

Environmental
Monitoring
Advisory Board

Intervention to the Wek'èezhìi Land and Water Board

Diavik Diamond Mines'
Water Licence Amendment
Application:

W2015L2-0001 Processed
Kimberlite to Mine Workings
Amendment

December 16, 2020

Introduction: Summary of Recommendations

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Introduction: Summary of Recommendations

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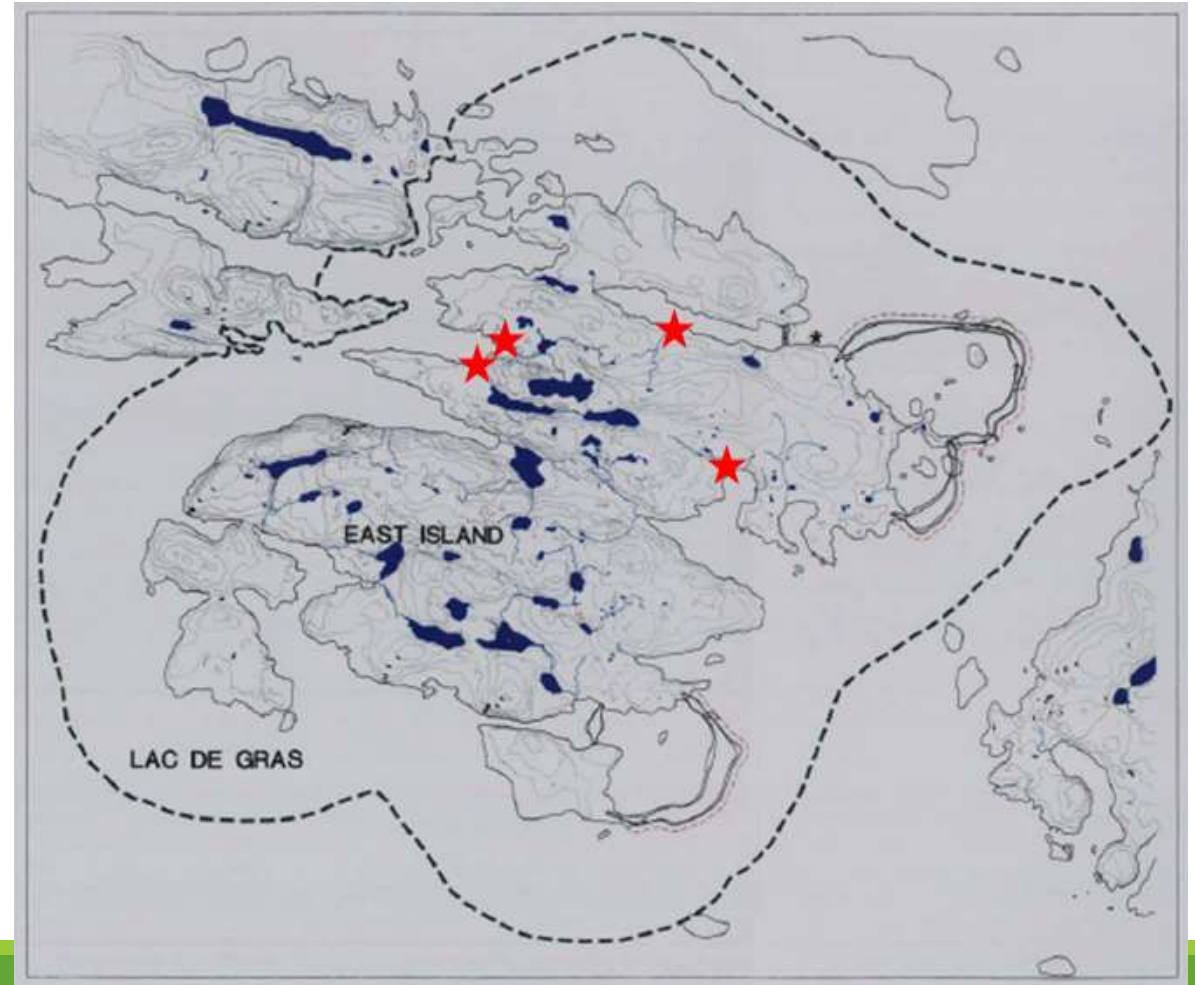
12. PK Slimes

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1. Water Quality Thresholds

Overview:

