Wek'èezhìi Land and Water Board

Box 32, Wekweètì, NT X0E 1W0
Tel: 867-713-2500 Fax: 867-713-2502

#1-4905 48th Street, Yellowknife, NT X1A 3S3
Tel: 867-765-4592 Fax: 867-765-4593
www.wlwb.ca

January 23, 2019 File: W2015L2-0001

To all Parties,

Re: Information Requests Resulting from Diavik Diamond Mines (2012) Inc. Technical Session (PK to Mine Workings Amendment Application for W2015L2-0001)

The Wek'èezhìi Land and Water Board (WLWB) would like to thank all Parties who participated in the Technical Session from January 16-17, 2019, to discuss Diavik Diamond Mines (2012) Inc.'s (DDMI) Processed Kimberlite (PK) to Mine Workings Amendment Application for Water Licence W2015L2-0001. The session was beneficial in helping to identify and clarify issues raised by Parties in the review of the Amendment Application and has contributed to a better understanding of the information on the record.

There were several requests for specific information made by Parties during the Technical Session. In an effort to ensure the necessary level of evidence is on the record so Parties can make informed submissions to the Board and allow the Board to make an informed decision, the WLWB is requesting the following information from the identified parties no later than February 11, 2019.

IR #1 for DDMI:
To provide an updated Table 8 (i.e., Table 8: A418 Potential Decant Volumes – 9,260 mRL from Attachment 1 of the Amendment Application) that provides operational water volume amounts based on a lower dry density of fine PK (based on a range of dry density estimates that is foreseeable in the future).

IR #2 for DDMI:
To provide the report on the fatal flaw assessment that was completed by DDMI. Alternatively, if it is not possible to provide the report, DDMI is to provide a detailed summary of the fatal flaw assessment including but not limited to: the objectives of the assessment; the methods used to conduct the assessment; an explanation of the flaws that were considered; the results of the fatal flaw assessment; and the conclusions drawn from the assessment. .

IR #3 for DDMI:
To provide volume estimates for the open space versus tunnels of the A418 Mine workings.

IR #4 for DDMI:
To provide an evaluation of the potential impacts on water quality, during operations and at closure, as a result of displacement of deposited PK materials throughout void spaces that may be created by incomplete filling of the mine tunnels.

IR #5 for DDMI:
To provide the results of the following modeling scenarios for A418:

Scenario 2-a: Base Case as described below:

- Water Cap Depth = 150 m
- Deposited PK volume = 5 Mm^3 (i.e., porewater volume from current consolidation model*0.17)[1]
- Porewater chemistry = 350 mg/L TDS (with other parameters based on a representative statistic on saturated PKC samples as presented in Moncur and Smith, 2014)[2]
- Reclaim pond size = based on a depth of 5 m (i.e., this is the depth of the pore water assumed to be sitting at the bottom of the pit before the filling period starts and which is expected to fully mix with the lake water used to fill the pit)

  Results to be presented:
  - Hydrodynamic results (presented for top section, 40m depth, and bottom section)
  - Concentrations of water quality constituents (including ammonia) in the event of unanticipated mixing at year 100.

Scenario 3-a: Base Case described in Scenario 2-a, with the following changes:

- Add an additional volume of 5 Mm^3 of PK slimes to the deposits (i.e., porewater volume from current consolidation model*0.34)
- Porewater chemistry = calculated based on the combined concentration of PK slimes and fine PK (50% of volume is fine PK and 50% of volume is PK slimes). The fine PK water TDS = 350 mg/L (with other parameters based on a representative statistic on saturated samples in Moncur and Smith 2014; PK slimes chemistry is to be extracted from representative porewater samples in Moncur and Smith, 2014).

  Results to be presented:
  - Hydrodynamic results (presented for top section, 40m depth, and bottom section)
  - Concentrations of water quality constituents (including ammonia) in the event of unanticipated mixing (confirm depth of water ≤150m)

Scenario 4-a: Base Case described in Scenario 2-a, with the following change:

- Update initial conditions to include a reclaim pond size based on a depth 15 m (i.e., this is the depth of the pore water assumed to be sitting at the bottom of the pit before the filling period starts and which is expected to fully mix with the lake water used to fill the pit).

