phase 7 Final Raise Design (Updated Design)*. The review specifically considered any potential effects on the proposed closure plan.

The approval to deposit Processed Kimberlite (PK) in mine pits means that there will be less PK to be stored in the Processed Kimberlite Containment Facility (PKCF). The smaller storage requirements have led to proposed changes in PK management and design of the PKCF.

DDMI proposes to construct a 4-6 m high dam on top of the PK already stored in the facility. The dam will extend around most of the PKCF, except at the northwest corner. The dam will be inside of the existing dams and will not be a raise of the existing dams. At the northwest corner, DDMI plans to create a pond and a new spillway. The spillway is intended to allow floods to safely flow off of the PKCF and into Pond 3. Fine PK will be discharged from pipes along the new dam, and will flow across the PKCF surface towards the northwest corner. DDMI expects this to create a final PKCF surface that slopes towards the spillway. DDMI expects that the current pond near the centre of the PKCF will be covered as the Fine PK flows across the surface.

DDMI's proposed updated plan as some potential advantages for closure of the PKCF. If successful, the slope-to-spillway concept will create a surface that will promote runoff of water. It should also allow cover placement over the entire surface of the PKCF, without leaving a pond containing slimes. However, the approach will also mean that removal of slimes and placement in pits will no longer be an option. DDMI has started closure design for the revised PKCF, but has not yet provided a closure plan.

The variable PK conditions in the PKCF will present challenges for the proposed approach. Some of the existing PK, for example the slimes, will settle more when new PK flows over top. As a result, the final surface may have low areas that will hold water and created ponds. This variable settlement could also affect the covers. Detailed monitoring will be needed, along with plans for long-term maintenance.

Construction of the proposed dam on top of existing Fine PK can be unpredictable. Some types of materials could cause stability concerns. DDMI's Geotechnical Review Board noted the challenges and identified the need for a high level of engineering for this dam. Detailed quality assurance/quality control plans as well as response plans with clear triggers will be needed if the proposed project proceeds.

The following additional issues should be addressed if the proposed plan is approved:

- Potential increase in closure liability during the operational period, before all Fine PK is in place.
- Coarse PK may not provide sufficient erosion protection in some areas.
- The proposed spillway, while okay for operations, includes some elements that are likely not suitable for closure.

Memorandum

To: John McCullum, EMAB

From: Bill Slater

Date: August 26, 2021

Re: **Processed Kimberlite Management Plan, V6.0**

I have reviewed Diavik Diamond Mines Inc.'s (DDMI) *Processed Kimberlite Management Plan, Version 6.0* (PKMP v6), including the *Processed Kimberlite Containment Facility, Updated Phase 7 Final Raise Design* (Updated Design). My review was conducted in accordance with the scope included in your email of August 5, 2021, focusing on the impacts of the proposed revised plan and design on mine closure. This memo provides my comments about the PKMP v6 and the Updated Design, beginning with some general comments about the proposed concept, and then providing some more detailed comments, and finally identifying some minor clarifications.

1.0 General Comments

As you know, DDMI has conditional approval for construction of a Phase 7 raise of the dams for the Processed Kimberlite Containment Facility (PKCF) – subject to review and approval of final design documents. However, the approved management plan and design did not consider the now approved plan for disposal of fine processed kimberlite (FPK) in the mine workings (A418 and A154 pits and underground). The PKMP v6 and Updated Design incorporate plans for disposal of FPK and coarse PK (CPK) in the PKCF until October 2022 and continued disposal of CPK until the end of planned mine life. The storage of FPK in mine workings reduces the overall required capacity in the PKCF, therefore leading to changes in the design for the final raise of dams.

