



INAC Speaking Notes

Gahcho Kué Technical Scoping Session

Mackenzie Valley Environmental Impact Review Board Technical Scoping Hearing

April 10th, 2006

Explorer Hotel

Water

2.1 Effects of permafrost freezeback on the exposed lake bottom **HIGH**

- Need more information on the dynamics of the lake bottom under freezeback conditions.
- On freezeback the saturated lake bottom sediments may expel highly concentrated water, the concentrated water will mostly likely find its way into the ponds that remain on the lake bottom through the unfrozen zone beneath these ponds.
- What are the potential problems associated with high pore water pressure and the open pits?
- Kennady Lake is 8.7 km². 80% of the lake will be drained for the project (~7km² of the lake bottom will be exposed).
- Lake bottom sediments are 0.3 to 3m thick on the lake bottom. Average of 1m thick.

2.2 Adequacy of permafrost monitoring and data to appropriately model mine components **HIGH**

- Shortage of permafrost information at the site. In particular there should be information on ground ice conditions and distribution, baseline temperature profiles and temperature profiles from areas where significant construction will take place.

2.3 Problems with freezeback of processed kimberlite **HIGH**

- Studies required on the potential for cryoconcentration within the PKC
- Estimate on the length of time needed for freezeback of the PK
- Other foreseeable problems with the freezeback of the PK

3.1 Impacts of pits on the movement and quality of groundwater **VERY HIGH** (this issue has been combined with issue 3.2 – Interaction between groundwater and submerged waste, as they are similar)

- Application report doesn't provide any discussion on the potential for interaction between groundwater and the open pits.
- More studies on the interaction between submerged waste and groundwater.

- Discussion is needed regarding mitigation measures if problems arise from the interaction between submerged waste and groundwater.

3.2 Relations between taliks and the groundwater flow regime **HIGH**

- More information needed on the relation between taliks and the groundwater regime.
- This could present a potential pathway for the movement of contaminants to the surface.
- More information required on the distribution of taliks and the groundwater flow regime between taliks in the area. Taliks may link the groundwater flow regime to several lakes in the area. Is it possible that affected groundwater in Kennady lake could interact with surrounding taliks from other lakes?

5.1 End of pipe contamination **VERY HIGH**

- A detailed plan is required to ensure the capability of the water treatment process to protect water quality.
- Information required on treatment surfactants and reagents

5.2 Pits as long-term contamination sources **HIGH**

- Study needed to assess the ability to sequester the contaminants in the pits.

5.3 Geochemistry of waste rock and processed kimberlite **MEDIUM**

- More information needed.
- Important to assess the chemical stability of co-disposal of waste rock and PK and PAD.

5.5 Contamination runoff from PKC and waste rock **MEDIUM**

- Details are required for the proposed collection systems, predicted contaminant levels, and contingency plans.

5.6 Dust as water contamination **MEDIUM**

- Potential for increased turbidity and TSS in surrounding water bodies.
- Data needed on substrate characteristics, sediment particle size, sediment chemistry, and bench testing of drying behaviour.

5.7 Length and adequacy of long-term monitoring program **MEDIUM**

- Emphasis should be on an adaptive management plan.

6.1 Downstream effects of large water releases **VERY HIGH**

- Potential for increase in TSS and turbidity downstream.
- Studies required on the downstream effects on shorelines and vegetation.

6.2 Reduced water flows as lake level is restored **VERY HIGH**

- Studies needed to assess the downstream effects on water quality, habitat and the watershed in general.

6.4 Cumulative effects on Lockhart and Hoarfrost rivers **MEDIUM**

- Information on the cumulative effects of two mines in the same watershed would be helpful.

Other

1.3 Energy alternatives **MEDIUM**

- Should include conservation policies and technologies

2.1 Waste rock and PKC co-disposal **MEDIUM**

- Studies required to investigate chemical and/or physical stability problems associated with co-disposal.

2.2 Impacts from changing permafrost **MEDIUM**

- What are the potential effects on permafrost at the mine site?
- What are the potential problems associated with permafrost at the site?

3.1 Acid generating rock impacts **HIGH**

- More detailed studies on geochemistry of the waste rock and the exposed pit walls.

3.2 Composition of the lake bed sediments **MEDIUM**

- Studies on substrate characteristics, sediment particle size, sediment chemistry, and bench testing of drying behaviour would be helpful.