  Results to be presented:
  - Hydrodynamic results (presented for top section, 40m depth, and bottom section)
  - Concentrations of water quality constituents (including ammonia) in the event of unanticipated mixing at year 100.

Scenario 5-a:
If scenario 2-a shows any exceedances under the unanticipated mixing conditions, DDMI is to model early closure based on a lower volume (2.5 Mm3) of deposited PK material.

If any water quality results from the above modeled scenarios show exceedances of any of the AEMP

[1] Current consolidation model refers to Development Case (Scenario 1a) presented in DDMI's Response to the WLWB Information Request, submitted by DDMI on November 6, 2018.

[2] Moncur, M.C. and Smith, L.J.D. 2014. Four-Year Hydrogeochemical Field Investigation of Processed Kimberlite Weathering at Diavik Diamond Mines Inc. Prepared for Diavik Diamond Mines Inc. October 2014.

benchmarks, DDMI is to: (1) describe the likelihood of such occurrences, and (2) describe proposed mitigations.

IR #6 for DFO:
To provide a copy of the relevant Diavik's Fisheries Act Authorization(s), follow-up correspondence related to any such Authorization(s), and the associated No-Net Loss Plan(s).

IR #7 for DDMI:
To provide an evaluation of potential impacts on all aquatic life as a result of the AEMP benchmark exceedances that are predicted to occur for a period of up to two years under the unanticipated mixing scenario (see exceedances predicted in response to EMAB-6b).

IR #8 for DDMI:
To provide a summary of available information and literature that supports egress behaviour by fish in response to adverse conditions (including low dissolved oxygen) and chemical avoidance behaviour by fish. This explanation is to include a consideration of the likelihood of fish to be able to escape through breaches in the dyke.

IR #9 for DDMI:
To summarize the rationale, with evidence, supporting DDMI's argument regarding limited use of the pit lake by fish at depths below 40 m. This is to include the results of DDMI's fish tagging study.

IR #10 for DDMI:
To confirm whether DDMI wishes for the Board to consider the re-mining of PK from the PKC Facility and the resulting implications to PKC Facility closure, as part of the current Amendment Application. If yes, DDMI is to provide sufficient information to allow the Board to conduct a preliminary screening, including but not limited to: a description of the proposed activities (e.g., description of procedures relating to re-mining and relocation of slimes, change of closure plan, etc.); an assessment of potential environmental and socio-economic impacts; and proposed and available mitigations related to this activity.

IR #11 for DDMI:
To provide an update to the "Studies and Report Schedule" that was provided as Attachment #10 in DDMI's responses to the public review of DDMI's Response to the WLWB Information Request, submitted by DDMI on January 8, 2019. This update is to include the two changes discussed during the Technical Session: (1) the removal of the fatal flaw assessment in 2020, and (2) the change in the PK lab consolidation testing results from H1 of 2019 to H2 of 2019.

IR #12 for DDMI:
To provide a list of the studies and plans currently included in Water Licence W2015L2-0001 that have been completed but are being proposed for retention by DDMI for compliance. DDMI is to provide rationale for why each of the studies and plans should be retained for compliance purposes.

IR #13 for GNWT:
To confirm if it is a position or view of the GNWT that it believes proposed activities that can be assessed and regulated by a single regulatory authority can be done without a referral to Environmental Assessment.

IR #14 for DDMI:
To outline its post-closure monitoring program and explain how it addresses PK deposition into Mine workings as proposed by DDMI in its Amendment Application.

IR #15 for All Parties:
To identify what additional information, if any, is necessary to inform the preliminary screening determination of the Amendment Application. If any, please provide rationale for why this information is needed.

In order to ensure the regulatory process proceeds efficiently, we ask that parties endeavor to submit the requested information as soon as possible to allow parties to begin preparing their interventions. As per the Work Plan,[3] all information requested must be submitted by February 11, 2019.

All information regarding this Water Licence Renewal application proceeding will be posted on the WLWB's Online Registry. If you have any questions, please contact Ryan Fequet at rfequet@wlwb.ca or 867-765-4589.

Sincerely,

Ryan Fequet,
Executive Director, WLWB

Copied to: Diavik Distribution List

[3] See WLWB Online Registry (www.wlwb.ca) for Diavik – WL Amendment Application – PK to Mine Workings – Updated Work Plan – Sep 27_18.pdf