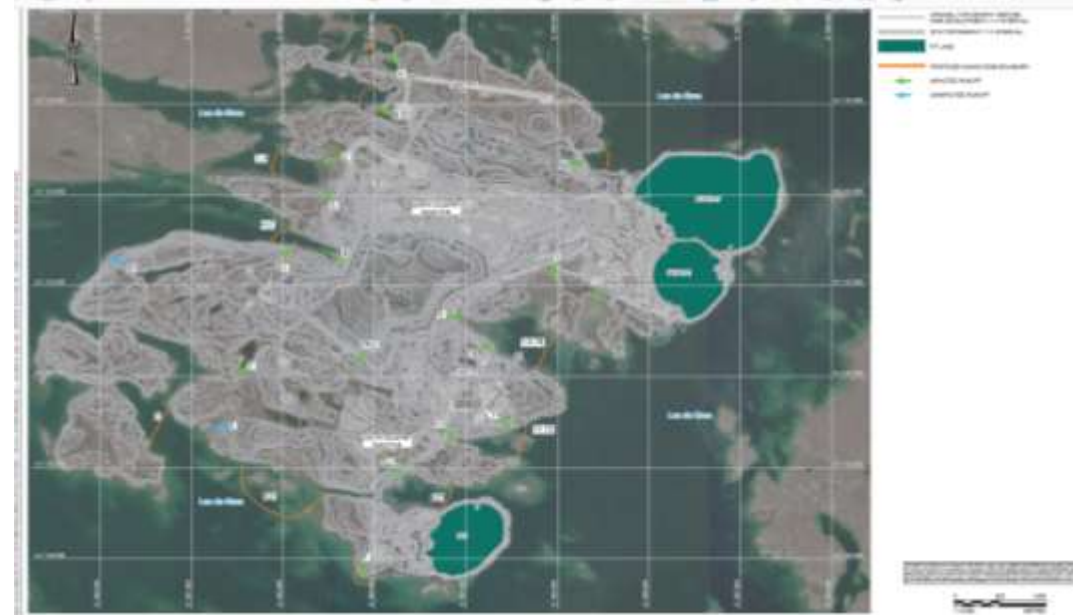
- Amendment Application and Summary Impact Statement (SIS) based on CSR definitions of significance
 - Outdated – WLWB has given direction regarding closure criterion SW2 and water quality (ICRP 4.0. Reasons for Decision)



1. Water Quality Thresholds

Summary of Recommendations:

1. Diavik should propose mixing zones in the pit lake as was done in ICRP 4.1.



2. Water quality in the pit lake(s) must meet AEMP Benchmarks to at least 40 meters, or lower if aquatic life is found at lower depths. Table 4-3 in the SIS should not apply to the application.

2. Reliability of Predictions

Overview:

- Updated water quality modelling addressed many concerns with previous modelling.
- A number of uncertainties with model inputs remain including:
 - Porewater chemistry
 - Suspended materials
- Sensitivity analyses limited
 - No “reasonable worst-case scenario” provided.

2. Reliability of Predictions

Summary of Recommendations:

1. Additional porewater characterization.
2. Additional model inputs.
3. Additional information about model inputs.
4. Provide predictions about exceedances throughout mixolimnion.
5. Model a reasonable worst-case scenario.
6. Predict post-breach water quality in Lac de Gras.

3. Freshwater cap filling design

Overview:

- design for placing freshwater cap could help to decrease mixing of porewater.

Recommendation:

- provide a design for minimizing disturbance of PK and porewater during filling of pit with freshwater, for approval by WLWB.

4. Benchmarks for Unanticipated Mixing Scenarios

Overview:

- Diavik proposes ecological thresholds for water quality 20% higher than AEMP benchmarks
 - Exposure to water above AEMP benchmarks could result in adverse effects
 - Inconsistent with REA Measure 1
 - Inconsistent with WLWB direction on ICRP 4.0.

Recommendation:

- Ecological thresholds for water quality should be protective of aquatic life.

5. Decision to Reconnect to LDG

Overview:

- Diavik proposes water quality and cultural criteria will determine when to connect the pit lake to LDG.
- Should also include sediment quality.
- Cultural criteria are an important aspect of deciding to reconnect the pit lake to LDG
 - important that criteria reflect community objectives.

5. Decision to Reconnect

Summary of Recommendations:

1. Sediment quality criteria are needed.
2. Monitor water and sediment quality comprehensively
 - ensure conditions are protective of aquatic life.
3. Cultural reconnection criteria to be accepted by communities before submitted to WLWB.
4. Parties to proceeding must be able to review and comment on cultural criteria.
5. Cultural criteria should align with REA. Last line of proposed wording for Part H Section 18 of Diavik's proposed water licence wording should be removed.

