May 28, 2018

Mr. Sean Sinclair
Superintendent – Environment, HSE
P. O. Box 2498, 300-5201 50th Ave
Yellowknife, X1A 2P8

Dear Mr. Sinclair,

Re: Diavik’s PKC Facility Plan Version 4

The Wek’èezhii Land and Water Board met on May 17, 2018 to consider Version 4 of Diavik Diamond Mines (2012) Inc.’s (DDMI’s) Processed Kimberlite Containment (PKC) Facility Plan which was submitted under Part H, Conditions 4 and 12 of Water Licence W2015L2-0001 (the Licence).¹

As described in the attached Reasons for Decision, the Board has approved Version 4 of the PKC Facility Plan with revisions. Diavik is to work with Board staff to develop a timeline for the submission of the required revisions.

Sincerely,

Joseph Mackenzie
Acting Chair, Wek’èezhii Land and Water Board

Copied: Diavik Distribution List

¹ See WLWB Online Registry for Diavik - Water Licence - Schedule 1 and Schedule 6 Updates - Dec 13_17
Reasons for Decision

<table>
<thead>
<tr>
<th>Reference/File Number:</th>
<th>W2015L2-0001 (Type “A” Water Licence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject:</td>
<td>Processed Kimberlite Containment Facility Plan Version 4</td>
</tr>
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Decision from the Wek’èezhìi Land and Water Board
Meeting of May 17, 2018

1.0 Decision

On May 17, 2018, the Wek’èezhìi Land and Water Board (the Board) met to consider Version 4 of Diavik Diamond Mines (2012) Inc.’s (DDMI’s) Processed Kimberlite Containment (PKC) Facility Plan for approval. The Plan was submitted under Part H, Conditions 4 and 12 of Water Licence W2015L2-0001 (the Licence).  

The Board has decided to:

1. Approve DDMI’s PKC Facility Plan Version 4;
2. Require DDMI to replace the statement in Section 3.3.4 of the PKC Facility Plan that “Any water removed from the wells on the East PKCF Dam is either pumped directly or indirectly to the North Inlet or returned to the PKCF via the Process Plant or direct discharge” with “Any water removed from the wells on the East PKCF Dam is either pumped directly or indirectly to the North Inlet or returned to the PKCF directly or via the Process Plant”;
3. Require DDMI to delete the following from the PKC Facility Plan: “If DDMI identifies the need to move water from the PKCF during operations, water pumped from the PKCF pond for release to the receiving environment will meet all applicable effluent quality criteria specified in the Type A Water License W2015L2-0001”;
4. Require DDMI to add the following statement to the PKC Facility Plan: “The PKC pond water would not rise above the FPK beaches or the perimeter CPK berm, with the

1 See WLWB Online Registry for Diavik - Water Licence - Schedule 1 and Schedule 6 Updates - Dec 13 17
exception of a runoff event in excess of the design flood event. FPK is deposited downstream of the approximately 100 m wide CPK berms that line the perimeter of the PKC Facility, so the pond would not accumulate against the dams and would remain, on average, a minimum of approximately 100 m from the dam at NOWL 464.6 m”;
5. Require DDMI to replace all instances of “potential seepage” or “potential PKCF dam seepage” in the PKC Facility Plan with “PKC interception well water”; and
6. Require DDMI to work with staff on a submission deadline for Version 4.1. The Board believes that it would be most efficient if the required revisions are submitted prior to or along with an amendment application pertaining to processed kimberlite management.