The revised design entails construction of a small dam¹, 4 to 6 m in elevation and constructed of CPK, on top of PK at locations inside of the upstream liner on the existing PKCF dams. The proposed CPK dam will surround most of the PKCF, but will not extend to the northwest corner of the facility. At that location, the design includes a sump that will accumulate water from runoff and from PK, and a spillway to discharge excess water to Pond 3. The PKMP v6 envisions FPK discharged from spigots on the CPK dam will flow towards the spillway at the northwest corner of the PKCF, creating a PK beach that extends across the whole facility. The concept is referred to in the Updated Design as the “slope-to-spillway” concept.

If it proceeds as planned, the slope-to-spillway concept appears to have merit from a closure perspective. The design envisions that FPK will flow across and displace the central pond in the PKCF, providing a FPK layer over the extra-fine PK (referred to as slimes) in that area. This may remove some closure challenges associated with the PKCF Pond, providing a surface that is more

¹ In this memo, I have used the term dam or embankment for simplicity and clarity. DDMI refers to a proposed “*CPK Berm to be constructed upstream of the elevation 469 dam raise.*” However, the proposed facility is a barrier constructed for the retention of FPK tailings deposited as a slurry. The FPK will not stand in place on its own and therefore the berm serves as a dam for retention of the material.

conducive to cover placement for closure, and a landscape that can promote runoff from the facility rather than water retention, ponding and infiltration. If successful, the proposed PKMP v6 and Updated Design could have an overall positive impact on the closure outcomes for the PKCF and the site.

At the same time however, the proposed plan appears to foreclose on any future opportunities to relocate Extra Fine PK into mine workings because those materials will likely be quickly inundated by the newly deposited FPK. Disposal of Extra Fine PK in mine workings would provide secure long-term storage for materials that currently present closure challenges.

Unfortunately, DDMI has not provided or described any detail for a revised closure plan for the PKCF, though the Updated Design references a February 2021 Closure Design. In the absence of a closure plan, it is not possible to reach conclusions about the likely balance of pros and cons related to closure of the facility and its effects on the overall closure plan for the site. As with all mine planning, closure planning and design must be integral with mine development/operations planning. DDMI should be required to demonstrate that it has a practical and feasible closure plan for the proposed PKMP, and characterize the implications of the changes on the overall closure plan for the site.

2.0 Differential Settlement

The creation of a landscape that will shed water across the PKCF and out the spillway (i.e., no pond) in the post-closure period is a significant advantage of the proposed slope-to-spillway concept. However, the long-term performance of the landscape, specifically maintaining slopes that will shed water, has significant uncertainty. The area of the PKCF Pond, with Extra Fine PK (i.e., slimes) will dewater and consolidate very slowly, likely over a time period of decades. As the Extra Fine PK consolidates, the closure surface will deform. Because the slopes of the FPK surface will be quite flat, the consolidation of Extra Fine PK may lead to ponding on the surface of the closure cover, potentially to depths that may be greater than the thickness of any rock cover. The variability in FPK characteristics across the PKCF (e.g., frozen layers, coarser/finer material, wetter/drier material, ice-entrainment) could lead to similar issues at other locations. Also, the thicker FPK adjacent to the proposed CPK dam with thinner FPK near the northwest corner of the PKCF will tend to flatten the final slope of the PKCF surface over time as the material consolidates. This flattening of a surface with an initial flat grade will likely affect the runoff-related performance of the surface.

The PKMP v6 refers to the 2011 Interim Closure and Reclamation Plan (ICRP) for additional details about plans for characterization of FPK (Section 4.2) and porewater (Section 4.3), including issues related to consolidation and settlement. Plans for characterization of PK will need to be updated to reflect the revised management plans.

Any approval of the PKMP v6 and the Updated Design should include requirements for monitoring and investigation of settling and consolidation and their variability across the PKCF. The monitoring should be used to support prediction of long-term settling characteristics, which can then form the basis for development of long-term monitoring and maintenance plans for the closure surface.