6. Effects to Fish and Fish Habitat

Overview:

- Critical assumption: fish will not go below 40 meters.
- Dissolved oxygen predictions only for A418.
- Slimy sculpin, benthics, plankton unable to move away from contaminants.
- Post-breach fish and habitat monitoring not described.
- Fish tissue monitoring for metals not described
 - Users must feel assured fish are safe to eat.

6. Effects to Fish and Fish Habitat

Summary of Recommendations

1. Confirm fish only use upper 40m.
2. Confirm depth of contaminated water before breaching.
3. Monitor fish use of enhanced habitats.
4. Run DO Mass-balance model for A154.
5. DO surveys throughout pit lake.
6. Do fish tissue metals surveys on large-bodied fish (e.g. trout).
7. Sample any aquatic life already in pit lake before breaching.

7. Effects to Wildlife

Overview:

- Open water in pits could attract wildlife
 - Particularly for waterfowl in spring when pit lakes will have open water sooner than LDG.
- Diavik committed to update monitoring and management plans to address wildlife safety during EA.
- Diavik referenced most recent WMMP (July 2020) in part 1 of Post-EA Information Package.
- Most recent WMMP does not appear to directly address wildlife safety during PK placement.

7. Effects to Wildlife

Summary of Recommendations:

1. Diavik should develop/refine PKMW management plans to include specific requirements for wildlife monitoring and response protocols during PK placement in pits.

8. Monitoring (Pre and Post Dike Breach)

Overview:

- Current water quality monitoring plan is not adequate
 - One SNP station proposed to be monitored over time at 4 depths in pit lake
 - Only 1 transect sampled once before breaching pits
 - Reduce monitoring in pits to twice per year after breaching.

8. Monitoring

Summary of Recommendations:

Note: EMAB made 16 recommendations related to monitoring

1. **Comprehensive monitoring program to:**
 - confirm model predictions, and monitor
 - water quality throughout the pit lake in all seasons.
 - Monitor sediment quality – potential for sediment to be present, such as:
 - ramps and benches
 - enhanced habitat.
2. **Before reconnecting**
 - Sample for at least two years, throughout the pit lake, in all seasons.
3. **After Breaching**
 - Two years in pit lake – confirm chemocline is stable
 - Throughout lake to determine water exchange with LDG
 - Extent of effect on LDG.

9. Descriptions of Contingency Plans

Overview:

- Diavik proposes to provide details of contingency plans following approval of the project
 - Proceeding should assess if plans are feasible
 - Proceeding should assess potential effects on LDG if contingency conditions occur.

9. Contingency Plans

Summary of Recommendations:

Diavik should:

1. Develop a more detailed description of the contingency plan to re-close the dike after breaching.
2. Provide more information on potential impacts associated with contingency plans
 - Describe impact on LDG in the event of increased loading due to unanticipated mixing.
3. Describe how views of Affected Communities affected contingency plans.

10. Revised Closure Objectives

Overview:

- Closure planning needs to be refined
 - Closure plans need to address actual site conditions.
- PKC facility closure plan needs updating if the PKMW project is approved.
- Intervention includes several comments and recommendations on the PKMW project relevant to closure.

10. Closure Objectives

Summary of Recommendations:

1. Need for timely updating of closure plan to address the PKMW Project
 - Including closure objectives and criteria.
2. Address wildlife interactions and changes at PKC Facility.
3. Revise Closure Objective M8.

11. Cumulative Effects on Water Quality

Overview:

- Diavik's cumulative effects assessment not adequate
 - Modelling details not described
 - No direct explanation of how effects from Diavik's other operations and Ekati's operations are considered in combination with the PKMW project
 - No rationale for water quality parameters considered / not considered.

Recommendation:

1. Diavik should provide a detailed description of the methods used to predict cumulative effects to water quality.

12. PK Slimes

Overview:

- Moving slimes eliminates critical issues with closing PKC facility
 - Maintaining the dams, pond, and spillway
 - Risks to wildlife and humans
 - Concerns of TK Panel.
- The pits would be a permanent and physically stable location for storing the slimes.
- Diavik has proposed pushing the feasibility study back to late 2021.

12. PK Slimes

Summary of Recommendations:

1. Diavik should be required to evaluate the feasibility of slimes relocation from the PKC to the pits ASAP as a condition of any approval.

13. WLWB Workplan

Overview:

- EMAB concerned about the compressed schedule for review of Post-EA Information Package.
- Hindered a full and complete review.
- May have reduced community participation in proceeding.

Thank you – Questions?