2.0 Background

The Board approved Version 3.2 of the PKC Facility Plan on June 13, 2017.2 DDMI submitted Version 4 of its PKC Facility Plan on March 2, 2018. Version 4 addresses outstanding requirements from previous Board directives (i.e., January 31, 2017,3 April 20, 2017,4 and June 19, 20175) and operational updates, such as adoption of the PK Trial methods into operations. The Plan also contains information related to DDMI’s request for accumulation of water against the PKC Facility Dams submitted on February 6, 2018.6

The PKC Facility Plan Version 4 was distributed for public review on March 14, 2018 with reviewer comments due April 10, 2018 and proponent responses due April 17, 2018. Comments were received from the Government of the Northwest Territories–Environment and Natural Resources (GNWT-ENR). Board staff also submitted comments on the submission. Environment and Climate Change Canada (ECCC) and the Department of Fisheries and Oceans (DFO) acknowledged receipt of the submission but responded that they had no comments. Proponent responses were submitted on April 12, 2018. Reviewer comments and recommendations, as well as the proponent’s responses, are available on the WLWB Online Registry (see Review Summary and Attachments).7

3.0 Reasons for Decision

The Board is of the view that DDMI was very thorough in ensuring that the Plan was updated to reflect current operations and was diligent in ensuring the Water Licence and previous Board Directives were fulfilled. This quality of submission results in a more efficient public review; there were few reviewer recommendations for improving the Plan and reviewers did not express any serious concerns.

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2 See WLWB Online Registry for Diavik - Water Licence - Schedule 1 and Schedule 6 Updates - Dec 13_17
3 See WLWB Online Registry for Diavik - Mount Polley Report Evaluation - Board Directive - Jan 31_17
4 See WLWB Online Registry for Diavik - Modification - PKC - Spillway and Freeboard Limit - Directive and Reasons for Decision - Apr 20_17
5 See WLWB Online Registry for Diavik - Management Plan Revisions to Support A21 Dike Construction - Board Directive and RFD - Jun 19_17
6 See WLWB Online Registry for Diavik - Ponded Water Against the PKC Dams - Clarification and Request for Board Approval - Feb 6_18
7 See WLWB Online Registry for Diavik - PKC Facility Plan - Version 4 - Review Summary and Attachments - Mar 9_18
**Decision #1. The Board has decided to approve DDMI’s PKC Facility Plan Version 4.**

The Reasons for this decision are:

1. The Plan conforms to Part H, Condition 4 and Schedule 6, Item 2 of W2015L2-0001.

2. DDMI met the Board’s requirements in the January 31, 2017, April 20, 2017, and June 19, 2017 Directives, except in a few cases. The Board confirmed that these exceptions were justified; as described in Table 1.

<table>
<thead>
<tr>
<th>Requirement Not Fully Met</th>
<th>Reason that the Board Concluded DDMI is Justified in Not Fully Meeting the Requirement</th>
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<tbody>
<tr>
<td>A statement that DDMI will maintain PKC Facility dam slopes at a beach slope of about 3% (April 20, 2017 Board Directive; Requirement 1c).</td>
<td>The requirement for a 3% slope stemmed from DDMI’s request for a spillway modification and freeboard limit reduction, which stated: Golder recommends reducing the normal and minimum freeboard requirements for the PKC Facility by maintaining the PKC Pond in a centralized location with FPK beaches around the PKC Facility’s entire perimeter. This would require approximately 10 m to 20 m long FPK beaches between the PKC Pond and the PKC Facility dam slopes at a beach slope of about 3%. The OMS Manual should include a review of FPK beach development as the pond exceeds an elevation of 462 m to confirm beaches are developed and maintained, or can be developed and maintained to meet the assumptions used to calculate freeboard presented in Table 4.8 Although the slope angle is not as steep (2.5% instead of 3%), the beach lengths are now a minimum of 100 m instead of 10 to 20 m. This increased beach length significantly offsets the reduction in the slope angle from 3% to 2.5%. It is the Board’s understanding that DDMI has been in compliance with the Board’s directives since 2016, and the PKC has been operating in accordance with requirements outlined in their OMS manual over the same period, as no evidence has been presented to the contrary. The Board concludes that DDMI’s commitment to maintain beaches at a 2.5 to 3% slope is appropriate.</td>
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<tr>
<td>A commitment to provide an updated stage-volume curve for the PKC Facility in the Annual Water Licence Report in the PKC Facility Plan Version 4. (April 20, 2017 Board Directive; part of Requirement 1f).</td>
<td>During the public review, DDMI was questioned on this omission (WLWB staff comment 4). DDMI responded as follows: DDMI apologizes that the text to provide an updated stage-volume curve for the PKC Facility in the Annual Water Licence Report was inadvertently omitted from Section 3.6 of the PKC Facility Plan V4. However, DDMI has included this commitment in the Schedule 1...</td>
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</tbody>
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8 See WLWB Online Registry for [Diavik - Modification - Processed Kimberlite Containment Facility - Spillway and Freeboard Limit - Dec 10_15.pdf](#)
3.1 Recommended Revisions