3.0 Construction on PK

The PKMP and Updated Design propose construction of a CPK dam on top of existing unconsolidated PK materials, including previously created FPK beaches. These materials are variable, for example coarser and finer, frozen/unfrozen, wetter and drier, etc. As a result, the materials have varying strengths and performance as foundation materials for the proposed dam/embankment. The stability analyses presented in the Updated Design indicate that the material variability leads to associated variability in expected structural performance and stability. The stability analysis predicts low factors of safety for some areas of the West Cell Causeway, where the dam is partially constructed on top of undrained grit-poor FPK. DDMI proposes that the concerns about stability can be addressed through “*controls to manage slope stability*” (Updated Design, Section 8.6). Construction controls associated with these areas are described as follows in Section 9.1 of the design:

Where the upstream edge of the CPK road extends onto the FPK beach (West Cell Causeway), additional construction monitoring is recommended, and construction must be completed when the FPK beach is frozen. If possible, traffic should be limited on the upstream side of the CPK spigot road after construction and particularly if there is active deposition in the area or ponded water. The upstream pipe bench or safety berm should be widened to keep traffic away from the upstream side of the road.

DDMI’s Geotechnical Review Board, in its memo included with the Updated Design, notes the challenges associated with construction of the containment facilities on foundations of FPK and suggests that this will require a high level of engineering. The Review Board proposes several investigations, analyses, calibrations and design criteria that should be completed and incorporated into the design, and monitoring that should be conducted during and after construction. DDMI appears to have addressed many of the recommendations, e.g., experience with similar construction, presence of variable frozen and thawed ground. Others however have not been addressed, for example the recommendation for more conservative factors of safety to reflect uncertainties in FPK performance, or any detailed description of more intensive monitoring that will be done in areas constructed on FPK.

With respect to monitoring, the Quality Control and Quality Assurance Plan (Section 5 of the Construction Specifications in Appendix C of the Updated Design) describes monitoring and construction control activities. However, the monitoring related to CPK placement only appears to describe activities related to the raise of dams from elevation 473 m to 475 m, not the construction of the CPK dam/embankment. Section 2.7 of the Updated Design describes monitoring and response plans that have been used previously during construction on FPK beaches, but there is no clear indication that this same approach would be followed. The design, in Section 9.1, acknowledges that plans will be needed but does not provide details.

DDMI should describe specifically how it has addressed each of the suggestions from the Geotechnical Review Board about construction of the CPK embankment on FPK foundations. In addition, DDMI should provide details about construction quality assurance/quality control for the CPK embankment, including what construction monitoring, triggers and response plans will be applied in areas where material will be placed on FPK beaches.

4.0 Closure Liability

Although the slope-to-spillway concept provides opportunities for improved closure outcomes, it also creates interim conditions that may increase the closure liability while the mine is operating. During operations, the FPK beach will lead to a pond in the northwest corner of the PKCF. Once this geometry is in place, the creation of free draining closure topography will require placement of additional fill or other measures. As long as the mine plan proceeds as described, the topography will be created by placement of FPK. However, if the mine closes earlier than expected, implementation of a closure plan may require additional effort to establish appropriate topography on the PKCF.

Any approval of the PKMP v6 should include a reconsideration of the peak closure liability that will accumulate during operations, including consideration of the costs associated with establishing free draining closure topography if the mine closes after the new plan is implemented, but before adequate FPK has been placed.

5.0 CPK for Erosion Protection

Sections 6.3 and 9.2 of the Updated Design describe a raise of the CPK road around the northwest corner of the PKCF and propose that this raise can function to provide freeboard for wave up-rush. The Updated Design describes the CPK as “*fine- to coarse-grained sand as the major constituent with some fine-grained gravel as the minor constituent.*” The sand material will likely be prone to erosion at the proposed slopes, and the minor component of gravel will likely not be sufficient to provide effective self-armouring. As a result, the CPK material may not be effective or appropriate for erosion protection from wave run-up. DDMI should be required to provide analysis that demonstrates the suitability of CPK material for erosion protection in wave run-up conditions.

