Review Comment Table

Diavik - Water Licence Amendment Application - Processed Kimberlite to Mine Workings (W2015L2-0001) (WLWB)

File(s): W2015L2-0001

Proponent: Diavik Diamond Mines (2012) Inc.

Reviewer Comments Due By: Aug 2, 2018

Proponent Responses Due By: Aug 23, 2018

Documents: WL Amendment Application - PK to Mine Workings 4.6 MB
GIS Data and Map 3 MB
Updated Work Plan 161 KB

Item For Review Distributed On June 15 at 14:11 Distribution List

Item Description

Diavik Diamond Mines (2012) Inc. (DDMI) has submitted an application to amend the Diavik Water Licence (W2015L2-0001) to allow for the deposition of Processed Kimberlite (PK) material into mine workings. DDMI's application also includes a proposed change to the term of the Licence from October 18, 2023 to October 18, 2025, as well as several proposed administrative amendments to the Licence.

Under the Preliminary Screening Requirement Regulations of the *Mackenzie Valley Resource Management Act* (MVRMA), the Board must conduct a preliminary screening for an amendment request. Reviewers are encouraged to provide comments and recommendations (e.g., on impacts and mitigation measures) to assist with the completion of the Preliminary Screening.

Reviewers are invited to submit comments and recommendations on the Amendment Application using the Online Review System (ORS) by the review comment deadline specified below. If reviewers seek clarification on the submission, they are encouraged to correspond directly with the proponent prior to submitting comments and recommendations. Reviewers may also wish to consider providing an indication of whether they are in support of the submission to provide context for comments and recommendations and to assist the Board with its decision.

All documents that have been uploaded to this review are also available on our public registry. If you have any questions or comments about the ORS or this review, please contact Board staff identified below.

Please note: A work plan for this proceeding has been prepared and is attached to this Item for Review. Reviewers are invited to submit comments and recommendations on the proposed work plan by email to ajokela@wlwb.ca by Monday, June 25, 2018. **Please note that no comments were received on the Draft Work Plan. A final copy has been uploaded to this review and to the public registry.**

****UPDATE**** On September 14, 2018, DDMI provided a timeline response to the Information Request that was issued on August 31, 2018. Based on DDMI's response, the Work Plan was updated and the Updated Work Plan is attached to this Item for Review. Reviewers are invited to submit comments and recommendation on the proposed Updated Work Plan by email to ajokela@wlwb.ca by Wednesday, September 26, 2018. **Please note that no recommendations were received regarding changes to the proposed Updated Work Plan. A final copy has been uploaded to this review and to the public registry.**

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Comment Summary

Diavik Diamond Mines (2012) Inc. (Proponent)				
ID	**Topic**	**Reviewer Comment/Recommendation**	**Proponent Response**	**Board Staff Response**
1	General File	**Comment** Attachments A through D of DDMI's Response to Review Comments on the PK to Mine Workings Amendment **Recommendation**		
2	General File	**Comment** DDMI Cover Letter - Response to Review Comments on the PK to Mine Workings Water License Amendment **Recommendation**		
Department of Fisheries and Oceans_deletedApr 27 2018 6:52PM: Angie McLellan				
ID	**Topic**	**Reviewer Comment/Recommendation**	**Proponent Response**	**Board Staff Response**
4	General File	**Comment** See Attached **Recommendation**		
1	Fish Habitat and Fisheries OffSetting - References:1. Attachment 1, Section 1.3.5; 2. Section 10 of the Application	**Comment** Through a Water Licence Amendment Application, DDMI's proposed changes involve requesting confirmation of the preferred option to place Processed Kimberlite (PK) material from the process plant into underground/open pit mine workings (in-pit disposal). DDMI indicates that potential impacts to fish and fish habitat include a potential change in post-closure water quality in flooded mine areas and could affect constructed fish habitat and that there is potential for uptake of PK material by fish after closure. The proposed mitigations by the proponent include: depth of closure water cap that limits post-closure resuspension of PK,	**Aug 23:** No response required.	

		optimizing the post-closure elevation of the PK surface in mine workings to limit the potential for direct interaction with fish, and water circulation within the closure water cap to be optimized for fish and fish habitat. The proponent believes no significant adverse effects are anticipated. It is important for DFO-FPP to have a complete understanding of the habitat conditions at closure/post-closure, and whether they will be appropriate for fish and other aquatic life in their habitats. The option of in-pit disposal of PK has the potential to impact water quality within the pit at closure/post-closure. After reading the Proponents current strategy, it is unclear to DFO-FPP if the deposition of PK, and potentially the processed kimberlite facility "slimes" into pit A418 will impact the water quality at closure/post-closure such that once the pits are flooded they may not be able to be reconnected (as intended under the Fisheries Act Authorization SC98001) to provide fish habitat. DFO-FPP also notes that the proposed water licence amendment changes the intended use of the A418 Pit from the original approved plan and Fisheries Act Authorization SC980001 under section 35(2) of the Fisheries Act. **Recommendation** See below		
2	Fish Habitat and Fisheries OffSetting - References:1. Attachment 1, Section 1.3.5; 2. Section 10 of the Application (continued from above)	**Comment** These proposed modifications may impact the compensation measures that are described in Diavik's No Net Loss Plan (NNLP) dated August 2001. DDMI's Authorization SC980001 states: o Section 5.3: Any and all requirements outlined within this authorization including habitat compensation, studies, and reporting shall be done to the satisfaction of DFO. o Section 6: refers to all compensation relating to the creation of fish habitat in the diked areas to be completed relating to the pits i.e. A418 after mining operations are complete The No Net Loss Plan states that the dykes such as the A 418 pit be returned to fish habitat: o Once mining is completed at a pipe, mined country rock and finer sediment material would be placed along the inside of the dike. o Water levels would be equalized gradually between the lake and the interior of the dike, and the dike breached to create fish habitat.o The breaches would be sized and located to achieve the desired water circulation. o The closure phase would overlap with the operation phase; the end of the closure phase is expected to occur in 2050. o The breaches would not be complete, but would create shallow (about one metre) entrances, to deter the movement of larger fish into the nursery and rearing habitat. – the A418 would have 3 breaches. DFO-FPP reminds the Proponent that any compensation/offsetting that was developed to account for losses under their existing Fisheries Act Authorization SC980001, was specific to the Harmful Alteration, Disruption and Destruction (HADD) of habitat within that authorization, and was specific to the conditions of the No Net Loss Plan associated with it. Any changes to the level of serious harm (referred to as HADD under the previous Fisheries Act) resulting from the proposed Water Licence Amendment or from modifications to the accounting in the existing No Net Loss Plans, will require separate offsetting and consideration by DFO. DFO-FPP would require the Proponent to re-evaluate compensation/offsetting. References: 1. Attachment-1: Amendment Overview, Deposition of Processed Kimberlite into Mine Workings, W2015L2-0001 Amendment Request, Section 1.3.5 Regulatory Approvals and Authorizations: Fisheries Act Authorization, pg. 8. 2. Section 10 of the Predicted environmental impacts of Undertaking and proposed mitigation of the APPLICATION FOR A NEW WATER LICENCE, AMENDMENT OF LICENCE, OR RENEWAL OF LICENCE	**Aug 23:** DDMI's approach to seek confirmation of the option to place this material into mine workings included the expectation that the Water License (WL) Amendment process would clarify the additional information, approvals and timeline required to advance conceptual engineering to a final design. The questions and recommendations identified will require verification either through or following the amendment process and will contribute to DDMI's future submission for approval of the Processed Kimberlite Containment in Mine Workings Design Report (the 'Design Report') and a Processed Kimberlite Containment Plan: Processed Kimberlite Containment Facility and Mine Workings (PKC Plan). These documents will be subject to public review prior to final authorization to commence placement of PK in Mine Workings. Based on the conclusions of such studies, DDMI commits to working directly with DFO to review and document the accounting of habitat gains or losses and associated offsetting as required under SC980001.	

		Application/Licence No: W2015L2-0001, Pg.5 **Recommendation** DFO-FPP recommends that DDMI continue to work with the department to review the accounting of habitat gains and losses, and associated offsetting . Should water quality be deemed suitable for the establishment of fish and fish habitat,updated accounting must consider the uncertainty that remains and any time lags associated with this option. DFO-FPP also notes that any modifications to the accounting within the existing NNLP require additional consideration by DFO. DFO-FPP recommends that the Proponent provide updated contingency offsetting options to address the potential risk that water quality may not be suitable for the reintroduction or establishment of fish at closure.		
3	Placing processed kimberlite (PK) in the A154 and A21 pits in addition to the A418 mine workings. Reference: Attachment-1, pg. 5 and Appendix 1, PowerPoint Presentation	**Comment** Through a Water Licence Amendment Application, it appears that DDMI (the proponent) is also requesting confirmation of the option to place Processed Kimberlite (PK) material from the process plant into underground/open pit mine workings (in-pit disposal). On January 30, 2018 the proponent invited DFO-FPP to discuss potential amendments to their Water Licence W2015L2-0001. The presentation is included in Appendix 1, Summary of Engagement included in the package for this review. As a result of the meeting and presentation, DFO-FPP understood that the proponent was proposing (as 1 of 4 options) to deposit Processed Kimberlite (PK) solely to the A418 pit and underground workings. In Attachment-1: Amendment Overview, Deposition of Processed Kimberlite into Mine Workings, W2015L2-0001 Amendment Request, pg. 5; DDMI states that "the document outlines conceptual plans for placing processed kimberlite (PK) into the A418 mine workings but it would be transferable to both the A154 and A21 mines." DFO-FPP is unclear whether the Proponent is proposing to expand the placement of PK into the A154 and A21 mines in addition to the A418 mine workings as a potential option. **Recommendation** DFO-FPP recommends that the Proponent clarify its intent to use the A154 and A21 to deposit PK. If that is the case, please refer to the recommendations provided in DFO-FPP's first comment within this review.	**Aug 23:** Current studies and the details of the WL Amendment Application (the 'Application') are focused on the A418 mine. This location is considered preferred based on location, size and the current mine schedule. However, flexibility to apply this method to the A154 and A21 mines is required due to the potential of unforeseen circumstances which may deem the A418 unavailable for PK deposition, such as geotechnical events, mine plan changes and economic pressures. Should DDMI identify the need to utilize A154 or A21 for PK deposition, technical studies would be conducted to address site specific factors and detailed study requirements and approvals identified during the Amendment process would similarly apply to the A154 and A21 mine workings.	

Environment and Climate Change Canada: Eva Walker

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Response
1	General File	**Comment** ECCC cover letter **Recommendation**		
2	Attachment 1: Amendment Overview Deposition of Processed Kimberlite into Mine Workings, W2015L2-0001 Amendment Request:Section 1.1 - Purpose and Scope	**Comment** The Diavik Diamond Mines Inc. (the Proponent) states that "the document outlines conceptual plans for placing processed kimberlite (PK) into the A418 mine workings but it would be transferable to both the A154 and A21 mines." While the general concept of depositing PK into the pits would remain the same if deposited in pits other than A418, it would be anticipated that there would be site-specific factors, such as the depth and morphology of the pit, depth of the freshwater cap required, interaction of tailings with freshwater and associated water quality, that would need to be considered prior to approval to deposit tailings in pits other than the currently requested A418. Additional site specific factors include design considerations for the connection of A418 to the other pits and prevention of decant water or PK into adjacent pits, and if the other pits are to be used have similar have the same factors been considered, as well as the overall water quality in Lac de Gras if PK is deposited in all three pits versus just A418. **Recommendation** ECCC recommends that if the Proponent is proposing to deposit tailings in A154 or A21, additional information be provided on site-specific factors, that may influence the deposit of PK into these pits. Site-	**Aug 23:** Please refer to the response to DFO-3.	

		specific analysis should be completed for PK deposit to other pits during both operations and closure.		
3	Attachment 1: Amendment Overview Deposition of Processed Kimberlite into Mine Workings, W2015L2-0001 Amendment Request: Section 3 - Technical Data and Supporting InformationSection 4.6 - Closure and Reclamation	**Comment** In the amendment application the Proponent indicates that the conditions at closure of the A418 pit will remain the same with the addition of PK to mine workings, as was assessed without the addition of PK to the mine workings . This current strategy includes flooding of the pits upon closure and reconnection to Lac de Gras. However, no analysis was provided on how the deposition of PK, and potentially the processed kimberlite facility "slimes", into pit A418 may impact water quality at closure and potentially the closure strategy for the pit. ECCC acknowledges that specific details of several management plans to be drafted before and during closure activities can be addressed prior to deposition of the PK; however, in order to assess the potential environmental impacts of deposition of PK into pit A418 the Proponent should provide an assessment on how this change in mine strategy could impact closure predictions, of the water quality of the freshwater in A418 upon closure, and any implications for reconnection of A418 to Lac de Gras. **Recommendation** ECCC recommends that in order to assess the potential environmental impacts of deposition of PK into pit A418, the following information be provided: 1. Assessment of the potential effects of tailings on the water quality of the freshwater cap for all potential closure scenarios (i.e. with/without slimes, variable tailings fill elevations) 2. The proposed maximum PK fill elevation within the pit in relation to overlying water quality, including assessment of water cover depth. 3. Identification of contaminants of potential concern within the freshwater cap over the tailings, and mitigation measures for any contaminants of concern. 4. The potential for remobilization of tailings if mixing occurs within the pit. 5. A monitoring plan including how closure objectives will be met.	**Aug 23:** Thank you for providing a clear and succinct list. DDMI recognizes that it is important to evaluate potential effects on lake water quality at closure as a part of the Application. Modeling work to address items 1, 2, 3 and 4 is in progress. Please refer to Attachment-A for a more detailed list of studies and their associated timelines. DDMI is planning to provide preliminary water quality modeling results for distribution to reviewers by mid-September 2018, in advance of the Technical Session. Water quality modelling will continue to advance and the results of this work will inform development of the Design Report and the PKC Plan, as applicable. Monitoring plans for PK deposition during operations (5) would be outlined in the PKC Plan. More detailed closure designs, objectives, monitoring, and contingencies relating to PK in mine workings will be advanced through DDMI's Closure and Reclamation Plan (CRP).	