The Board has identified four required revisions to the PKC Facility Plan. The first relates to the discharge of water collected from the wells in the PKC dams. DDMI was asked to explain the following statement in Section 3.3.4, regarding PKC water collected in DDMI’s interception wells:

> Any water removed from the wells on the East PKCF Dam is either pumped directly or indirectly to the North Inlet or returned to the PKCF via the Process Plant or direct discharge.

Version 14.1 of the Water Management Plan does not list this as an authorized discharge in Section 1.4, and DDMI was asked to confirm where DDMI discharges this water to verify that the water is not directly discharged to the receiving environment (WLWB comment 3). DDMI responded that the water is not directly discharged to the Receiving Environment; it is returned to the PKC Facility directly or via the Process Plant. DDMI suggested that the PKC Facility Plan be revised to include this clarification, and the Board agrees.

**Decision #2. The Board requires DDMI to replace the statement in Section 3.3.4 of the PKC Facility Plan that “Any water removed from the wells on the East PKCF Dam is either pumped directly or indirectly to the North Inlet or returned to the PKCF via the Process Plant or direct discharge” with “Any water removed from the wells on the East PKCF Dam is either pumped directly or indirectly to the North Inlet or returned to the PKCF directly or via the Process Plant.”**

Second, the Board notes the following on page 20 of Version 4 of the PKC Facility Plan:

> If DDMI identifies the need to move water from the PKCF during operations, water pumped from the PKCF pond for release to the receiving environment will meet all applicable effluent quality criteria specified in the Type A Water License W2015L2-0001.

Again, Version 14.1 of the Water Management Plan does not list this as an authorized discharge in Section 1.4. DDMI was asked to clarify this apparent discrepancy and responded as follows:

> This statement was included in the PKCF Plan V4 to address Schedule 6 Item 2(b) which requests a description of any proposed physical or chemical treatment of Waste or wastewater prior to Discharge from the PKC Treatment Facility to the Receiving

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9 See WLWB Online Registry for [Diavik - Water Management Plan - Version 14.1 - Mar 6_18](#).

10 See WLWB Online Registry for [Diavik - PKC Facility Plan - Version 4 - Review Summary and Attachments - Mar 9_18](#).
Environment. It is not something that has been done during operations and DDMI does not wish to include this option in the list of authorized discharges and would prefer to omit this sentence from the PKCF Plan V4.

The Board agrees that this statement should be deleted from the PCK Facility Plan.

**Decision #3. The Board requires DDMI to delete the following from the PKC Facility Plan: “If DDMI identifies the need to move water from the PKCF during operations, water pumped from the PKCF pond for release to the receiving environment will meet all applicable effluent quality criteria specified in the Type A Water License W2015L2-0001.”**

Similarly, as part of the assessment of numerous related submissions, Board staff requested clarification from DDMI regarding water levels and the accumulation of water against the dams later in the life of the PKC Facility. DDMI was asked the following:

The Board’s April 20, 2017 approval of DDMI’s PKC spillway modification and freeboard limit was on condition that DDMI revise the Water Management Plan and the PKC Facility Plan. Since that directive, DDMI has requested permission to temporarily accumulate water against the dams under certain conditions. As noted in Version 14.1 of the WMP and Version 4 of the PKC Facility Plan, the normal operating water level (NOWL) will be at an elevation of 464.6 m. This is also the elevation of the spillway invert, per DDMI’s December 10, 2015 spillway modification request. To ensure the Board understands how the restrictions around water accumulation relate to the PKC Facility Plan, the spillway modification, and the Water Management Plan, please answer the following: when the PKC pond water level is at the NOWL (464.6 m), will beaches between the pond and the dams be maintained, or will the PKC pond accumulate against the dams when the pond is at the NOWL?11

DDMI responded that:

The PKC pond water would not rise above the FPK beaches or the perimeter CPK berm, with the exception of a runoff event in excess of the design flood event. FPK is deposited downstream of the approximately 100 m wide CPK berms that line the perimeter of the PKC Facility, so the pond would not accumulate against the dams and would remain, on average, a minimum of approximately 100 m from the dam at NOWL 464.6 m.12

The Board believes that DDMI has adequately addressed this issue, and that this clarification should be added to the PKC Facility Plan.

**Decision #4. The Board requires DDMI to add the following statement to the PKC Facility Plan: “When the PKC pond water level is at the NOWL (464.6 m), the PKC pond water would not rise above the FPK beaches or the perimeter CPK berm, with the exception of a runoff event in excess of the design flood event. FPK is deposited downstream of the approximately 100 m wide CPK berms that line the perimeter of the PKC Facility, so the pond would not accumulate**

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11 See WLWB Online Registry for Diavik - PKC Facility Plan - Version 4 - Follow-up Correspondence - May 3, 2018
12 See WLWB Online Registry for Diavik - PKC Facility Plan - Version 4 - Follow-up Correspondence - May 3, 2018
against the dams and would remain, on average, a minimum of approximately 100 m from the dam at NOWL 464.6 m.”

Finally, in the PKC Facility Plan, DDMI modified the terminology for the water collecting in the PKC interception wells located within the PKC Facility Dams. In the previous PKC Facility Plan, DDMI referred to the water in these wells as “PKC Seepage”; in the current PKC Facility Plan DDMI refers to this water as “potential Seepage”. In email correspondence, DDMI provided rationale that this water is actually not Seepage as per the Licence definition since the water does not move through the PKC Facility Dam but is intercepted by the wells in the Dams.13 The Board agrees with DDMI’s conclusions that water collected in the interception wells is not PKC Seepage. To prevent any future confusion about whether this water is Seepage or not, the term for this water should be unambiguous. The Board requires that the term “potential seepage” be changed to “PKC interception well water”.

**Decision #5. The Board requires DDMI to replace all instances of “potential seepage” or “potential PKCF dam seepage” in the PKC Facility Plan to “PKC interception well water”.

3.2 Timing of the Revised PKC Facility Plan

At its April 25, 2018 Board meeting, the Board decided that revisions to the PKC Facility Plan were required to reflect the Board’s approval of temporary accumulation of water against the PKC dams. At that time, the Board decided that those revisions would not be required until the Board reviewed Version 4 of the PKC Facility Plan. The Board also indicated that after reviewing PKC Facility Plan Version 4, it would set a deadline for a revised PKC Facility Plan (Version 5).

DDMI has informed the Board that it will be submitting a Water Licence amendment application as early as this month (i.e., May 2018), which will include proposed amendments to the management of processed kimberlite. The Board is of the view that reviewers and the Board would benefit from a fully up-to-date version of the PKC Facility Plan prior to or with the amendment application.

**Decision #6. The Board requires DDMI to work with staff on a submission deadline. The Board believes that it would be most efficient if the required revisions are submitted along with or prior to an amendment application pertaining to processed kimberlite management.

13 See WLWB Online Registry for Diavik - Water Management Plan - Version 14.1 - Review Summary and Attachments - May 8, 18
Signed the 28th Day of May 2018, on behalf of the Wek’èezhii Land and Water Board

Witness

Joseph Mackenzie
Acting Chair, Wek’èezhii Land and Water Board