6.0 Spillway

The PKCF Phase 7 Spillway Design Update describes a spillway that is “*expected to be in operation until the closure spillway is constructed.*” Table 1 of the updated spillway design indicates that closure spillway design requirements have been adopted for the design of the Phase 7 spillway chute. Meeting the more robust closure design requirements for an operational spillway is a good approach. Nonetheless, there are some components of the operational spillway design that may not be appropriate in a closure and post-closure scenario and which would require re-design and modification as part of closure implementations. For example, the cemented rockfill erosion protection proposed for some portions of the operational spillway may not have a design life that is appropriate for closure. If retained it would have implications for long-term maintenance if retained for closure. Any approval for the operational spillway should specifically state that approval is only for operational purposes and that updated design, rationale and potentially modification will be required to support closure.

7.0 Clarifications

1. Section 3.2 of the PKMP v6 describes water management objectives, stating that: *“The PKCF storage capacity (including Pond 3) is maintained to ensure sufficient storage for a 1:500-year storm event (environmental design flood). In case of an extreme event, such as an Inflow Design Flood (greater than 1:500-year storm) the spillway permits excess water to discharge from the PKCF to Pond 3.”* The objective as stated suggests that Pond 3 capacity is sufficient for storing a 1:500-year event, implying that water from an Inflow Design Flood (IDF) may exceed the capacity of the pond. The Updated Design identifies the IDF as *“a Probable maximum precipitation (PMP) event (rain on snow).”* The objective as stated is not consistent with other statements in the plan. For example, Section 3.4.1 states: *“DDMI continues to maintain enough storage to hold an IDF for the PKCF and Pond 3 catchments without discharge to Lac de Gras.”* Similarly, Section 3.6 states: *“Throughout this dam raise sequence the facility will maintain adequate freeboard to pass an IDF through the spillway to Pond 3 which will maintain sufficient freeboard to store an IDF for the combined PKCF and Pond 3 catchment without discharge to the environment.”* The objective also states that the IDF will lead to flow from the PKCF to Pond 3. Since Pond 3 provides the storage for the IDF as well as much smaller events (likely including a 1:500-year event), flow from the PKCF to Pond 3 would be expected at flows well below the IDF. DDMI should revise the objective statement to reflect the intent to store the IDF and to clarify the water management expectations.
2. Section 3.5, PKCF Pond Management, describes several activities that are to be undertaken before and during freshet 2021. Since freshet 2021 has passed, DDMI should describe the results of these activities and also describe plans for future freshets.

Distribution List

Board: Wek'eezhi Land and Water Board

Project: Diavik Processed Kimberlite Management Plan, Version 6.0, and Updated Phase 7 Dam Raise and Spillway Design Reports

File(s): W2015L2-0001

Proponent: Diavik Diamond Mines (2012) Inc.

Comments Due Date: Tuesday, August 24, 2021 4:06 PM UTC

Response Due Date: Tuesday, August 31, 2021 4:06 PM UTC

Documents:

Diavik - Updated PKCF Phase 7 Design Reports - Part 1 of 6 - Jul 24_21
Diavik - Updated PKCF Phase 7 Design Reports - Part 2 of 6 - Jul 24_21
Diavik - Updated PKCF Phase 7 Design Reports - Part 3 of 6 - Jul 24_21
Diavik - Updated PKCF Phase 7 Design Reports - Part 6 of 6 - Jul 24_21
Diavik - Updated PKCF Phase 7 Design Reports - Part 4 of 6 - Jul 24_21
Diavik - Updated PKCF Phase 7 Design Reports - Part 5 of 6 - Jul 24_21
Diavik - PK Management Plan V6 - Jul 24_21

Contacts:

Kassandra DeFrancis - kdefrancis@wlwb.ca

Anneli Jokela - ajokela@wlwb.ca

Users:

| Organization | User | Email |
|--|-------------------|------------------------------|
| Akaitcho IMA Implementation Office (AIM A) | Stephanie Poole | screeningofficer@eastarm.com |
| Canadian Northern Economic Development Agency (CanNor) | Adrian Paradis | adrian.paradis@canada.ca |
| CIRNAC-CARD | Russell Wykes | russell.wykes@canada.ca |
| Community Government of Behchoko | Clifford Daniels | clifforddaniels@ticho.com |
| Community Government of Behchoko | Ritalene Gon | landoffice@behchoko.ca |
| Community Government of Behchoko | Treeva Richardson | sao@behchoko.ca |
| Community Government of Gameti | Gameti SAO | sao@gameti.org |
| Community Government of Wekweeti | Wekweeti SAO | wekwetisao@northwestel.net |
| Community Government of Whati | Alfonz Nitsiza | alfonznitsiza@ticho.com |
| Community Government of Whati | Whati SAO | sao@whati.ca |
| Dene Nation | Trevor Teed | lands@denenation.com |
| Deninu K'ue First Nation (DKFN) | Louis Balsillie | admin@dkfn.ca |
| Deninu K'ue First Nation (DKFN) | Patrick Simon | patricksimon777@yahoo.ca |
| Deninu K'ue First Nation (DKFN) | Richard Simon | ima@dkfn.ca |
| WLWB | Meghan Schnurr | meghan.schnurr@canada.ca |
| Diavik Diamond Mines (2012) Inc. | Kofi Boa-Antwi | Kofi.Boa-Antwi@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Stephen Bourn | Stephen.Bourn@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Colleen English | colleen.english@riotinto.com |

| | | |
|--|---|--|
| Diavik Diamond Mines (2012) Inc. | Nicole Goodman | nicole.goodman@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Kyla Gray | kyla.gray@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Gord MacDonald | Gord.Macdonald@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Tara Marchiori | Tara.Marchiori@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | David Patterson | david.patterson@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Sean Sinclair | sean.sinclair@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | David Wells | David.Wells@riotinto.com |
| Diavik Diamond Mines (2012) Inc. | Haley Winter | Winter.Haley@riotinto.com |
| Environment and Climate Change Canada (EC CC) | ... ECCC-EA | ec.eenordrptno-eanorthpnrnw.ec@canada.ca |
| Environment and Climate Change Canada (EC CC) | Cari-Lyn Epp | cari-lyn.epp@canada.ca |
| Environment and Climate Change Canada (EC CC) | Anna Graham | Anna.Graham2@canada.ca |
| Environmental Monitoring Advisory Board | Tim Byers | byerses@mymts.net |
| Environmental Monitoring Advisory Board | ... EMAB | emab1@northwestel.net |
| Environmental Monitoring Advisory Board | Allison Rodvang | emab2@northwestel.net |
| Fisheries and Oceans Canada | Dan Coombs | daniel.coombs@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Lynn Dupuis | Lynn.Dupuis@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Neil Fisher | Neil.Fisher@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Triage Group Fisheries Protection Program | fisheriesprotection@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Rick Gervais | Richard.Gervais@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Tatiana Leclerc-Beaulieu | Tatiana.Leclerc-Beaulieu@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Angie McLellan | angie.mclellan@dfo-mpo.gc.ca |
| Fisheries and Oceans Canada | Nicholas Wasilik | nicholas.wasilik@dfo-mpo.gc.ca |
| Fort Resolution Metis Government | FRMG FRMG Environment (Shawn Mckay) | frmcenvironment@northwestel.net |
| Forward Mining | Jason Mauchan | info@forwardmining.ca |
| GLWB | AlecSandra Macdonald | amacdonald@glwb.com |
| GNWT - ENR - EAM (Environmental Assessment and Monitoring) | Central Email GNWT | gnwt_ea@gov.nt.ca |
| GNWT - ENR - North Slave Region | David-Scott McQuinn | David-Scott_McQuinn@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Patrick Clancy | patrick_clancy@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Robert Jenkins | Robert_Jenkins@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Lee Ann Malley | LeeAnn_Malley@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | laurie_mcgregor@gov.nt.ca McGregor | laurie_mcgregor@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Bill Pain | bill_pain@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Nathen Richea | Nathen_Richea@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Gila Somers | Gila_Somers@gov.nt.ca |
| GNWT - ENR (Environment and Natural Resources) | Rick Walbourne | Rick_Walbourne@gov.nt.ca |
| GNWT - Executive and Indigenous Affairs | Peter Fast | Peter_Fast@gov.nt.ca |
| GNWT - HSS (Health and Social Services) | of Health Department | Environmental_health@gov.nt.ca |
| GNWT - INF (Infrastructure) | Benjamin Bey | Benjamin_Bey@gov.nt.ca |
| GNWT - INF (Infrastructure) | Alexis Campbell | Alexis_Campbell@gov.nt.ca |
| GNWT - INF (Infrastructure) | Jon Posynick | Jon_Posynick@gov.nt.ca |
| GNWT - INF (Infrastructure) | Loretta Ransom | loretta_ransom@gov.nt.ca |
| GNWT - ITI (Industry, Tourism and Investment) | Dinah Elliott | Dinah_Elliott@gov.nt.ca |
| GNWT - ITI (Industry, Tourism and Investment) | Kris Johnson | k_Johnson@gov.nt.ca |
| GNWT - ITI (Industry, Tourism and Investment) | Dane Mason | Dane_Mason@gov.nt.ca |