Environmental Monitoring Advisory Board: ... EMAB

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Response
1	General File	**Comment** EMAB cover letter **Recommendation**		
2	General File	**Comment** NSC Review **Recommendation**		
3	General File	**Comment** SEC Review **Recommendation**		
4	General File	**Comment** Knapp Review **Recommendation**		
5	General Comment - lack of detailed information	**Comment** The application lacks detail about the implementation of deposit of PK into mine workings and the potential effects of that deposit. It refers to "preliminary studies" but states that "these are in progress and are not yet available for release." It also identifies several "internal assessments" that DDMI has conducted. However, the application does not provide any reports associated with these studies and assessments, instead relying on short summaries in the Overview Report. This lack of detail makes it difficult to fully understand the proposed plans and potential effects. **Recommendation** Diavik should provide additional details about studies and assessments conducted to evaluate effects, and support design and implementation, and provide access to the original documents. This documentation should be made available well in advance of the Technical Sessions. Diavik should provide a schedule showing when it plans to complete the studies and modelling referred to in the application, and make them available. Ideally this information would be available prior to the Technical Sessions.	**Aug 23:** A list and schedule of the current studies which are planned is provided as Attachment-A. Preliminary information will be provided in advance of the technical session and the Amendment process will identify any additional items to be addressed in the Water License, the PKC Design Report and/or the PKC Plan.	
6	Section 10 application	**Comment** Section 10 indicates: "While the	**Aug 23:** Please refer to the responses to	

	form: Predicted environmental impacts of undertaking and proposed mitigation	Comprehensive Study Report did not specifically consider potential environmental effects associated with deposition and storage of processed kimberlite into mine workings, preliminary studies suggest that management of PK material and its associated decant water will minimize potential environmental effects. There is continued expectation that there will be no significant adverse environmental effects." The submission indicates that there will be no significant adverse effects to water quality associated with the proposed Licence amendment. However, no analysis of potential effects to surface water quality are included in the submission. **Recommendation** Please provide an analysis of effects to water quality at closure including: - An analysis of water quality in deep waters of the mine pits and how this will change over time as a result of groundwater inputs and porewater from the PK -An analysis of surface water quality in the mine pit and how it will change over time after it has been connected to Lac de Gras -Modelling to demonstrate the stability of the anticipated meromictic condition - A risk assessment of the effects to surface water quality in the pit and Lac de Gras in the event that unanticipated mixing does occur NOTE: It is our understanding that water circulation and quality modeling is being conducted but results are not yet available. Many of the following comments refer further to these model results.	ECCC-3 and Attachment-A.	
7	General Comment - preliminary screening	**Comment** EMAB is concerned about the lack of empirical information to support the statements made in the application that no significant adverse environmental impacts are anticipated. It is EMAB`s view that the water licencing / regulatory processes can adequately address potential impacts and appropriate mitigation once adequate information is provided. **Recommendation** None	**Aug 23:** DDMI agrees that the WLWB water licensing / regulatory process can adequately administer information requirements, public review and approvals related to this Amendment request.	
8	Application Section 10 - Potential Impacts and Mitigation; and Amendment Overview 3.3.6 and 4.6.1	**Comment** A key mitigation measure is relocation of very fine PK (slimes) from the PKC to the A418 pit. From an environmental perspective, the primary advantage of depositing PK into mine workings is the ability to store PK, especially slimes, in a location with virtually no long-term physical stability risks. However, at Diavik most of the long-term physical stability risk associated with PK storage already exists because the Processed Kimberlite Containment (PKC) Facility contains Fine PK materials and slimes that will require long-term physical containment and create challenges for closure. DDMI's application identifies the possibility of relocating slimes from the PKC Facility to mine workings, but there is no information about the feasibility or effects of relocating the material, including: 1) What methods would be used to relocate slimes? 2) What are potential implications on dam stability during removal of slimes from the PKC Facility? 3) What environmental effects arise from re-mining of slimes, for example dust generation? 4) What water management or water quality challenges arise from re-mining of slimes? 5) What are the implications for closure for the PKC Facility? DDMI has indicated that a dry cover may be possible, but rationale should be provided for this assertion. It is unclear whether slimes would be placed in the mine pits before or only at closure. If slimes are discharged prior to closure will that affect the quality of the decant water used in the mine processes? **Recommendation** EMAB strongly supports the concept of placing the slimes from the PKC into the A418 pit, and encourages Diavik to pursue this concept. EMAB recommends that a licence condition be included that Diavik will undertake all investigations to evaluate feasibility of relocating slimes to mine workings, and design to support	**Aug 23:** Thank you for noting EMAB's support for the concept of placing PKC slimes into the A418 mine workings. A preliminary feasibility study for the relocation of PKC slimes will be initiated, with a scope that is limited to determining options for safely removing the slimes and evaluating potential effects to A418 water quality. The feasibility study will be advanced once conceptual approval for storing PK in Mine Workings is received, and would include an assessment of the preferred timing for moving this material, in addition to evaluating PKC Facility design and closure considerations. As noted in the Application, closure concepts for the PKC Facility and the mine workings would be updated in future versions of the CRP, as determined during the amendment process. Please also refer to Attachment-A.	

		implementation if appropriate. The studies and design should also address any potential adverse effects that may arise from relocation of approximately 5 million m3 of slimes to the A418 pit. Please describe when slimes would be transferred to the mine pits and, if during operation, what effects may be to the quality of decant water.		
9	Application Section 10 - Potential Impacts and Mitigation; and Amendment Overview 3.3.6 and 4.6.1 continued	**Comment** Relocation of slimes into mine workings should be seen as an opportunity that arises from use of mine workings for PK storage. Primarily it is an opportunity to reduce long-term physical stability risks at the site – risks that are inherent in the current closure plan for the PKC Facility. If Diavik is able to relocate the slimes and use a dry cover to close the PKC this concept would have a greater likelihood of success than the current proposal that includes a pond and spillway. The only commitment by Diavik is they will "Evaluate feasibility/practicality of moving slimes from the PKC Facility". **Recommendation** see recommendation above	**Aug 23:** Please refer to the response to EMAB-8.	
10	General- Impacts of the proposal on the Closure of the PKC.	**Comment** Diavik has presented no information on what the PKC facility would look like with the slimy FPK removed. One would assume if the basin now only contains coarser PK then the water level could be lowered and the entire facility covered with waste rock. The dam where the fine PK was removed could likely be breached leaving a dry stack which could perhaps be re-designated as a landform. Considerable investigation would be required to confirm the viability. Lack of any discussion on the effect on the final geometry for the PKC with slimes removed and how the closure plan would be modified is a material weakness in the application **Recommendation** Diavik should provide a conceptual plan for the PKC with the slimes/FPK removed. A final design for the PKC is not required but as a minimum some conceptual plans and sketches would assist the reader in appreciating the changes.	**Aug 23:** Please refer to the response to EMAB-8.	
11	Section 10 application: Potential for reduced seepage from the PKC Facility post-closure, if a dry cover option proves feasible.	**Comment** The current mine closure plan calls for continued collection, testing and treatment of water leaving the PKC Facility post-closure. It is also indicates that the proposed storage of slimes in the mine pits may allow the entire facility to be capped with dry material. In that event, how would on-going seepage be monitored and treated? **Recommendation** Provide an analysis of potential quantity and quality of seepage water from the PKC facility if it is covered with a dry cap post-closure and how it would be treated.	**Aug 23:** DDMI believes that this recommendation is outside the scope of the Amendment. As noted in the Application, closure concepts for the PKC Facility would be updated in future versions of the CRP.	
12	General- Relocation of FPK from the PKC	**Comment** There is a need to reclaim water from the pit to avoid overflow to the 9270 portal. Once mining is complete, there is the potential to relocate the slimes from the PKC to the A418 pit. It is estimated there are about 5 million m3 of slimes which, if deposited in the A418 pit, would raise the elevation to 9298. It was not clear whether or not Diavik would provide bulkheads to the A154 underground mine access points or simply allow the underground mine to be flooded with FPK. **Recommendation** Diavik should clarify the requirements for installation of bulkheads above elevation 9260 should slimes be relocated from the PKC. It appears that the volumes assume the PK remains within the A418 pit and minor openings upstream of the plugs.	**Aug 23:** If the addition of PKC slimes to the A418 caused levels to rise above the 9270 portal, an additional bulkhead may be installed. This decision would be based on the operational need to maintain dry conditions in the A154 Mine Workings. For instance, if PKC slimes are transferred to the A418 Mine Workings post-closure the need for bulkheads to keep the A154 Mine Workings dry may not be relevant.	
13	Licence request to include all mines for potential use for PK disposal.	**Comment** The application is not limited to use of A418. Diavik has also requested approval for placement of PK in A21 and A154. Diavik has provided no rationale for including these mines. Although the use of these pits is likely acceptable, there is no apparent reason to modify the licence to include these areas at this time. **Recommendation** Diavik should defend the	**Aug 23:** Please refer to the response to DFO-3.	

		request to modify the licence to include the potential use in Mines other than A418.		
14	Application- Potential Impacts and Mitigation Tables, Climate and Air Quality	**Comment** Under Mitigation the report states " Maximize transport of PK by pipeline, as feasible". It is assumed there is a limitation on the ability to pump coarse tailings given Diavik proposed to continue to truck 25% of the PK to the PKC. **Recommendation** Diavik should expand upon what the limitations are in pumping coarse tailings and provide a basis for the 25% CPK that will be trucked to the PKC.	**Aug 23:** The assumption of 25% is based on past operating experience and DDMI's processing technology. If this amendment application is approved, the pumping and pipeline engineering will be optimized, rather than relying on previous assumptions.	
15	Failure Modes	**Comment** Diavik did not address pit wall failure in the A418 pit as a potential failure mode. Rapid filling of the pit will result in rapid depressurization and potential stability concerns. Massive failures in the short term could impact the deposition plan and over the longer term could impact water quality and PK displacement to Lac de Gras. **Recommendation** Diavik should discuss the potential for the A418 pit wall failure and the potential consequences.	**Aug 23:** DDMI has identified and instrumented two areas of potential concern in the A418 pit : The West wall and the South-East (SE) wedge. The heads would rise in these areas, which in turn may lower the Factor of Safety. DDMI will continue to perform critical monitoring in these areas and maintain operation of the A418 SE DPS well field over the filling period to control the hydraulic heads in this area of the A418 pit. If the amendment application is approved, the feasibility study for PK to mine workings will include a geotechnical and hydrogeological assessment that considers A418 pit wall stability.	
16	Application- Potential Impacts and Mitigation Tables, Groundwater- report says "No significant adverse effects anticipated"	**Comment** The report indicates that groundwater flows to the mine will decrease. This is certainly the case for groundwater inflows to the A418 pit but total seepage flows to the A154 mine will increase. The elevated piezometric heads represent a material stability concern and need to be carefully controlled to assure a safe working environment. **Recommendation** Diavik should clarify there are no adverse effects if seepage flows to A154 pit can be adequately managed.	**Aug 23:** As noted in the Application, DDMI conducted a high level fatal flaw hydrogeological assessment and geotechnical assessment. The results show that inflows in the A154 open sub-level retreat (SLR) will increase and will have to be managed. This includes 1) maintaining or replacing dewatering galleries and infrastructure in the A154 south SLR, mainly the South galleries and middle galleries, 2) installing a gallery in the A9080 targeting Lyndon's Fault, and 3) installing instrumentation to monitor hydraulic heads. During the filling period, the geotechnical critical monitoring system will continually assess the stability in the A418 and A154 pits and active underground workings. If the amendment application is approved, the feasibility study for PK to mine workings will advance the geotechnical and hydrogeological assessment.	
17	Section 3.0 PK Quantities and Volumes; Density of Material	**Comment** The total quantities of PK appear to be reasonably well understood as they emerge from the Life of Mine Plan. There is however considerable uncertainty regarding the in-place volumes of PK in the A418 Pit. The existing PKC slimes have a very low dry density of 0.4 t/m3. The report assumes that when this material is placed in the pit its density will increase to 0.5 t/m3. In the tailings pond the depth is much shallower and there is opportunity for horizontal dewatering with seepage. In the pit there is greater potential for settling due to weight however water can only be displaced vertically upward with some dewatering occurring from seepage to the A154 mine. It is not understood why a higher density is used. Similarly, for the FPK placed during operations, on page 18 of the report it says the density of FPK is 0.75 t/m3, grit-rich Coarse PK 1.8 t/m3, and grit-poor Coarse PK 1.35 t/m3. The report assumes 0.8 t/m3 when placed in the pit. Given the uncertainty it will be important to understand whether water quality in the water over the settled PK is materially impacted by the final elevation of the surface of the PK. **Recommendation** Diavik should provide additional details on their basis for the densities used in assessing volumes to be placed in the pit. What is the rationale for assuming that placed density of slimes will be higher in the pit than currently observed in the PKC Facility? If higher densities are possible, what is the time frame over which consolidation to this density would be expected? Diavik should also address the implications on pit water quality and fish	**Aug 23:** Some of the information about the physical properties of the PK materials was supported with results from the PK trial, including field test results conducted by Golder Associates Ltd. These field tests were considered in selection of the initial concept assumptions of PK densities that could result from PK deposition within mine workings. DDMI recognizes that the density of PK deposited in mine workings and in particular how the density changes over time (consolidation rate) are important to understand and document. DDMI has initiated specific laboratory testing of PK materials to better understand PK consolidation rates. Results from these laboratory tests will be used along with the field results from the PK trials to derive applicable bulk densities for planning any PK deposition in mine workings. DDMI will provide documentation of the consolidation rates and derived bulk densities when complete. It was assumed that the effective slimes consolidation could increase when combined with FPK (as would occur with deposition into a mine working) rather than as segregated from FPK with beach disposal. As noted in the above paragraph, further work is being conducted to support the derivation of bulk densities. DDMI has started some scoping-level modelling work to assist in understanding the key factors expected to drive post-closure water quality and fish interactions in a flooded pit where PK had previously been deposited. Results from the laboratory consolidation testing noted above will be used initially to inform the input to the scoping-level modelling and then to define input to more advanced closure modelling. The planned modelling work	

