



Natural Resources Canada Ressources naturelles Canada

Ottawa, Canada
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July 11, 2012

Veronica Chisholm
Permitting Manager
Gahcho Kué Diamond Project
De Beers Canada Inc.
5102-50th Ave., Suite 300
Yellowknife, NT X1A 3S8

File#: NWT-080
File#: EIR 0607-001

Sent via e-mail: veronica.chisholm@debeerscanada.com

Subject: Natural Resources Canada's Information Requests (Round 2) for the De Beers Gahcho Kué Diamond Mine Project, EIR 0607-001

Dear Veronica,

Further to the Mackenzie Valley Environmental Impact Review Board's (MVEIRB) June 13, 2012 notice for a second round of information requests (IR), please find NRCan's Round 2 IRs attached. These are aimed at seeking clarification relating to permafrost and terrain conditions, as well as geology, and the project's potential effects.

If you have any questions regarding NRCan's IRs, please do not hesitate to contact me at 613-995-7686 or john.king@nrcan.gc.ca.

Sincerely,

Original signed by

John King
Senior Policy Analyst
Environmental Assessment Division
Natural Resources Canada

Attach: (1)

c.c.:

MVEIRB: C. Hubert
NPMO: K. Witherly
NRCan: A. Blais-Stevens, J. Clarke, C. Hogan, R. Johnstone

NRCan's Round 2 Information Requests for the De Beers Gahcho Kué Diamond Mine Project, EIR 0607-001

IR Number: NRCan 2-1

To: De Beers Canada Inc.

Subject: Permafrost and Terrain Conditions

References:

TOR Sections: 3.1.2; 3.1.3.

2012 EIS Supplement Section 1.3 Project Overview, 3, 8, 11.

Preamble and Rationale:

During the technical session, the Proponent indicated that dyke A1 and dyke D would function more as berms at closure and would not be water retaining structures.

The maps provided in the 2012 EIS supplement (in Figure 1.3-2 and 3.12-1) shows dyke A1 crossing streams between Area 2 and lakes A2 and A1 (area 1). It appears that lake levels would rise because drainage from these lakes to Kennady Lake Area 2, which then becomes fine Processed Kimberlite PK facility, is being cut off to facilitate dewatering. Figure 3.12-1 appears to show that at closure dyke A1 would still have water behind it, resulting in consequences for the ground thermal regime and stability if the dyke is keyed into permafrost.

Request:

Please provide clarification on whether there will be water impounded behind dyke A1 during operation and at closure and the implications for the thermal regime and stability of dyke A1.

IR Number: NRCan 2-2

To: De Beers Canada Inc.

Subject: Geology - Paragneiss in Kennady Lake area and its acid generating potential

References:

TOR Sections 3.1.2; 3.1.3.

2012 EIS Section 11.6 Permafrost Groundwater and Hydrogeology subsection 11.6.2.2.1 Bedrock Geology.

Preamble and Rationale

The major lithological units in the Kennady Lake area are granite and gneissic granite with minor components of meta-sedimentary rocks (paragneiss). The minor components are not shown on Figure 11.6-4 (for obvious scale limitation of the map), but they are clearly identified in Figure 11.6-5 as paragneiss (in shades of orange and pale brown). Since the bedrock is poorly exposed in the vicinity of the Kennady Lake mine site, their occurrence and regional extent appear to have been based on bedrock geology interpreted from geophysical datasets, and by extrapolation of the units from the northeast and southwest of Kennady Lake (a valid interpretation). Although the paragneiss is known to occur as regionally pervasive inclusions, rafts, and xenoliths of variable size and extent within the dominant granite and granitic gneiss units in this part of the Slave craton, the interpreted geology map (Figure 11.6-5) shows that substantial region in the Kennady Lake project area may be covered by paragneiss in subsurface (above the kimberlite pipes) as well as on land portions adjoining Kennady Lake), and contribute to the overburden budget.

It is not clear from the EIS document whether any geochemical analysis of the paragneiss has been carried out by the proponent to determine its acid generating potential. In Section 3.7.3.2 (*Geochemical Characterization of Mine Rock; Table 3.7-7*), the paragneiss is not listed as a rock type tested for its acid generating potential. The paragneiss may contain additional contaminants. The metal leaching, sulphur content, and acid factor aspects of this rock type may potentially affect/increase the total estimates of these parameters as reported in the EIS document, and likely to impact on the mine waste (overburden) management.

It is uncertain whether the paragneiss in the Kennady Lake area (Figure 11-6.5; Section 11-6.2), has been sampled, analyzed and assessed for its acid generating potential.

Request

Please clarify if the paragneiss in the Kennady Lake area (Figure 11-6.5; Section 11-6.2) has been sampled, analyzed and assessed for its acid generating potential.