| | | |
|---|--------------------------------|--|
| GNWT - ITI (Industry, Tourism and Investment) | Menzie McEachern | Menzie_McEachern@gov.nt.ca |
| GNWT - Lands | Marie-Christine Belair | Marie-Christine_Belair@gov.nt.ca |
| GNWT - Lands | Tracy Covey | Tracy_Covey@gov.nt.ca |
| GNWT - Lands | Melissa Pink | melissa_pink@gov.nt.ca |
| GNWT - Lands | Katie Rozestraten | katie_rozestraten@gov.nt.ca |
| GNWT - Lands | Lorraine Seale | Lorraine_Seale@gov.nt.ca |
| GNWT - Lands | Rebecca Whalen | rebecca_whelen@gov.nt.ca |
| GNWT - Lands - North Slave Region | Clint Ambrose | clint_ambrose@gov.nt.ca |
| GNWT - Lands - North Slave Region | Brandon Bradbury | Brandon_Bradbury@gov.nt.ca |
| GNWT - Lands - North Slave Region | Tom Bradbury | tom_bradbury@gov.nt.ca |
| GNWT - Lands - North Slave Region | Joe Heron | joe_heron@gov.nt.ca |
| GNWT - Lands - North Slave Region | Cheryl Larocque | cheryl_larocque@gov.nt.ca |
| GNWT - Lands - North Slave Region | Jamie Steele | Jamie_Steele@gov.nt.ca |
| GNWT - Lands - North Slave Region | Scott Stewart | Scott_Stewart@gov.nt.ca |
| GNWT - MACA (Municipal and Community Affairs) | Iqbal Arshad | Iqbal_Arshad@gov.nt.ca |
| GNWT - MACA (Municipal and Community Affairs) | Olivia Lee | Olivia_Lee@gov.nt.ca |
| GNWT - PPCA (Policy, Planning, Communications and Analysis (w/in ITI)) | Evan Walz | Evan_Walz@gov.nt.ca |
| GNWT - PWNHC (Prince of Wales Northern Heritage Centre (w/in ECE)) | Glen Mackay | Glen_Mackay@gov.nt.ca |
| GNWT - PWNHC (Prince of Wales Northern Heritage Centre (w/in ECE)) | Naomi Smethurst | naomi_smethurst@gov.nt.ca |
| Hutchinson Environmental Services Ltd. | Neil Hutchinson | neil.hutchinson@environmentalsciences.ca |
| INAC - Yellowknife | Kim Pawley | kim.pawley@canada.ca |
| Kitikmeot Inuit Association | Geoff Clark | dirlands@kitia.ca |
| Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment | Glen Guthrie | lkdfnlands@gmail.com |
| Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment | Beth Keats | lkdfnregulatory@gmail.com |
| Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment | Chief Daryl Marlowe | chief.lkdfn@gmail.com |
| MVLWB | Angela Plautz | aplautz@mvlwb.com |
| North Slave Metis Alliance | Susan Enge | heritage@nsma.net |
| North Slave Metis Alliance | Jess Hurtubise | jess.hurtubise@nsma.net |
| North Slave Metis Alliance | NSMA Lands | lands@nsma.net |
| North Slave Metis Alliance | Adelaide Mufandaedza | adelaide@nsma.net |
| North Slave Metis Alliance | Joanne Taylor | general@nsma.net |
| Northwest Territories Power Corporation | David Dewar | ddewar@ntpc.com |
| Northwest Territories Power Corporation | mmiller@ntpc.com Miller | mmiller@ntpc.com |
| Northwest Territory Metis Nation | Ria Coleman | lands.clerk@nwtmetis.ca |
| Northwest Territory Metis Nation | Tim Heron | tim.heron@nwtmetis.ca |
| Tlicho Government | LONGINUS EKWE | longinusekwe@tlicho.com |
| Tlicho Government | Grand Chief George Mackenzie | georgemackenzie@tlicho.com |
| Tlicho Government | Tlicho Lands Regulatory | ginger.gibson@thefirelightgroup.com |
| Tlicho Government | Grace Mackenzie | gracemackenzie@tlicho.com |
| Tlicho Government | Sean Richardson | seanrichardson@tlicho.com |
| Tlicho Government | Brett Wheler | brett.wheler@tlicho.ca |
| Tlicho Lands Protection Department | Violet Camsell-Blondin | violetcamsellblondin@tlicho.com |
| Tlicho Lands Protection Department | pewaschuk@hotmail.com Ewaschuk | pattyewaschuk@gmail.com |
| Tlicho Lands Protection Department | Joline Huskey | jolinehuskey@tlicho.com |
| Tlicho Lands Protection Department | Tyanna Steinwand | tyannasteinwand@tlicho.com |
| Tlicho Lands Protection Department | Doreen Washie | doreenwashie@tlicho.com |
| Wek' eezhii Renewable Resources Board | Aimee Guile | aguile@wrrb.ca |
| Wek' eezhii Renewable Resources Board | Jody Pellissey | jpellissey@wrrb.ca |
| Wekweeti Community Government | Charlie Football | charliefootball@tlicho.com |