		interactions if the densities are lower than estimated.	is subject to WLWB approval of the general PK placement concept.	
18	General-Post closure Water Quality in the Pit	**Comment** The A418 pit is proposed to be used for PK disposal. The overall plan appears to be reasonable. However there is no discussion of how this disposal area will transition into a water body that has no material impact on Lac de Gras. **Recommendation** Diavik should address the transition of the pit lake from a waste disposal site to a viable fresh water body. How will this be achieved? How long will it take? How is fresh water added without mixing and impacting stratification? Can the Pit Lake be rapidly filled? These just a few of the issues that will be critical in assessing the viability of the proposal.	**Aug 23:** Preliminary studies to evaluate and model the items identified in EMAB-18 through 38 are in progress. Please also refer to Attachment-A for a more detailed list of studies and their associated timelines. As noted in the Application, DDMI is seeking support for the concept of placing PK in Mine Workings, including the regulatory mechanism to permit the option. The Application also notes that the Amendment process would be used to identify the additional information (as recommended by reviewers), conditions, approvals and timelines required. The results of any studies conducted as a follow up to the Amendment process will be presented as part of the Design Report and/or PKC Plan, as applicable, both of which will require public review and WLWB approval prior to the placement of PK in any Mine Workings. DDMI wishes to note that ENR appears to be in agreement with this approach, as identified in ENR-2. More detailed closure designs, objectives, monitoring, and contingencies relating to PK in mine workings will be advanced through DDMI's Closure and Reclamation Plan (CRP).	
19	Section 10 Application form: Potential change in mine and/or discharge water quality during operations.	**Comment** No analysis as to the potential change in water quality during operation as a result of depositing and storing PK in the mine pits is provided in the amendment application. Changes in water quality could have implications for closure of pits which currently includes refilling of pits and connection of the pit lakes to Lac de Gras. Also, the application provides only limited information about water management during PK deposit. The application does not provide a conceptual water balance or any predictions of water quality, or potential associated effects. **Recommendation** Provide a conceptual water balance and analysis of potential changes to water quality during operation and post-closure, including predictions of water quality and changes over time as a result of the change in the storage of PK (in mine pit vs PKC Facility).	**Aug 23:** Please refer to the response to EMAB-18. The Water Management Plan would be revised to account for the storage and movement of process/decant water and the site water balance is updated annually, at minimum.	
20	Effects on Water Management and Water Quality	**Comment** During operations, the water that accumulates in the pit will be primarily process water from deposit of PK slurry. DDMI indicates that this water may be returned to the process plant or it may be transferred to the North Inlet. Because there is no water balance, there is no indication of the quantities of water that need to be addressed, or what criteria will be used to make decisions about water management. **Recommendation** Provide water balance and water quality predictions.	**Aug 23:** Please refer to the response to EMAB-19.	
21	Section 10 Application form: Decrease in mine water discharge to Lac de Gras as mine working areas are filled with PK.	**Comment** Section 10 of the application form indicates that the amount of mine water discharge to Lac de Gras would be reduced if the mine working areas are filled with PK. Mitigation measures include optimizing the level of decant water, where practical, to manage seepage to mine workings. It is not clear whether the amount of mine water discharge would be reduced as a result of optimizing the level of decant water or whether some other mechanism is involved. **Recommendation** Provide an analysis of the water balance under two scenarios: continued use of the PKC facility and discharge of the PK to the mine working areas. In the water balance indicate where flows would be optimized to reduce effects.	**Aug 23:** Based on the preliminary hydrogeological assessment for deposition of PK to the mine workings, A418 flows would be greatly reduced and A154 flows will increase slightly; the net result will be an overall decrease in mine water flow. Please also refer to the response to EMAB-19.	
22	Effects on Water Management and Water Quality	**Comment** The application states that the operational water level in the pits would allow for adequate storage of design rainfall/snowmelt events. However, the return period of design events is not identified, nor is an estimate provided about the volume associated with such events.	**Aug 23:** Please refer to the response to EMAB-18. The Application proposes that an operational water elevation limit will be established for the mine workings, rather than a true 'freeboard' elevation, because this value will be significantly below the dike freeboard limits with no risk of a release to the environment. The level will be based on water	

		Recommendation Provide water balance and water quality predictions.	elevation restrictions to prevent flooding underground mine workings. The operational limit has yet to be determined.	
23	Effects on Water Management and Water Quality	**Comment** With respect to water quality, the primary concerns are related to closure. During operations, any water quality issues would likely be addressed by water treatment at the site. However, the PK in mine workings will likely continue to contribute contaminant loads to pits for a long time after closure. As we know from the behaviour of slimes and Fine PK in the PKC Facility, consolidation of PK takes a very long time. As the PK consolidates, it will continue to release pore water to the overlying pit lake(s), contributing to water quality characteristics. The pit lakes will be shallower than envisioned in current closure plans, providing less volume for dilution of contaminants, and potentially affecting whether the pit lakes will remain permanently stratified. **Recommendation** Provide water balance and water quality predictions.	**Aug 23:** Please refer to the response to EMAB-18 and ECCC-3.	
24	Section 10: Mitigation measures for surface water quality: no significant adverse effects anticipated - potential effects of climate change not considered.	**Comment** Given that storage of PK in the mine workings is a permanent condition, modeling of the stability of the salinity gradient that is expected to separate deep from surface waters should consider a range of future climate conditions, including changes in groundwater inputs, temperature gradients, surface runoff and wind. The current closure plan refers to climate change scenarios presented in an earlier version, but it is assumed that these did not include modeling of the pit lakes being used to store PK. **Recommendation** Provide an analysis of the water circulation in the pit lake, or an alternate method of modeling the stability of the meromictic gradient under a range of future climate scenarios, including a sensitivity analysis to determine whether particular conditions would make the lake less stable.	**Aug 23:** Please refer to the response to EMAB-18 and ECCC-3 and Attachment-A.	
25	General: time required to establish a meromictic conditions	**Comment** The current closure plan indicates that the dikes separating the pits from the Lac de Gras would not be breached until water quality was acceptable (primarily due to the settling of fines) which was expected to take one year (DDMI 2017). However, in the current closure plan the time for which sufficient groundwater would enter at depth to ensure that mixing between shallow and deep water would not occur was not specified. **Recommendation** Please provide an estimate of the time required to establish a stable meromictic gradient if PK is stored in the mine workings.	**Aug 23:** Please refer to the response to EMAB-18 and ECCC-3 and Attachment-A.	
26	General: information on design of closure cap	**Comment** Safe storage of PK in the mine workings is dependent on establishment of a stable meromictic gradient. It is understood that modeling of circulation in the pit is on-going. No information has been provided as to whether storage of PK in the pit would alter the meromictic condition identified in earlier closure plans and the EIS. **Recommendation** Please provide a description of the on-going model analysis related to water circulation in the pit, and whether a sensitivity analysis considering the effect of PK storage on stability of the meromictic gradient has been completed.	**Aug 23:** Please refer to the response to EMAB-18 and ECCC-3 and Attachment-A.	
27	Section 10 Application: Potential change in post-closure water quality in flooded mine areas.	**Comment** Section 10 (Surface water - mitigation) states that "Water circulation in closure cap to be optimized for water quality." However the submission does not: (i) indicate what parameters of the pit affect circulation that would be altered to optimize water quality; (ii) indicate how conditions in the water cap will be established (i.e., is it a passive establishment of a chemocline or can it in some way be designed beyond the elevation of infill by PK); (iii) provide results of modeling that show predicted circulation; and (iv) provide predicted water quality for various areas within the cap (i.e., deep water, chemocline, and surface	**Aug 23:** Please refer to the response to EMAB-18 and ECCC-3 and Attachment-A.	

		water) with an indication of what would be considered optimal. **Recommendation** Please provide results of water circulation and water quality modeling in the post-closure mine pits including information on how water quality in the cap will evolve over time, including changes in water quality in surface and bottom waters. Please include measures that DDMI can undertake to improve the stability of the water cap (i.e., methods of optimizing water circulation).		
28	Section 10: Potential for pipeline rupture and release of PK to the receiving environment.	**Comment** The pipeline will be located on the upstream side of roads/berms to contain possible spills. DDMI requests that the spill contingency plan be submitted closer to when the change would occur in 2022. However, at a more general level, information on potential approaches to clean-up, or special methods that may be required would be useful to determine potential environmental risks associated with the proposed licence amendment. An analysis of risk to surface waters arising from pipeline spills is not included. **Recommendation** Please provide an assessment as to whether the material that would be spilled would be more difficult to clean up than what is currently being piped. Also, a risk analysis for contamination to surface waters should be conducted.	**Aug 23:** As currently planned, the proposed pipeline alignment is within the same containment that exists for the current process water line. PK material within the pipeline to the mine workings would be the same as that transported within the existing pipeline to the PKC Facility, so it would not be more difficult to clean up. An updated Contingency Plan will be submitted for review and approval prior to pipeline operations.	
29	Section 10: Mitigation measures for surface water quality: no significant adverse effects anticipated	**Comment** As per the comments listed above, the submission does not present any analysis supporting the conclusion of no significant adverse effects. In addition to the recommended analyses listed above, DDMI should provide a risk analysis. The current closure plan indicates breaching the dikes and joining to Lac de Gras once water quality is acceptable (DDMI 2017). However, processes such as the accumulation of saline groundwater at depth or the accumulation of metals from porewater in the PK in deep waters may occur over time and, although the initial quality of deep water may be acceptable, over time its quality may decrease. Furthermore, processes that mix deep water with shallower water may occur rarely, as a result of an intermittent event (e.g., strong winds, specific thermal gradient, rockfall from the mine wall) potentially resulting in the introduction of poor quality water to surface waters within the pit and Lac de Gras. There is currently no assessment of the potential water quality at depth, the likelihood or frequency at which mixing with surface waters might occur, and the risk to aquatic biota within the surface waters of the pit or Lac de Gras if such an event were to occur. **Recommendation** Conduct a risk assessment of the potential likelihood, frequency and negative effect to water quality and aquatic biota in the mine pit lake and Lac de Gras that may occur as a result of the periodic mixing of deep with surface waters in the mine pit lake.	**Aug 23:** Please refer to the response to EMAB-18 and Attachment-A.	
30	Application- Potential Impacts and Mitigation-Fish and Fish Habitat.	**Comment** The report states "Optimize the post-closure elevation of the PK surface in mine workings to limit the potential for direct interaction with fish". This appears to be a motherhood statement that will need to be strengthened through modelling. **Recommendation** It is our understanding that the pit will be stratified with a meromictic layer. It will be important for Diavik to demonstrate that meromixis is retained for whatever final PK level is proposed. It will also be necessary to determine what practical maximum elevation is possible given the uncertainty is quantities and in-place density of the material.	**Aug 23:** Please refer to the response to EMAB-18, EMAB-17 and Attachment-A.	
31	Section 10 of application - Fish and fish habitat	**Comment** The submission indicates that the depth of the closure cap would limit resuspension of PK post-closure and will optimize the elevation of PK to limit potential for direct interaction with fish. DDMI has stated	**Aug 23:** Suitability of fish habitat in Lac de Gras was considered during the original Environmental Assessment and is documented within the "No Net Loss" Plan (Diavik 1998). This document is the basis for the fish habitat	

		that fish are expected to use the upper 10 m of the water column but information supporting that contention is not provided in the submission. **Recommendation** Please provide information supporting the statement that fish use will be in the upper 10 m of the water column including: fish behavior in Lac de Gras; fish distribution in established mine pit lakes (if available); and evidence from fish behavior in other meromictic lakes.	planning for the flooded pits and has been reviewed and accepted by DFO. There is no reference to fish use of the upper 10 m of the water column in Section 10 of the Application.	
32	Section 10 of application - Fish and fish habitat - no significant adverse effects are anticipated	**Comment** Section 10 of the licence amendment - Fish and Fish Habitat identified the potential for a change in post-closure water quality in the flooded mine areas that could affect fish habitat and that there is the potential for uptake of PK material by fish after closure. However, considering the mitigation measures, which include: - "Depth of closure cap that limits post-closure resuspension of PK. - Optimize the post-closure elevation of the PK surface in mine workings to limit the potential for direct interaction with fish. - Water circulation within the closure water cap to be optimized for fish and fish habitat...." DDMI concludes that "No significant adverse effects anticipated". As noted in the preceding comments, analyses supporting conclusions regarding effects to water quality are not included in the licence amendment application and preceding recommendations request these analyses. In addition, analysis should consider how storage of PK in the mine pits could affect their post-closure use by fish. For example, if water quality is not acceptable and the dikes are not breached, what effect would the permanent loss of this habitat have on the fish population in Lac de Gras? If an unanticipated turnover in the pit lakes occurs and poor quality water is introduced to the surface waters, what is the risk to fish in the mine pit and in Lac de Gras? **Recommendation** Please provide an analysis of potential risks to fish populations if: (i) water quality in the pits is such that the dikes are never breached and this habitat is permanently lost to Lac de Gras; and (ii) an unexpected turnover in the pit lakes occurs and poor quality deep water is mixed with surface waters.	**Aug 23:** Please refer to the response to EMAB-18, DFO-2 and Attachment-A.	
33	General: Risk to fish from PK	**Comment** One of the risks associated with storage of the PK in the mine workings is that fish will be exposed to porewater from the PK or potentially ingest PK itself (e.g., while feeding on the lake or pit bottom). Would it be possible to test potential effects to fish of a worst case scenario by conducting toxicity tests using porewater and possibly the PK on fish and a variety of other aquatic organisms? **Recommendation** Recommend conducting toxicity testing with PK porewater and possibly PK on fish, aquatic invertebrates and algae in a laboratory setting or provide a rationale as to why this would not be a useful input into a worst case scenario.	**Aug 23:** This work has been conducted and was provided in Appendix II-5 of the 2015 Annual Closure Progress Report.	
34	General: risk of periodic mixing in meromictic lakes.	**Comment** Are there existing mine pit or natural meromictic lakes that could provide information on the likely stability of the water column, the frequency and conditions under which mixing might occur and design features that could be incorporated to enhance the stability of the proposed use of the pits as storage? **Recommendation** Please provide a discussion of relevant information on existing meromictic lakes, if available.	**Aug 23:** DDMI is not aware of any directly relevant examples that would apply to A418 and Lac de Gras, given that it is a pit lake within a lake.	
35	General: contingency measures in the event of an unanticipated mixing of deep with shallow water in the pits and degradation of surface water quality.	**Comment** DDMI has not provided contingency measures that could be used to mitigate effects of unanticipated failure of any of the proposed storage methods for the PK. In particular, if poor quality water is introduced from the depth into surface waters in the mine pits, DDMI should indicate what means, if any, exist to contain such an event. **Recommendation** Provide a description of	**Aug 23:** If poor quality water were to be introduced from depth into the surface waters of the mine pits, and a meromictic gradient could not be estabilished, the pit would not be reconnected to Lac de Gras. In this event pit lake treatment options would be evaluated.	