| | | |
|---|--------------------------------|-----------------------------|
| Willms@Shier Environmental Lawyers LLP | John Donihee | jdonihee@willmsshier.com |
| WLWB | Wekeezhii Land and Water Board | wlwb06@gmail.com |
| Wood | Perera Malavige | malavige.perera@woodplc.com |
| Yellowknives Dene First Nation | Johanne Black | jblack@ykdene.com |
| Yellowknives Dene First Nation | Sarah Gillis | saraht@ykdene.com |
| Yellowknives Dene First Nation | Ryan Miller | ryanm@ykdene.com |
| Yellowknives Dene First Nation | Admin YKDFN | lands@ykdene.com |
| WLWB | Meaghan MacIntyre-Newell | mmacintyre-newell@wlwb.ca |
| WLWB | Anneli Jokela | ajokela@wlwb.ca |
| WLWB | Ryan Fequet | rfequet@wlwb.ca |
| WLWB | Sarah Elsasser | selsasser@wlwb.ca |
| MVLWB | Jen Potten | jpotten@mvlwb.com |
| WLWB | Kassandra DeFrancis | kdefrancis@wlwb.ca |
| WLWB | Roberta Judas | rjudas@wlwb.ca |
| Wek' eezhii Renewable Resources Board WLWB | Shalyn Norrish | snorrish@wlwb.ca |
| WLWB | Jessica Pacunayen | jpacunayen@wlwb.ca |
| WLWB | Rhiana Bams | rbams@wlwb.ca |