		mitigation/remedial measures that could be applied in the event that poor quality waters from depth are introduced into surface waters.		
36	General: analysis of alternatives including a risk analysis of effects to the aquatic environment of various methods of storage of PK past closure.	**Comment** DDMI should provide an analysis of alternatives for the long-term storage of PK that includes a risk assessment for effects to the aquatic environment, in particular considering uncertainties associated with climate change. In its current submission, DDMI did not consider continuing the degrit process to produce PK with a lower water content as a long-term solution. It is recognized that the storage of PK in the PKC facility, in particular if the presence of slimes prevents covering the facility with a dry cap, also presents risks to the aquatic environment. Storage of the PK in the mine works may present a lower risk to the aquatic environment but the necessary information to determine this risk is not included in the submission. **Recommendation** Provide an analysis of alternatives including a risk analysis of effects to the environment of methods of PK storage post-closure. Provide a rationale why continued degritting of PK to create a higher density waste product is not feasible.	**Aug 23:** The degrit process results in less FPK and more CPK. If the amendment to deposit PK in mine workings is approved, it would be logical to maximize the amount of PK that would go to this large storage location. To achieve this, we would discontinue the degrit process in order to maximize the pumpable FPK fraction that would report to the mine workings and minimize the CPK fraction that would be directed to the PKC.	
37	Closure Objectives and Criteria	**Comment** The closure objectives for mine workings do not currently contemplate effects associated with PK in the workings. Additional objectives are likely required to address potential for resuspension of PK material (both during pit filling and for post-closure conditions) and interaction of PK material with the aquatic ecosystem. Criteria will be required to define acceptable outcomes for these objectives. These may include criteria that prescribe minimum depth of closure water cap and depth of water needed to avoid potential direct interaction between PK and fish. Criteria related to stratification of the closure pit lakes may also be relevant because stratification is likely to remain important for maintaining suitable water quality at the pit lake surface where it interacts with Lac de Gras. **Recommendation** DDMI should be asked to provide additional information about the potential implications of PK deposit in mine working on closure, beginning with updates to closure objectives and criteria for the pits and underground areas.	**Aug 23:** Please refer to the response to EMAB-18 and 11.	
38	Closure Objectives and Criteria - Water Quality	**Comment** The existing objectives related to water quality / aquatic health are likely sufficient, but this should be confirmed once additional information is provided about predicted future water quality. This will allow evaluation of whether the existing objective is achievable or what measures may be needed to achieve it. **Recommendation** Confirm existing water quality closure objectives are sufficient once sufficient information is provided about predicted future water quality and potential effects on aquatic health	**Aug 23:** Please refer to the response to EMAB-18 and 11.	
39	Licence Term Extension to 2025	**Comment** EMAB has no objection to extending the licence term to 2025 with the understanding that this is the currently expected end of commercial production at the mine **Recommendation** None	**Aug 23:** Thank you for your support in extending the license term.	
40	Aquatic Effects Monitoring - Exceedance Notifications. Water Licence Part J, Clause 7	**Comment** DDMI proposes that Part J, Clause 7 be amended to remove the requirement to notify the Board within 30 days when it detects an exceedance of an Action Level defined in an Aquatic Effect Monitoring Response Framework. It proposes replacing this with a requirement to provide notification by March 31 of the year following the occurrence of an exceedance. DDMI argues that it does not detect these exceedances except when preparing its annual Aquatic Effects Monitoring report. It seems likely that there may be instances where DDMI may detect an exceedance prior to preparation of an annual report, for example when reviewing data	**Aug 23:** DDMI originally proposed this timeline in a letter to the WLWB on 27 October 2015, and we understood this to be acceptable based on the 27 November 2015 Decision from the WLWB. This is the approach that has been taken for the 2014 to 2017 Annual AEMP Reports. This approach aligns with the WLWB's draft Guideline (2018) which states in Section 3.3 that for low action level exceedances, "proponents may report and describe the exceedance in the AEMP Annual Report." DDMI considers Action Levels 1 through 4 to be low-level exceedances and Action Levels above Level 4 have not occurred. The Guideline goes on to state that for moderate or high Action	

		following collection. **Recommendation** The requirement to report AEMP Response Framework exceedances within 30 days should be retained, potentially in combination with a requirement to report by March 31 of the year following occurrence.	Level exceedances, Proponents will propose, in the Response Framework, an appropriate timeline for notifying the Board of an Action Level exceedance after it has been detected. As Action Level exceedances are identified when compiling the Annual AEMP Report, DDMI's approach to highlight any exceedance in the cover letter of the Annual AEMP Report (i.e. March 31st of the year following the occurence) should be retained.	
41	PK Design Reports. Water Licence Schedule 5 Item 2.	**Comment** DDMI proposes revision of Schedule 5 Item 2 that describes requirements for Process Kimberlite Design Reports. The revision includes addition of part (b) that describes requirements for a design report for PK storage in mine workings. Many of the items included in part (a) for the PKC Facility should be repeated in part (b) with appropriate changes to make them applicable for deposit in mine workings. This should include items i), ii), iii), iv) v), viii) and ix). Part (b) should also include a requirement to provide predictions of water quality in pit water through the operational and closure periods. **Recommendation** Incorporate additional requirements in Part (b) of Item 2, similar to the requirements described in Part (a).	**Aug 23:** Please note that an error was made in the list of requirements under Schedule 5 Item 2(a). These items were meant to be applied to the PKC Plan, rather than the Design Report, and have been moved to Schedule 6 Item 2. Including these items in Schedule 6 ensures that they will be applied to both the PKC Facility and the mine workings. Please refer to Attachment-B for an updated list of Schedule 5 and 6 requirements. DDMI does not agree that water quality predictions should be a part of the Design Report. Any such predictions are better suited to operational Management Plans or the Closure and Reclamation Plan.	

GNWT - ENR: Central Email GNWT

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Response
1	General File	**Comment** ENR Comments **Recommendation**		
2	PK Deposition	**Comment** DDMI is proposing to place processed kimberlite into the mine workings to remove the need for additional dam raises. This will also allow the potential for progressive reclamation of the PKC Facility and discontinuing deposition of FPK into the facility earlier in mine life, which would also allow for the construction of a dry cover. Overall, ENR is supportive of DDMI's proposal to place FPK into the mine workings and recognizes that more detailed management plans are proposed following approval of the option. **Recommendation** ENR supports DDMI's proposal that management plans not be required at this time but must be submitted and approved prior to the deposition of processed kimberlite into mine workings.	**Aug 23:** DDMI thanks ENR for understanding and supporting the proposed process for conceptual approval now with detailed technical studies, Management Plan submissions and Engineering Designs to proceed after approval of the concept.	
3	PK Deposition	**Comment** Section 1.4 states that while Fine PK will be going to the mine workings, CPK will "likely" be deposited into the PKC Facility and Section 6.1.2 states that the solid fraction of PK shall be deposited and permanently contained within the PKCF or Mine Workings. Elsewhere in the document there is no further mention of Coarse PK being placed into the mine workings. **Recommendation** ENR requests that DDMI clarify whether there is a contingency that coarse PK will be placed into the mine workings and if so, whether this has been considered when assessing implications of PK deposition in the mine workings.	**Aug 23:** Current plans are focused on the placement of FPK into the A418 mine workings via a pipeline. The plant operations would go back to the higher FPK fraction, with removal of the degrit process resulting in the maxiumum pumpable PK product. Truck hauling and dumping of CPK in the mine workings is not operationally practical; CPK would therefore continue to be deposited in the PKC Facility.	
4	Options for PKC Facility Closure	**Comment** In ENR's submissions for review of DDMI's CRP Version 4.0, ENR recommended that the investigations required to assess the feasibility of moving slimes from the PKC Facility into mine workings, and the potential for the PKC Facility to be closed as a dry cover facility, be added to DDMI's Reclamation Research with a schedule and status of these tasks included in the annual Closure and Reclamation Plan Progress Report. DDMIs response of February 6, 2018 was: The requirements to advance engineering designs for PKC closure activities is undefined at this time due to both the possibility of a change in the closure concept and ongoing design work related to long-term deposition planning and final dam raise designs. DDMI will consider how best to address expected PKC closure decision timelines, community engagement, closure criteria, completion of research plans and	**Aug 23:** Please refer to the response to EMAB-8.	

		finalization of closure designs and we will make any necessary changes as part of the CRP Version 4.1 submission. Section 4.6.1 Closure and Reclamation Plan of the Application again notes that additional investigations are required to determine the feasibility of removing slimes from the PKC Facility and advancing closure concepts for the PKC Facility. **Recommendation** ENR requests that DDMI provide an update on the status of investigations related to the feasibility of removing slimes from the PKC Facility and advancing closure concepts for the PKC Facility.		
5	Fine PKC Capacity	**Comment** Table 5 notes that an additional 7.5 million tonnes of CPK and 3.9 million tonnes of FPK will be placed in the PKC Facility. **Recommendation** ENR requests that DDMI clarify the capacity of the PKC Facility before and after the proposed raise.	**Aug 23:** The current capacity of the PKC Facility is approximately 30 MT. The full Phase 7 Dam Raise to 473 m would result in a capacity of approximately 50 MT, which a reduced raise to 469 m would result in a 45 MT capacity.	
6	Post-Closure Water Quality	**Comment** Section 4.6.1 notes that the post-closure scenario related to the pits is that they be re-filled with water and re-connected to Lac de Gras. As a result, it must be ensured that water quality in the pits is protective of aquatic species, at least at depths anticipated to have species present. It is unclear within the application whether analysis of water quality impacts from the deposition of processed kimberlite and slimes into the mine workings has been assessed. DDMI has indicated in the record of engagement that modelling work is in progress. Additionally, DDMI has noted several instances where the Traditional Knowledge panel asked similar questions about potential impacts to water quality: • TK panel requested additional scientific research to understand the effects of PK on fish specific to Lac de Gras; • TK panel stated an interest in monitoring water when placed with Fine PK. **Recommendation** ENR requests that DDMI provide additional information related to the following: • Additional information regarding water quality predictions or modelling post-closure in areas where PK and slimes have been deposited; • Clarification on whether meromictic conditions are anticipated in the pits; • Information on final elevation of FPK/slimes, surface of the pit water and depth of the freshwater cap post-closure; • Information on the likelihood of material being re-suspended; • Discussion on closure objectives related to water quality in the open pits and how they will be maintained as a result of the amendment; • Additional information on whether there will be work to respond to questions from the TK panel related understand the effects of PK on the aquatic environment ENR recommends that, should the modeling predict a degradation of pit water quality, modeling also consider site wide cumulative loading in Lac de Gras resulting from deposition of FPK and slimes into mine workings and with or without a dry cover on the PKC Facility.	**Aug 23:** Please refer to Attachment-A for a list of studies. The Preliminary Pit Lake Water Quality Modelling results are expected to address the key items listed by ENR. DDMI is committed to responding to the TK Panel recommendations and continuing discussions to address their questions.	
7	Term Extension	**Comment** DDMI has requested a 2-year term extension to reflect the update to end of commercial operations which is now estimated to be 2025. **Recommendation** ENR has no concern with the requested extension.	**Aug 23:** Thank you for your support in extending the license term.	
8	Closure Conditions	**Comment** Within Part F, Item 4, DDMI proposes the following change: *see letter for proposed change... ENR notes that closure and reclamation is currently listed within the scope of DDMI's water licence, and ENR is uncertain regarding the reason for this proposed change. **Recommendation** ENR recommends DDMI clarify the requirement for the proposed change to the wording of Part F, Item 4.	**Aug 23:** This was intended to clarify the item requirements by utilizing pre-defined terms in the License, i.e. 'Engineered Structure' and 'Dams' specifically. DDMI agrees with ENR that the License scope includes closure and reclamation; the rationale for re-stating this in Part F Item 4 was only to provide clarity as DDMI identifies progressive closure opportunities. License requirements have largely been focused on mine operations and closure designs will be among the first submissions relating to closure to be considered under the current license.	
9	Modification	**Comment** DDMI has proposed to amend the	**Aug 23:** The intention of this proposed	

		definition of "Modification" so that it specifies items related to Part F, Item 4. **Recommendation** ENR requests that DDMI clarify the intent of this amendment and the types of "modifications" that were required previously that would now be excluded.	change is to improve clarity of license terms and it does not fundamentally change anything. DDMI has not completed any 'modifications' under Part G in the past. Based on the proposed wording change to clarify Part F Item 4 (i.e. addition of the term 'Engineered Structure'), DDMI thought it would be helpful to cross-reference this clause for related items in Parts F and G of the License.	
10	Condition Numbering	**Comment** ENR notes that as a result of proposed amendment, numbering within the Water Licence will be significantly altered. **Recommendation** ENR recommends that DDMI ensure any cross-referencing within plans or other documents are updated once any potential changes are finalized.	**Aug 23:** DDMI agrees to update cross-references which would be impacted by this Amendment.	
11	Action Levels	**Comment** Within the proposed Water Licence, DDMI has requested that a change be made related to Part J, Condition 7(d). Specifically; DDMI has proposed that the current timeline of within 30 days of detection of the exceedance be changed to "on or before 31 March of the year following the occurrence." DDMI's rationale for this is that exceedances are first detected during the preparation of the AEMP Annual Report which is due on March 31st. ENR is concerned with the delay in notification that would occur as a result of this change. There is already a considerable delay between when the exceedance occurs and when the exceedance is detected following data analysis. This would then be compounded by the time required to prepare the report and submit it to the Board which will result in considerable time passing between the occurrence of an event and formal notification. This would still be followed by additional delays related to responses from the Board, the submission of a Response Plan, and the time action was finally taken. **Recommendation** ENR recommends that the proposed amendment to Part J, Item 7 not be approved.	**Aug 23:** Please refer to the response to EMAB-40.	
12	May 28, 2018 Directive	**Comment** DDMI has added conditions xi. and xii. to a) of Schedule 2, Item 5 Processed Kimberlite Containment Facility to address a WLWB Directive. GNWT notes that the Board's approval for included some specific caveats that are not reflected in DDMI's proposed wording. xi. Upon accumulation of ponded surface water against the PKC Facility Dams, DDMI is required to: a. Immediately notify the Inspector and the Board; b. Report the following in the Annual Dam Safety Inspection of the PKC Facility: i. Date and locations of water ponding against the PKC Facility Dams ii. Duration that water ponding against the PKC Facility Dams has o ccurred iii. Depth and spatial extent of water ponding iv. Likely source of water contributing to the water ponding v. Any corrective actions and assessment Clause xi. is related to accumulation of water caused by snow melt, rainfall or excess process water discharge. Board approval was for a limited duration (14 days) and was specific to the Phase 6 Dam Raise and to ponded water that is not connected to the PKC Facility Pond. xii. Upon accumulation of the PKC Facility Pond against the PKC Facility Dams as approved the Engineer of Record, DDMI is required to: a. Immediately notify the Inspector and the Board; b. Report the following in the Annual Dam Safety Inspection of the PKC Facility: i. Date and locations of the PKC Facility Pond against the PKC Facility Dams ii. Duration that water ponding against the PKC Facility Dams has occurred iii. Depth and spatial extent of water ponding iv. Reason the PKC Facility Pond accumulated against the Dams v. Any corrective actions and assessment. c. Increase the frequency of key monitoring data; the details of what to monitor and when to monitor can be at the discretion of the Engineer of Record; d. Conduct a complete evaluation of the key monitoring data on an	**Aug 23:** This Board decision only applies to the Phase 6 Dam Raise and the initial Phase 7 Dam Raise design and construction schedules have already been submitted to the WLWB. Given the timing of this Amendment, there is no value in including this information in the text of the License Amendment. Additionally, there will be an approximately 100 m width berm of CPK between the Phase 6 Dam and the PKC Pond by the time this Amendment process is complete, thereby omitting the possibility of water accumulation against the Phase 6 Dam.	

		expedited basis while the ponded water is against (or near) the PKC Facility Dams Clause xii is related to accumulation of the PKC Facility Pond against the PKC Facility Dams. Again, Board approval is for a limited duration (14 days) and for the Phase 6 Dam Raise. **Recommendation** ENR recommends that the caveats regarding the length of time that ponded water is allowed to accumulate, and the reference to approval only for the Phase 6 Dam Raise should be reflected in the proposed updates to Schedule 2.		
WLWB: Anneli Jokela				
ID	**Topic**	**Reviewer Comment/Recommendation**	**Proponent Response**	**Board Staff Response**
1	Chemical Composition of Processed Kimberlite (PK)	**Comment** Section 8 of the Application asks for information on the quantity, quality, treatment, and disposal of waste deposited. In this section, DDMI references its Waste Management Plan; currently, the Waste Management Plan references the PKC Facility Plan for detailed information related to PK. The most recently approved version of the PKC Facility Plan (i.e., Version 4.1) includes information on the geotechnical characterization of PK, but no information on the geochemical characteristics of PK. According to the most recently submitted version of the Closure and Reclamation Plan (i.e., CRP Version 4.0), many of the geochemical characteristic studies are still ongoing. Given that the geochemical characteristics of PK could be part of defining the "quality" of PK, a summary of this information to date would be a helpful addition to the Amendment Application **Recommendation** Provide a summary of all the information to date regarding the geochemical characteristics of PK. Alternatively, provide a list of specific references to where the most up-to-date, detailed information can be found.	**Aug 23:** As stated in the WLWB comment, DDMI references the PKC Facility Plan for information related to PK. The PKC Facility Plan, in turn, references ICRP V3.2 for additional information. Appendix VIII-4, Section 4.2 of ICRP V3.2 summarizes the results from geochemical characterization programs. ICRP V4.0, Appendix VII-2 contains the most current version of the Diavik Closure and Reclamation Research Plan (V2.0), which also summarizes PK geochemical results. Additional data and information has been submitted to the WLWB in various documents; these documents are tabulated in Section 1 of Attachment-C of this response. New and/or compiled data to support DDMI's application, which have not yet been presented to the WLWB, are presented in Section 2 of Attachment-C. Proposed Closure Criteria (PCC) provided as a reference in the figures are from Appendix V of CRP V4.1.	
2	PK Options Evaluation – Table 2 of Attachment 1	**Comment** Table 2 provides a summary of the PK deposition options evaluation, which includes key advantages and disadvantages of the different options. For Option 2 (i.e., A418 Deposition with Current Dam Height) and Option 4 (i.e., PKC Facility Dam Raise and A418 Deposition), "enhanced closure options" are listed as key disadvantages. Other parts of the application, however, indicate that deposition of PK into the pits could have closure benefits for the PKC Facility (e.g., Section 4.6.1 of Attachment 1). **Recommendation** Is this an error in Table 2? If not, can DDMI clarify what is meant by "enhanced closure options" and explain why this would represent a key disadvantage?	**Aug 23:** This was an error in Table 2. Both instances of "enhanced closure options" were meant to be in the "Key Advantages" column. An updated version of Table 2 is included in Attachment-B.	
3	PK from A21 – Section 3.2 of Attachment 1	**Comment** In Section 3.2 of Attachment 1 of the Application, DDMI states: "There is potential for mining to extend a further 10 m at A21, however this opportunity is subject to optimization of the mine plan and may be limited by geotechnical constraints. As such no additional reserve was applied to A21." DDMI does not indicate how much PK an additional 10 m of mining represents, or where this PK would be disposed. If there was no additional space in the underground for this material, it could potentially be disposed in the PKC Facility late in the mine life and potentially could affect plans to close the PKC Facility as a "dry" facility. **Recommendation** (1) Approximately how much PK would be generated from an additional 10 m of mining at the A21 pipe? (2) Discuss the likelihood that FPK from A21 would need to be disposed in the PKC Facility if an additional 10 m of mining occurs at the A21 development?	**Aug 23:** 1) This value has yet to be determined, but DDMI expects it to be relatively low. 2) An extra 10 m of kimberlite mining at A21 would not have a material impact on the FPK level in a Mine Workings disposal scenario. If PK disposal in Mine Workings is approved, DDMI does not expect to deposit any FPK from the A21 mine in the PKC Facility.	
4	Estimate of PK Quantities – Section 3.2 of Attachment 1	**Comment** Section 3 of Attachment 1 provides the available technical data and supporting information for the placement of PK into the A418 mine. Section 3.2 states that "all values	**Aug 23:** All values provided are considered to be conservative preliminary estimates. Ongoing technical studies will refine these estimates and inform the Design Report and PKC Plan	

		provided throughout Section 3 are based on concept-level engineering and are subject to change." It is not clear how this statement influences the conclusions made throughout Section 3. For example, some of the information provided throughout this Section relates to the capacity of the A418 mine to hold PK and the projected fill volumes of the A418 mine. For some of the values used throughout Section 3 (e.g., PK quantities, dry densities of place FPK), DDMI has indicated that conservative values were used, but for others, DDMI did not indicate whether values were conservative. **Recommendation** Can DDMI provide an indication of the estimates (e.g., of decant volume, decant elevation, etc.) under a reasonable worst-case scenario? In other words, can DDMI provide more information on the amount of uncertainty related to the calculations provided throughout Section 3.	submissions, which will undergo public review and require WLWB approval prior to the commencement of PK placement in Mine Workings.	
5	Void Volume Calculation – Section 3.3.1 of Attachment 1	**Comment** In Section 3.3.1 of Attachment 1 of the Application, DDMI states that "two methods of calculations were used to take into account the fact that mining is still progressing. For the elevations in the range of 9,085 mRL to 9,415 mRL (Lac de Gras surface level) a drone-based pit scan method was used whilst for the elevations from 8,770 mRL to 9,085 mRL the volume was based on the anticipated production volume." In the previous paragraph, DDMI indicated that the base of the A418 open pit is 9,165 mRL. **Recommendation** Please explain how the drone-based method of calculation was used down to elevation 9,085 mRL when the bottom of the open pit is at 9,165 mRL.	**Aug 23:** We apologise for this typographical error. The method transition took place at elevation 9,165 mRL. Another error was noted in relation to the level at which development volumes were calculated when reviewing Section 3.3.1 to respond to this comment so we have included updated text for this section in Attachment-B.	
6	Void Volume Calculation – Section 3.3.1 of Attachment 1	**Comment** In Table 6, the 8th row indicates that the 20 m slice is for the 9280-9240 elevation. It appears that this should say 9280 to 9260. **Recommendation** Please confirm that the elevation in this row should be 9280 to 9260 and that this has no bearing on the volumes calculated in this row.	**Aug 23:** We apologise for this typographical error. The 8th row should read 9280 - 9260. An updated version of Table 6 is included in Attachment-B.	
7	Decant Water Volumes – Section 3.3.2 of Attachment 1	**Comment** In Section 3.3.2 of Attachment 1 of the Application, DDMI indicates that "Potential decant water volumes were determined on the basis of a groundwater inflow to the void of 2,180 m3/day." There is no information on how the daily groundwater inflow was derived or what the range of possible flows might be. **Recommendation** Please provide an indication of the range of possible groundwater flows, for example by providing an upper limit to the possible inflow, a statistical description of the inflow value used by DDMI, etc.	**Aug 23:** The 2,180 m3/day (400 gpm) is based on the A418 mine discharge. DDMI tracks the mine discharge using flow meters in each pump station. The flow meters are connected to a data logger which records data up to a minute frequency. DDMI tracks the data on daily basis. Please refer to Attachment-D for more information.	
8	Decant Water Volumes – Section 3.3.2 of Attachment 1	**Comment** In Table 8, DDMI estimates the volume of water that must be decanted to maintain the water elevation at or below 9,260 mRL. In 2022, the "total volume in year" is calculated as the sum of the total slurry and the annual groundwater inflow. In 2023, 2024, and 2025, the "total volume in year" is calculated in the same way except double the annual groundwater inflow is used in the calculation. Because of this apparent error, the total decant volume across four years (12,423,760 m3) exceeds the total groundwater inflow and total excess slurry water in those four years (10,829,411 m3) **Recommendation** Please explain why double the groundwater inflow is used to estimate the decant volume in 2023, 2024, and 2025.	**Aug 23:** DDMI apologizes that there was indeed an error in the calculations. An updated Table 8 has been provided as Attachment-B.	
9	Water Elevation in A418 Mine Workings – Section 3.3 of Attachment 1	**Comment** In the fatal flaw assessment (Section 3.3.4 of Attachment 1 of the Application), Golder concluded that a water level at 9,260 mRL (DDMI's nominated level) poses no risk to stability and that an elevation at lake level may pose an unacceptable risk in the A154 development. Midway between these two water levels, the risk has not been determined, however DDMI proposes that the operational water elevation limit be established	**Aug 23:** Currently the maximum water level DDMI will consider is 9,260 mRL, 10m below the A-Portal. Raising levels above this would eliminate a secondary egress point from the undergound mine and is not being considered at this time for safety reasons. If there is a need to raise water levels above this elevation, an aditional bulkhead will need to be installed in the A Ramp.	

		in a Schedule to allow it to change over time (i.e., to increase above 9,260), and discusses a water elevation above 9,260 in several sections of the Application. For example, in section 3.3.2, DDMI discusses setting the water level at 9,320 mRL (although DDMI indicates that this would not be operationally necessary since water is needed for the process plant). Further, DDMI discusses the possibility of disposing of PK slimes from the PKC Facility in the A418 void. This would require a substantial increase to the maximum water level. It is unclear whether DDMI has determined that a regulated water elevation above 9,260 is acceptable, and if not, what work is required to determine the maximum level. **Recommendation** Has DDMI determined the maximum water elevation that the company would consider? If not, what work is required to determine this level and when does DDMI plan to complete this work?		
10	PK Placement in the Underground – Section 3.3.5 of Attachment 1	**Comment** DDMI's amendment application is requesting authorization to place PK in the underground mine workings. Section 3.3.5 of Attachment 1 explains that a new pipeline will be required to transfer PK from the processing plant to the A418 mine. Information on how the PK material will be placed/distributed throughout the underground is not outlined in the application. **Recommendation** Please describe more thoroughly how the PK material will be distributed within the underground, particularly within the access workings.	**Aug 23:** FPK properties and operational experience from the PKC Facility suggest that FPK will flow naturally into Mine Workings. DDMI will need to determine the appropriate location and level at which to place the FPK pipeline within the mine workings in order to exploit the available storage space. Direct handing is not required and is also not possible for access and safety reasons.	
11	Effects on PKC Pond – Section 3.3.5 of Attachment 1	**Comment** DDMI explains in Section 3.3.5 of Attachment 1 of the Application that the PKC reclaim barge would be moved to A418 once FPK deposition in the mine workings begins. It is possible that the PKC pond would shrink with no additional FPK being deposited in the PKC Facility, however lesser amounts of runoff and precipitation would continue to enter the PCK Facility. These amounts are greater than the evaporation in the facility, according to the base case simulation in DDMI's water balance (in the approved Water Management Plan, Version 14.1). **Recommendation** Will DDMI require the ability to lower the PKC pond level if FPK is deposited in the A418 mine workings?	**Aug 23:** If the reclaim barge is relocated to the A418, water levels in the PKC Facililty will be managed by deploying pumps to transfer water as needed.	
12	Drainage Control and Collection System – Section 4 of Attachment 1	**Comment** According to DDMI's Application, some new infrastructure would be required to support the proposed plan to deposit PK into the mine workings. **Recommendation** Explain whether any changes to the Drainage Control and Collections System will be required to support potential seepage and runoff from new infrastructure. If yes, when does DDMI plan to submit an update to the Drainage Control and Collections System Design Report? If not, please provide thorough supportive rationale.	**Aug 23:** The current Drainage Control and Collection System will support potential seepage and runoff from the proposed pipeline infrastructure. Please refer to the response to EMAB-28.	
13	Site Water Balance – Section 4 of Attachment 1	**Comment** DDMI estimates that 12,423,760 m3 will need to be decanted to maintain a water elevation below 9,260 mRL. (When corrected for the apparent error of doubling the groundwater inflow, this amounts to approximately 10 million m3.) DDMI did not update the site water balance and indicated in Section 4.4.1 of Attachment 1 of the Application that an update to the water balance in the Water Management Plan would be required if PK deposition in the mine workings is approved. **Recommendation** Describe the implications to the site water balance in consideration of the predicted decant volume, for example as it relates to storage capacity in the North Inlet and collection ponds, treatment capacity in the North Inlet Water Treatment Plant, etc....	**Aug 23:** The amount of raw water used for processing will remain the same, while groundwater inflow to the Mine Workings is expected to decrease. Overall this change will result in a decrease to the amount of water flowing through the DDMI Water Management System. Likewise there will be no negative impacts on storage or treatment capacity of water.	
14	Deposition of PK into the A154 and A21 mines	**Comment** DDMI is seeking authorization to deposit PK into underground mine workings via this Amendment Application. The Application is focused on the A418 mine, but	**Aug 23:** 1) Please refer to the response to DFO-3. 2) The general concept to seek approval for PK disposal in any Mine Workings	

		requests that this authorization be transferable to both the A154 and A21 mines. The supporting information provided in the Application relates directly to the A418 mine (e.g., estimated void volumes, bulkhead considerations, fatal flaw assessments, plans for FPK pipeline and relocation of reclaim barge). In addition, the Engagement Record suggests that the discussions with Affected Parties and regulators were focused on the A418 mine. **Recommendation** (1) Provide detailed information on the feasibility, design considerations, and environmental concerns/mitigations of depositing PK into the A154 and A21 mines. (2) Clarify whether these options were discussed during Engagement.	was discussed during Engagement, with specific details provided for the A418.	
15	Closure and Reclamation of the PKC Facility - Section 4.6.1 of Attachment 1	**Comment** In this section of the Application, DDMI states that "there are potential closure benefits to the PKC Facility if mine workings are utilized for PK deposition" as this "would potentially allow the PKC to be closed as a dry cover facility". This section also states, however, that "additional investigations are required to determine the feasibility of such an approach, and would proceed if this amendment application is approved". **Recommendation** What are the factors/considerations that would limit the ability of moving PK slimes to the underground?	**Aug 23:** At this time the primary factor under consideration which may limit the ability to remove PK slimes from the PKC Facility is related to worker safety. Additional investigations and risk assessments are required before DDMI can commit to the removal of PK slimes.	
16	Closure and Reclamation of A154, A418, and A21 mines – Section 4.6.1 of Attachment 1	**Comment** In this section of the Application, DDMI states that it "expects that the overall closure plan for [A154, A418, and A21 mines] would remain the same with the deposition of PK to the mine workings. Updates to the CRP would be required to address the addition of PK into the mine workings." **Recommendation** Provide a list and an explanation of all the changes (or types of changes) that would need to be made to the CRP to reflect deposition of PK into the mine workings? For example, what are the contingency plans if more PK is produced than anticipated or if water quality in the pits does not meet established guidelines?	**Aug 23:** As shown in Table 6, mine workings have more than enough room to hold the remaining life of mine PK. More detailed closure designs, objectives, monitoring, and contingencies relating to PK in mine workings will be advanced through DDMI's Closure and Reclamation Plan (CRP), as required. Possible contingency measures that would be considered if water quality in the pits does not reach established criteria includes the evaluation of in-situ treatment options. Mine workings would not be reconnected to Lac de Gras until estabilished criteria are met. This may result in a temporary or permanent loss of fish habitat to Lac de Gras. DDMI commits to working directly with DFO to review the accounting of habitat gains or losses and associated offsetting as required under SC980001.	
17	Closure and Reclamation of A154, A418, and A21 mines – Meromixis	**Comment** Version 4.0 of the CRP (see Section 5.2.4) explains that: "It has always been expected that post-closure these areas of the lake behind the breached dikes would form a stable, permanently stagnant lower monimolimnion underlying an upper mixolimnion that circulates regularly (see DIAND 1999 for example). This condition known as meromixis is anticipated because of the combination of higher salinity groundwater continually entering the pits at depth, the pit geometry resulting in very deep water with steep sides, and a relatively small lake surface area protected from wind-driven mixing by the residual dike sections." It is unclear whether the deposition of PK into the mine workings and the open pits would influence the establishment and maintenance of meromixis. **Recommendation** Provide a detailed explanation, with supporting evidence (e.g., modeling), of why deposition of PK into the mine workings is not anticipated to affect the establishment of meromixis in the flooded pits.	**Aug 23:** Please refer to the response to EMAB-18 and Attachment-A.	
18	Effects of PK on Water Quality within the Flooded Pits and Closure Options for A154, A418, and A21.	**Comment** One of the potential impacts of PK deposition into mine workings identified by DDMI in Section 10 of the Application is a "potential change in post-closure water quality in flooded mine areas". No information is given with regards to what this change might be. In terms of mitigations, DDMI lists placement and depth of a water cap atop the PK mine workings at closure, as well as water circulation within the cap to be optimized for water quality. No information is provided to explain or support these mitigations. The Engagement	**Aug 23:** See EMAB 18. 1) Please refer to the response to EMAB-18, EMAB-11 and Attachment-A. 2) Depth of a water cap atop the PK at closure is intended prevent wave action from reaching the PK material, thereby reducing the likelihood of it mixing with the clean water above. 3) Current water quality modelling does not suggest there is a significant risk of pit lake water quality preventing reconnection to Lac de Gras. Results of this modelling will be provided to reviewers in mid-September. 4) If reconnection is not	

		Record shows that a number of parties (YKDFN, KIA, GNWT-ENR, GNWT-Lands Inspector, and EMAB) had questions about the potential effects of PK deposition into mine workings on water quality at closure. The Comprehensive Study Report (CSR) for the Diavik Project states the following: "When mining is complete in each open-pit, water would be re-introduced to the pit, initially through a siphon system and followed by a limited dike breach, to levels equal to Lac de Gras water levels"; and "Refilling the open-pits with Lac de Gras water at closure would require monitoring and verification of water quality conditions prior to breaching of the dikes. This water is expected to meet guidelines established for drinking water and for the protection of aquatic life." **Recommendation** (1) Explain what changes to the post-closure water quality could be expected as a result of PK deposition into mine workings. If this information is not currently available, please explain what steps are being undertaken to determine this and timelines associated with these results being available. (2) Provide supporting information for the mitigation options related to effects to water quality in the flooded mine areas. (3) Comment on the increased risk, if any, that reconnection of the flooded pits to Lac de Gras would not be possible if PK were deposited into Mine Workings. (4) If reconnection is not possible, how would this affect future use of the flooded pits?	possible, this area would no longer be available as fish habitat (please also refer to the response to DFO-2). In addition, this area would no longer be navigatable by boat via Lac de Gras.	
19	Potential Impacts on Fish Habitat within A154, A418, and A21	**Comment** In Section 10 of the Application, DDMI indicates that "a potential change in post-closure water quality in flooded mine areas could affect constructed fish habitat". No information is given with regards to how changes in water quality might affect constructed fish habitat. **Recommendation** Explain what changes to the post-closure constructed habitat could be expected as a result of PK deposition into mine workings. If this information is not currently available, please explain what steps are being undertaken to determine this, and timelines associated with these results being available.	**Aug 23:** An update to pit water quality modelling will be provided in advance of the technical session, and recommendations for any further work required will be identified at that time. Provided that water quality modelling indicates that the area would be suitable to reconnect to Lac de Gras, and that community members support the establishment of fish habitat in the A418 area, DDMI would proceed with constructing the artificial reefs prior to flooding the mine. Ultimately, the final determination of whether or not the mine workings and fish habitat areas can be reconnected to Lac de Gras will be based on the results of post-closure pit lake water quality monitoring. Please also refer to the response to DFO-2 and Attachment-A.	
20	Potential Impacts on Fish and Fish Habitat within A154, A418, and A21	**Comment** In Section 10 of the Application, DDMI lists two potential impacts to fish and fish habitat: "a potential change in post-closure water quality in flooded mine areas could affect constructed fish habitat" and "potential for uptake of PK material by fish at closure". In terms of mitigations, DDMI lists depth of a water cap that limits resuspension of PK, optimization of the elevation of the PK surface to limit direct interaction with fish, and water circulation within the cap to be optimized for fish and fish habitat. No information is provided to explain or support these mitigations. **Recommendation** Provide supporting information for the mitigation options related to effects to fish and fish habitat in the flooded pits.	**Aug 23:** Please refer to the response to WLWB-18 (#2). Additionally, DDMI is utilizing information relating to suitability of fish habitat from the Environmental Assessment in an effort to optimize PK elevations to reduce the potential that fish will come in contact with the material (please also refer to EMAB-31).	
21	TK Panel Recommendations – Section 5 of Attachment 1	**Comment** The recommendations from the TK Panel listed in Section 5 of Attachment 1 included some recommendations for further studies related to the deposition of PK in the mine working: (1) "The Panel would like additional scientific research to see what the effects of PK (ingestion) might be on fish specific to Lac de Gras"; (2) "If PK were to go in any mine area, the Panel requests an opportunity to learn more about the depth of water for fish habitat to cover PK (TK and western science)"; and (3) "The TK Panel recommends that [DDMI] test slimes/PK in a fish tank to see if any water plants [sic] would grow on the PK." **Recommendation** Explain what DDMI has been/is doing to address these questions.	**Aug 23:** (1) Preliminary studies have been completed to confirm the lack of a toxic effect of PK slimes on aquatic organisms, though ingestion of PK particulate was not assessed. This report is provided in Appendix II-5 of the 2015 Annual Closure Progress Report. (2) The reason for this is that DDMI prefers to plan for PK deposition to a depth that would not be used by fish. We are utilizing information collected during the Environmental Assessment, along with input from communities and TK holders, to determine an appropriate depth. (3) DDMI does not anticipate testing plant growth on PK/slimes for the reasons listed in (2) above. Please refer to Attachment-A for a list of planned studies.	

22	Further modeling – Engagement Record	**Comment** In response to "Issues Raised" during Engagement with YKDFN, DDMI's response was that this was a "Conceptual design to date; with further modeling to be completed in second phase of amendment process." **Recommendation** 1) Can DDMI clarify what it means by the "second phase of the amendment process"? (2) What type of further modeling is planned and when will this information be available?	**Aug 23:** Pit lake water quality modelling is ongoing and updated results will be presented in advance of the Technical Session. DDMI considers the 'second phase' of the Amendment process' as the portion of the WLWB process that is carried out after the preliminary screening.	
23	Seepage through the Bulkheads – page 40 of Attachment 1	**Comment** DDMI proposes that "Any decant water or Seepage water through the bulkhead shall be collected and directed to the Process Plant or North Inlet prior to being sent to treatment; [new]" (page 40 of 41 of Attachment 1 of the Application). **Recommendation** For context, please estimate the upper bound of the quantity of seepage that might pass through the bulkheads.	**Aug 23:** Contact grouting will be done around the bulkheads in an effort to prevent seepage. It is possible that the rock mass just upstream of the plug may report some seepage after the water level in the open SLR raises above the plugs level. Should these inflows within the rock mass be higher than 5 gpm, DDMI may conduct grouting to control the seepage.	
24	EQC conditions and authorization to Discharge.	**Comment** During the last Water Licence Renewal for Diavik, the Board revised the condition stipulating EQC for the Project with the goal of providing clarity around the condition. In the Board's Reasons for Decision for the 2015 Water Licence Renewal, the Board "concluded that, when read in combination with other parts of the Licence, the new language in Part H, Items 26 to 29, is sufficiently clear to provide certainty for the Licensee. Any remaining concerns can be addressed through the Water Management Plan and the Annual Report, to which new requirements have been added related to authorized Discharges." Version 14 of the Water Management Plan was submitted within 60 days of the 2015 Water Licence Renewal. It was not approved by the Board "because of concerns identified with the listing of 'additional waters' in Section 1.4 'Authorized Discharges' in the Plan." As part of that decision, the Board requested additional information from DDMI to help address the outstanding uncertainties regarding the issue of "authorized Discharges". More recently, DDMI submitted Version 14.1 of the Water Management Plan, which aimed to address the outstanding uncertainty. Version 14.1 was approved by the Board, with further direction for Version 14.2. This decision was issued by the Board following DDMI's Amendment Application. As part of this Amendment Application, DDMI is proposing to extend the term of the Licence from 2023 to 2025. This extended term will likely overlap with some final closure planning. Thus, it may be beneficial to reflect some of the Board's recent decisions on 'authorized Discharges' and address any potential residual uncertainty. **Recommendation** (1) In Section 4.4.2 of Attachment 1, DDMI explains that "an SNP station would be added to measure decant water quality in the mine workings." A track-change copy of the SNP was not provided as part of Attachment 2. Can DDMI foresee any additional additions or revisions to the SNP that would be required as a result of this Amendment Application? Can DDMI confirm that the only SNP stations that have the potential to Discharge directly to the Receiving Environment are: 1645-18, 1645-18B, 1645-52, 1645-53, and 1645-54? If DDMI believes that additional stations should be included here, please provide a list with detailed rationale for each station on the list. (2) In Section 1.1 (i.e., Purpose and Scope) of Attachment 1, DDMI explains that it has "included additional administrative updates which are not a part of this project description." Some of the proposed changes made by DDMI in Attachment 2 reflect Board decisions issued since the last Water Licence Renewal. Does DDMI believe that a condition should be added to the Licence to reflect the Board's recent decision regarding discharge from the Collection Ponds? Please	**Aug 23:** 1) DDMI confirms that currently the only SNP stations that have the potential to Discharge directly to the Receiving Environment are: 1645-18, 1645-18B, 1645-52, 1645-53, and 1645-54. DDMI does not foresee any additional additions or revisions to the SNP that would be required as a result of this Amendment Application at this time. We have suggested in the Application that any supporting Management Plan revisions or SNP amendments be conducted closer to initiating PK placement in mine workings, in case other revisions are identified. 2) DDMI does not think there should be a license condition reflecting the Boards Water Management Plan decision to no longer allow discharge from the collection ponds. This decision is currently captured within the Water Management Plan (WMP) V14.2. DDMI prefers to retain the option for direct discharge of collection ponds in the future. For example, should the amendment be approved, the PKC Facility would be de-watered and seepage would not enter the collection ponds. Given the possible longer term of the License and its application to closure activities, it is important to retain flexibility in relation to collection pond management. DDMI suggests that SNP amendments and/or WMP updates are the appropriate methods of managing collection ponds. 3) DDMI understands that Part H Items 27, 28, and 29 currently apply to all water or waste entering the Receiving Environment and any water that could be authorized for discharge. DDMI does not believe that EQC should apply to surface runoff and collection ponds, provided that these waters are contained within project infrastructure and are not discharged to the Receiving Environment (i.e. 'the natural environment'). If authorized discharge of a pond or surface runoff to the environment was required, the EQC outlined in Part H Item 26 would apply. Recognizing that certain parameters may naturally be elevated in runoff due to regional background levels, e.g. zinc, DDMI would support amending Part H Item 28 to read, "...unless it can be demonstrated that a pH outside this range, or EQC parameter exceedances, were not caused by mine activities."	

		provide a detailed explanation for why or why not. (3) Does DDMI believe that EQC outlined in Part H, condition 26 apply to all water or Waste entering the Receiving Environment (e.g., surface runoff, collection ponds)? If not, please explain (a) what EQC should apply to water and Waste that may enter the Receiving Environment; and (b) what EQC should apply to water and Waste that could be authorized for Discharge. (4) Does DDMI believe that Part H, condition 32 applies only to SNP stations 1645-18 and 1645-18b? Please provide rationale along with the response. (5) Does DDMI believe that a definition for "authorized Discharge" would provide greater clarity? If so, does DDMI have a recommendation for how it would propose to define it?		
25	Part A – Scope	**Comment** DDMI has not suggested amending the Scope of the Licence to address the proposal to deposit PK into Mine Workings. The Scope of the Water Licence authorizes the deposit of waste, with reference to Figure 2.1 of the original Application. **Recommendation** Does DDMI foresee any problems with potential changes to the Scope to incorporate the proposed amendment?	**Aug 23:** The current license scope includes 'disposal of waste' which accrurately describes the activity proposed in this amendment. DDMI would support removing the reference to Figure 2.1 as it does not appear to add any value to the Water License scope.	
26	Part A – Definitions, Minewater	**Comment** DDMI proposes to amend the definition of "Minewater" by removing the word "any" before "water that accumulates in any underground workings or open pits" based on the rationale that Decant Water would be present in the A418 open pit and that this would more closely resemble Process water rather than Minewater. It is not clear that the removal of "any" fully addresses this concern given that Decant Water could be considered included in the broader term "water". **Recommendation** Does DDMI believe that the objective of considering Decant Water differently from Minewater could be handled by adding an exclusion phrase to the definition? For example, "'Minewater' means any water that accumulates in any underground working or open pits, with the exception of Decant Water."	**Aug 23:** DDMI is of the opinion that the currently proposed definitions appropriately define minewater and decant water.	
27	Part A – Definitions, Mine Workings	**Comment** DDMI proposed to include a definition for "Mine Workings" under Part A of the Licence. DDM has proposed to delete the following from the definition of Processed Kimberlite Containment Facility: "as identified in Drawing Number 1 11O- 42D3-1005 (Overall Site Plan, Volume II-B Part L, Processed Kimberlite Containment, Water Licence Application, August 1999)". The definition of the Processed Kimberlite Containment (PKC) Facility includes the engineered structures that are designed to contain facilities. **Recommendation** Indicate whether "Mine Workings" are considered Engineered Structures? If so, does DDMI believe that the definition of the PKC Facility needs to be updated so that it does not include the Mine Workings?	**Aug 23:** Mine Workings in the context of PK disposal are considered to be an Engineered Structure and would therefore require design drawings stamped by a professional engineer as per Part H Item 4 of the License. DDMI would recommend adding an exclusion phrase relating to Mine Workings to the PKC Facility definition.	
28	Part A – Definitions, Processed Kimberlite Containment Facility	**Comment** DDMI proposes to amend the definition for the Processed Kimberlite Containment Facility to include reference to the "approved design" rather than to "Drawing Number 1 11O-42D3-1005 (Overall Site Plan, Volume II-B Part L, Processed Kimberlite Containment, Water Licence Application, August 1999)." DDMI's approved design report is dated April 17, 2001. DDMI also submitted design reports for the later dam raises (e.g., Phase V and Phase VI). **Recommendation** When referring to the "approved design" in this definition, is DDMI referring only to the 2001 design report, or to the design reports for the dam raises in addition to the 2001 design report? If the latter, can DDMI propose how this could be clarified in the Water Licence?	**Aug 23:** DDMI's reference is intended to include all of the design reports for the Facility. DDMI suggests that the definition could possibly reference 'the approved design reports' and Schedule 5 Item 2 could be updated to include a requirement to reference all previous PKC Facility Design Reports, with a list of all relevant references provided within the Schedule Item, as this could be updated if additional design reports are submitted.	
29	Part E, condition 1	**Comment** DDMI is proposing to remove Part E, condition 1 (i.e., "The Licensee is authorized to dewater a portion of Lac de Gras to facilitate	**Aug 23:** While there are no dewatering activities currently planned, Part E should be retained to cover enforcement requirements in	

		mining the A21 kimberlite pipe") because dewatering of A21 is complete. The Scope of the Licence allows for dewatering a portion of Lac de Gras, but it appears that the dewatering activities for the Project are complete. **Recommendation** If there are no more Dewatering sources to be identified in Part E, can DDMI comment on whether there is a need to retain all other conditions related to Dewatering?	the event that another dewatering project arises.	
30	Part F, condition 4	**Comment** Part F, condition 4 of the Licence addresses the requirement of Geotechnical Engineer design drawings for any Dams, dikes, or structures intended to contain, withhold, divert or retain water or Wastes to be submitted to the Board for approval. DDMI is proposing to amend Part F, condition 4 to replace "dike, or structures" with "or Engineered Structures (including those related to closure)". **Recommendation** (1) Does DDMI have examples of structures that aren't dams, dikes or Engineered Structures that are being used (or will be used) to contain, withhold, divert or retain water or Wastes? (2) If so, how does DDMI suggest including those in the Licence? (3) Comment on the appropriateness of adding a condition requiring a Construction Plan for non-engineered structures.	**Aug 23:** 1) The intent of this change is to reference items for which there is a definition within the Water License. A structure which requires drawings stamped by a Geotechnical Engineer is considered an 'Engineered Structure'. Apart from temporary sumps, drainage channels or staging ponds (i.e. small, bermed structures not covered under dam safety guidelines; e.g. jet grout backflow containment for the A21 dike), DDMI does not have any examples of stuctures that contain, withhold, divert or retain water or Wastes. 2) DDMI does not think that the requirements related to the construction of temporary sumps, drainage channels or staging ponds should be included in the License. 3) Non-engineered structures, such as temporary sumps, drainage channels and staging ponds, are most often required in response to a weather event or another unforeseen circumstance, the size and location of which may be dynamic, and only exist for a very short period of time (eg. spring freshet). Adding a license condition requiring the submission of a construction plan for every sump, drainage channel or staging pond would impede successful water management during freshet or large precipitation events.	
31	Part G, condition 1	**Comment** Part G, condition 1 outlines the requirements for a Licensee to be able to carry out Modifications to Engineered Structures without written approval of the Board. DDMI proposed to amend this condition to clarify that it applies to any structure identified under Part F, condition 4. **Recommendation** What structures, if any, are potentially omitted by this proposed amendment?	**Aug 23:** Please refer to the response to ENR-9.	
32	Part H, condition 10	**Comment** Part H, condition 10 addresses the requirement of the Licensee to operate in accordance with the approved Ammonia Management Plan. Please note that this condition is numbered as Part H, condition 9 in DDMI's track-changed copy of the Licence included in Attachment 2. On July 28, 2017, the Board issued its Reasons for Decision on Version 6.0 of the Ammonia Management Plan. This decision included the addition of a new condition under Schedule 6 (i.e., Schedule 6, condition 9) that outlined requirements for the Ammonia Management Plan. These requirements were previously included under the Schedule requirements for the Contingency Plan. This Schedule update could be reflected here by adding the following to the condition: "The Plan shall be in accordance with Schedule 6, condition 9." **Recommendation** Indicate whether DDMI has any concerns with adding "The Plan shall be in accordance with Schedule 6, Condition 9" to the Licence condition for the Ammonia Management Plan.	**Aug 23:** DDMI does not have any concerns with this addition.	
33	Part H, condition 20(d)	**Comment** Part H, condition 20(d) addresses weekly inspections of the Water Retention Dikes. Please note that this condition is numbered as Part H, condition 16(f) in DDMI's track-changed copy of the Licence included in Attachment 2. DDMI proposes amending this condition to read "weekly inspections of the Water Retention Dikes and Processed Kimberlite and decant water pipeline(s) for the [M]ine [W]orkings shall be conducted and the records of these inspections and all monitoring records shall be kept for review upon request	**Aug 23:** Inspection of water retention dikes is not in reference to this Amendment and is already required in the license. The intent of this update is to add inspection requirements for the proposed Processed Kimberlite pipeline(s), and Decant Water pipeline(s).	

		of an Inspector." **Recommendation** Can DDMI clarify if it means to propose that weekly inspections would be done for the following three components: Water Retention Dikes, Processed Kimberlite pipeline(s), and Decant Water pipeline(s)?		
34	Schedule 6, condition 2 – Operational Water Elevation Limit	**Comment** Section 4.4.3 of Attachment 1 of DDMI's Amendment Application discusses the need for establishing an operational water elevation limit within the mine workings to "ensure that water levels do not rise above a predetermined level that relates to the highest constructed bulk head elevation." This section also explains that an "operational water elevation limit would be required as part of Schedule 6" and that this "operational water elevation limit may change over time if/when additional bulk heads are constructed, and is therefore best established through Schedule 6 and the associated facility plan that would be reviewed through the Board's process." The proposed amendments provided by DDMI in Attachment 2 of the Application show the inclusion of a new condition (i.e., Part H, condition 16(e) in DDMI's track-changed copy of the Licence) related to the establishment of the operational water elevation limit in the Mine Workings. This new condition references Schedule 6 as the location where the operational water limit is established. The proposed amendments provided by DDMI in Attachment 2, however, do not appear to include the requirement for an operational water elevation as part of Schedule 6, condition 2 (i.e., the requirements for the PKC Plan: PKC Facility and Mine Workings). **Recommendation** 1) Clarify how the requirement for an operational water elevation limit has been included as part of DDMI's proposed amendments to Schedule 6. If not included, please describe how DDMI believes this should be included. (2) Estimate how many times DDMI would likely request a change to the operational water elevation limit and provide a likely schedule for when these requests would be submitted to the Board.	**Aug 23:** 1) DDMI suggests a new condition is added to Schedule 6 Item 2 such as: "Identification of the operational water elevation limit in the PKC Mine Workings, along with supporting rationale". 2) It is likely that changes to the operational water elevation limit would be required if PKC slimes were added to the mine workings. Any such request would be submitted along with the necessary revisions to the PKC Plan and the supporting rationale would be included.	
35	Part H, new condition for Seepage through the bulkhead(s)	**Comment** DDMI proposes adding a new condition (i.e., Part H, condition 16(h) in DDMI's track-changed copy of the Licence included in Attachment 2) related to the Engineering Standards for Water Retention Dikes. This new conditions reads: "any Decant [W]ater or Seepage water that passes through the bulkhead(s) shall be collected and directed to the Process Plant or North Inlet prior to being sent to treatment." **Recommendation** Can DDMI clarify if "sent to treatment" means sent to the North Inlet Water Treatment Plant (NIWTP)?	**Aug 23:** Yes, "sent to treatment" means being sent to the North Inlet Water Treatment Plant (NIWTP).	
36	Part H, conditions relating to inspections (i.e., 20(g), 21(f), 22(f), and (23(f).	**Comment** In these conditions regarding various inspection reports, DDMI proposes to clarify the submission deadline by including that the reports are due within 90 days of "completing" the inspection. Please note that these conditions are numbered as Part H, conditions 16(i), 17(h), 18(f), and 19(f) in DDMI's track-changed copy of the Licence included in Attachment 2. **Recommendation** 1) Provide rationale for why "completing" was added to these conditions. (2) Explain/clarify how and when the inspection will be deemed "complete".	**Aug 23:** 1) The addition of 'completing' clarifies that the report is due 90 days after the inspection is complete, rather than 90 days after the inspection begins. 2) The inspection is considered complete as determined by the inspecting Geotechnical Engineer.	
37	Part H, condition 21(a)	**Comment** Part H, condition 21(a) addresses the Freeboard limit of the spillway for the Processed Kimberlite Containment Facility. Please note that this condition is numbered as Part H, condition 17(a) in DDMI's track-changed copy of the Licence included in Attachment 2. DDMI proposes edits to this condition to reflect the Board's Decision from April, 2017. In its decision, the Board approved the modification and the revised Freeboard limit, stating: "The Licensee shall operate and maintain the Processed Kimberlite Containment	**Aug 23:** DDMI acknowledges this inconsistency with the April 2017 Board directive and recommends the text "or of the engineered emergency Spillway, whichever is lower" be removed to better align with the directive.	

		Facility to engineering standards such that a minimum Freeboard limit of 0.4 metres below the lowest surveyed point of the dam crest liner shall be maintained at all times; or as recommended by a Geotechnical Engineer and as approved by the Board." In DDMI's track-changed version, the condition reads as follows: "The Licensee shall operate and maintain the Processed Kimberlite Containment Facility to engineering standards such that a minimum Freeboard limit of 0.4 metres below the lowest surveyed point of the dam crest liner or of the engineered emergency Spillway, whichever is lower, shall be maintained at all times; or as recommended by a Geotechnical Engineer and as approved by the Board." The Board's decision did not include the "or of the engineered emergency Spillway, whichever is lower". **Recommendation** Please provide rationale for why the following text is being proposed for retention: "or of the engineered emergency Spillway, whichever is lower."		
38	Part H, new conditions for water against the PKC Dams	**Comment** DDMI proposes adding two new conditions (i.e., Part H, conditions 17(b) and 17(c) in DDMI's track-changed copy of the Licence included in Attachment 2) related to water against the PKC Dams. These conditions reflect the Board's recent Decision (issued May 15, 2018) regarding approval of water accumulation against the PKC Dams under Part F, condition 9 of the Licence. These two proposed conditions include a reference to additional requirements for when/how to report instances of accumulated water (i.e., requirement to immediately notify the Inspector and the Board, and the information to be included in the Engineer's Report of the annual PKC Dam inspection). The references to the reporting requirements are done by referencing Schedule 6 of the Licence within the two proposed conditions; however, in the track-changed copy of the Licence provided by DDMI, these reporting requirements have been added to Schedule 5, condition 2 (i.e., the requirements for the PKC Design Report). **Recommendation** (1) Can DDMI confirm if it intended to propose the reporting requirements for water against the PKC dams as part of Schedule 5 or Schedule 6? If it meant to include it as part of Schedule 6, please confirm where in Schedule 6 DDMI believes these should go (e.g., as part of the requirements for the PKC Facility Plan?) (2) Why does DDMI believe that the requirement to notify the Inspector and the Board should be included in a Schedule rather than in the main body of the Licence under Part H? (3) Why does DDMI believe that the reporting requirements (i.e., date, location, duration, depth, etc....) of water accumulation against the PKC Dams should be included in a Schedule rather than in the main body of the Licence under Part H?	**Aug 23:** 1) DDMI confirms that the intention was to include the proposed text in Schedule 6 Item 2 as part of the requirements for the PKC Plan. Please refer to Attachment-B for an update version of Schedules 5 and 6. 2) DDMI recommends this requirement remain in the Schedule, not the main body of the License, so that future updates may be completed without the need for a License Amendment. These are new requirements based on the current PKC Facility and PKC Facility design updates may identify a need to revise these requirements. Please also refer to the response to ENR-12. 3) See response (2).	
39	Part H, condition 21(d)	**Comment** Part H, condition 21(d) reads: "The Licensee shall operate and maintain the Processed Kimberlite Containment Facility to engineering standards such that the solids fraction of all Processed Kimberlite shall be deposited and permanently contained within the Processed Kimberlite Facility". Please note that this condition is numbered as Part H, condition 17(f) in DDMI's track-changed copy of the Licence included in Attachment 2. DDMI proposes to modify this condition to remove "all" from in front of "Processed Kimberlite" and to add "or Mine Workings" to the end of the condition. The rationale for the removal of "all" is not provided and is thus not clear. **Recommendation** Provide rationale for the removal of "all" from this condition.	**Aug 23:** Should this amendment be approved, Processed Kimberlite would be contained within the PKCF and the Mine Workings, so not 'all' PK would be deposited within the PKCF, therefore DDMI suggests removing the word 'all' from this Item.	
40	Part H, condition 25	**Comment** Part H, condition 25 outlines the submission deadline for the Dam Safety Review Report. Please note that this condition is numbered as Part H, condition 21 in DDMI's track-changed copy of the Licence included in	**Aug 23:** DDMI misunderstood the intent of the requirements outlined in Part H Item 24 and suggests that the original wording from the Water License be maintained.	

		Attachment 2. DDMI proposes to amend this condition by stating that the Dam Safety Review shall be completed prior to December 31 of the inspection year. The requirement for the Dam Safety Review to take place by December 31 is already included in the Licence (i.e., via Part H, condition 24), thus it's not clear what DDMI is attempting to clarify. **Recommendation** Is DDMI suggesting that the Dam Safety Review Report and the Implementations Plan will be submitted by December 31 of the inspection year? If not, DDMI's proposed amendment appears to remove a submission deadline for this requirement. If that's the case, please indicate, with rationale, what submission deadline DDMI believes is appropriate for the Dam Safety Review Report and the Implementation Plan.		
41	Part J, condition 2	**Comment** DDMI proposes to amend Part J, condition 2 to specify that defined Action Levels be included within the Response Framework. This Licence condition currently makes reference to Schedule 8, condition 1, which includes a description of the requirements of the Response Framework to be included in the AEMP Design. These requirements include the definition of Action Levels. Thus, it would appear that including the requirement for Action Levels within the Licence condition itself may be redundant. **Recommendation** Can DDMI provide rationale for the addition of 'with defined Action Levels' to this condition, given that this requirement is already included in Schedule 8, condition 1?	**Aug 23:** DDMI agrees the inclusion of this wording is redundant and suggests it is omitted.	
42	Part J, new condition for the Reference Conditions Report	**Comment** DDMI proposes adding a new condition (i.e., Part J, condition 3 in DDMI's track-changed copy of the Licence included in Attachment 2) related to the use of the Reference Conditions Report in the Action Level evaluation. **Recommendation** (1) Can DDMI provide further rationale for the addition of this new condition? (2) Can DDMI foresee a situation where the use of normal ranges (as defined in the Reference Conditions Report) would not be used in Action Level evaluation?	**Aug 23:** 1) The Reference Conditions Report is the approved methodology to evaluate AEMP action levels and was required at the Board's direction. 2) DDMI notes that some higher action levels do not use the normal range. For instance action level 5 for water chemistry references the effects threshold and not the normal range. Therefor DDMI suggest the addition of 'where applicable' to the end of Part H Item 4 in DDMI's track-changed copy of the Licence included as Attachment 2.	
43	Part J, condition 5	**Comment** Part J, condition 5 addresses the requirement for Special Effects Study Reports including, but not limited to, those outlined in Schedule 8, condition 2. Please note that this condition is numbered as Part H, condition 6 in DDMI's track-changed copy of the Licence included in Attachment 2. DDMI proposes to remove this condition because the "originally identified Special Effects Studies were completed and this reference is no longer required for compliance purposes. Additionally, the requirement for an AEMP Response Framework and Response Plans would identify any follow up or special studies required." Under the Licence, Response Plans are required when certain Action Levels are triggered. Not all variables monitored through the AEMP have associated Action Level triggers; thus, it seems possible that some results from the AEMP could lead to the requirement for a Special Effects Study without being identified via a Response Plan. **Recommendation** Can DDMI provide further rationale for the removal of this condition? If the current list of studies provided in Schedule 8, condition 2 was removed, can DDMI identify any concerns/disadvantages with retaining Part J, condition 5 in the Licence?	**Aug 23:** DDMI maintains that the response framework and plans would identify the majority of variables requiring a response, and the Board retains the authority to direct DDMI to conduct follow up studies that may be warranted outside of the response plans. Given that all the studies listed in Schedule 8 Item 2 are complete and any relevant results have been incorporated into the AEMP Design and reporting process, DDMI does not see any purpose in retaining these items for compliance purposes. It is DDMI's opinion that retaining Part J Item 5 is not necessary and does not add value.	
44	Removal of Plans and Reports	**Comment** DDMI has proposed removing conditions in the Licence that require the submission of some Reports and Plans based on the rationale that the requirement and/or activity is complete. Specifically, these include: the requirement for the A21 Dewatering Report under Part E, condition 6; the requirement for the A21 Construction Environmental Management Plan under Part F, condition 11; and the requirement for the Special Effects	**Aug 23:** DDMI reviewed all plans and reports within the license when preparing this amendment. Many historical references were retained for compliance purposes, even if the document itself is no longer required. Those that were suggested for removal are seen as complete and no longer requiring an assessment of compliance. Therefore we do not believe any other plan or report requirements should be removed from the License.	

		Study Reports under Part J, condition 5. **Recommendation** Are there any other reports or plans within the Licence that DDMI believes should be removed based on similar rationale? If so, please provide a list and detailed rationale.		
45	Schedule 5, condition 2	**Comment** Schedule 5, condition 2 of the Licence includes the requirements for the Processed Kimberlite Containment (PKC) Facility Design Report. Please note that this condition is numbered as Schedule 5, condition 2(a) in DDMI's track-changed copy of the Licence included in Attachment 2. The requirements in Attachment 2 do not match those of the current Licence; conditions 2(a-i) to 2(a-xi) of DDMI's track-changed version of Schedule 5 appear to repeat the requirements of the PKC Facility Plan listed under Schedule 6, condition 2. In addition, DDMI has proposed the addition of Schedule 5, condition 2(a-xiii), regarding contingencies for ponded water, to reflect the Board's recent Decision (issued May 15, 2018) for water against the PKC Dams. The Board's Decision, however, directed DDMI to include this information as part of the PKC Facility Plan. **Recommendation** (1) Please confirm whether the suggested track-changes for Schedule 5, conditions 2(a-i) to 2(a-xi) are intentional. If so, please provide rationale for each change to the Schedule requirements for the PKC Facility Design Report. (2) Please confirm whether the suggested inclusion of Schedule 5, condition 2(a-xiii) is intentional? If so, please provide rationale for why DDMI believes this requirement should be addressed through the PKC Design Report. If not, please indicate if DDMI intended to propose this as a requirement for the PKC Facility Plan.	**Aug 23:** DDMI acknowledges this error and confirms this information was intended for inclusion in the PKC Plan. Please refer to Attachment-B for an updated version of the suggested revisions to Schedule 5 Item 2 and Schedule 6 Item 2.	
46	Schedule 5, requirements for Processed Kimberlite Containment in Mine Workings Design Report.	**Comment** As part of DDMI's Amendment Application, DDMI proposes the inclusion of a "Processed Kimberlite Containment in Mine Workings Design Report", with requirements outlined in Schedule 5, condition 2(b) of the track-changed copy of the Licence provided in Attachment 2. **Recommendation** (1) Given the potential error with the management plan requirements for the PKC Facility outlined in the previous question, can DDMI confirm that these are the intended requirements being proposed by DDMI for the PKC in Mine Workings Design Report? (2) If these are to be the Design Report requirements for PKC Containment in Mine Workings, does DDMI believe this to be a complete list?	**Aug 23:** 1) DDMI confirms these are the intended requirements proposed for the PKC in Mine Workings Design Report. 2) Currently DDMI considers this to be a complete list, however DDMI acknowledges that the Amendment process may identify the need for additional items.	
47	Schedule 6, condition 2(a,b) - "process Waste"	**Comment** Schedule 6, condition 2 includes the requirements for the PKC Facility Plan. DDMI proposes a number of updates to this list based on its proposal to modify this plan to include PK containment within both the PKC Facility and Mine Workings. As part of these updates, DDMI proposes to edit Schedule 6, condition 2(a) and (b). These two conditions address the plan's need to (a) provide a description of the sources and types of Waste and wastewater to be deposited; and (b) a description of any proposed treatment of the Waste or wastewater prior its discharge to the facility or Mine Workings. DDMI proposes adding the qualifier "process" prior to "Waste and wastewater"; however, it is not clear why this distinction is necessary. **Recommendation** Can DDMI clarify why it believes the qualifier "process" needs to be added before "Waste and wastewater" in Schedule 6, condition 2a and b? Are there not any other types of Waste that may need to be, or have been deposited, in the PKC Facility?	**Aug 23:** The PKC Plan only covers process waste or wastewater deposition in the PKC Facility or Mine Workings. If other waste streams are deposited in the PKC Facility the depostion is managed through approvals under the relevant management plan, e.g. Waste Management Plan.	
48	Schedule 1 and SNP updates	**Comment** In Section 4.4 of Attachment 1, DDMI describes a number of cases where new/additional information would be reported/required as part of the Annual Water Licence Report or the Surveillance Network	**Aug 23:** DDMI believes that the information provided in Section 4.4 of Attachment 1 includes a complete list of all potential changes to Schedule 1 and Annex 1 of the Licence. Schedule updates and SNP amendments can	

		Program (SNP) (e.g., PKC tonnage disposal to mine workings, decant water levels, PK solids level, new SNP station to measure decant water quality in the mine workings). DDMI did not, however, provide a proposed update to Schedule 1 (i.e., the requirements for the Annual Water Licence Report) or to Annex 1 (i.e., the SNP). **Recommendation** Does DDMI believe that that information provided in Section 4.4 of Attachment 1 includes a complete list of all potential changes to Schedule 1 and Annex 1 of the Licence required to support the proposed amendment?	be completed with the WLWB at any time and DDMI suggests that it is more appropriate to update Schedule 1 and Annex 1 in tandem with the submission of the PKC Plan, recognizing that other items may be identified during the Amendment process.	
49	Updates to Management Plans	**Comment** Section 4.4.1 of Attachment 1 provides information about revisions to management plans that would be required to address the proposed amendment. DDMI has indicated that changes would be required to the Water Management Plan, the Waste Management Plan, the PKC Facility Plan, and the Contingency Plan. In this section, Diavik "suggests that updates to the relevant management and facility plan could be postponed until the deposition of PK into the mine workings is approved." **Recommendation** (1) Provide a more comprehensive list of the changes that would be required to the various management plans to support the proposed changes in PK deposition. (2) Does DDMI believe that any of these changes require an update to the relevant management plan requirements outlined in Schedule 6? If so, please outline what these proposed updates would be.	**Aug 23:** 1) DDMI expects that reviewers may identify additional updates to other Schedules/Annex 1 through the Amendment process. DDMI prefers that the list of changes required to various management plans be developed through the Amendment process. DDMI notes that ENR appears to be in agreement with this approach (please refer to ENR-2), given that at this time DDMI is requesting support for the concept, the regulatory mechanism to permit the option and clarity on additional information, conditions, approvals and timelines required. 2) At this time, DDMI does not believe that additional changes to Schedule 6 requirements are neccessary beyond what is already proposed in the Amendment. Part B Item 10 also allows for modifications to the SNP/schedule/compliance dates at the discretion of the Board and DDMI suggests that, if these are required, they would be more appropriate to complete in tandem with the submission of the PKC Plan.	
50	Schedule updates – General	**Comment** As part of this Amendment Application, DDMI has included "additional administrative updates which are not a part of this project description". These proposed updates are included as track-changes throughout Attachment 2. The updates proposed by DDMI focus on changes to the main body of the Licence. Suggested changes to the Schedules have only been provided for Schedules 5 and 6 and are related to the proposed changes for PK deposition. **Recommendation** Does DDMI believe that there are any other changes to the Licence's Schedules or SNP that are required to address any outstanding administrative updates? If so, please include a list, with rationale for each additional proposed update.	**Aug 23:** DDMI does not believe that there are any further updates to the Licence's Schedules or SNP at this time.	