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File: 2006 Hydrology Monitoring Program Annual Report

Comments – 2006 Hydrology Monitoring Program Annual Report (2006 HMPAR)

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### **General Comments**

- The document presents necessary information and discussion for hydrological monitoring annual reporting.
- The water balance analysis could be improved.

### **Comments on Chapter 2**

- Section 2.1.2, p6: It is stated that “spot measurements were made on three occasions in 2002, twice in 2004, three times in 2005, and three times in 2006” with staff gauge for 1999 Reference Lake, North Lake and Northeast Lake, while “data were collected on a continuous basis during the open water period” or year-round with Levellogger sensor for Snap Lake (page 4). The average elevations of Snap Lake and other lakes are compared with each other in Section 2.3.2 (Table 2-6 and Figure 2-6). The data quality difference between datasets should be pointed out while the comparison is conducted.
- Section 2.2, p6: The reference Golder (2007) seems to be De Beers (2007) in page 29.
- Section 2.2.5, p10: The net precipitation was based on the mean annual precipitation and lake evaporation data of Environmental Assessment Report (EAR, 2002). Whether the snow data of near meteorological stations were available? If yes, why they were not considered? It is noticed that the Streamflow and Lake Elevation Monitoring Program 2005 Annual Report adopted the same methodology. The reason is the same, i.e. “as no snow data was recorded in 2005/6 due to technical problems with the sensor”. The repeated technical problems already impacted the effectiveness of the monitoring program, and an internal review was recommended to avoid similar “repeated” problems. Both 2006 and 2005 Annual Report used the same value (582,830 m<sup>3</sup> net gain to Snap Lake), and it might not be reasonable. Further discussion is recommended.
- Section 2.2.5, p10: The calculation of the net gain to Snap Lake (582,830 m<sup>3</sup>) suggests that the lake surface area is 16.7 km<sup>2</sup>, which is inconsistent with the value (14.25 km<sup>2</sup>) in Table 3-2 of Reference Lake Desktop Screening Report (Golder, July 2005). Further clarification is recommended.



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- Section 2.3.2, p16: The water elevation value (444.250 masl) in Table 2-6 is different from the one (444.282 masl) in Table 2-5 (page 14). The one in Table 2-6 seems to be a typo.
- Section 2.3.4, p19: It is stated that lake water levels were read from a staff gauge at the outlet of the 1999 Reference Lake”. The description seems to be inconsistent with the location of lake level monitoring station for the 1999 Reference Lake in Figure 2-1.
- Section 2.3.7, p22: It is assumed in Section 2.2.5 (page 9) that losses from Snap Lake via groundwater recharge was equal to minewater pumped from the underground workings to the water treatment plan (WTP). The assumption seems not to be applied in the Streamflow and Lake Elevation Monitoring Program 2005 Annual Report. What is the justification of groundwater recharge loss from 3,832,500 m<sup>3</sup> estimated in 2005 to 2,631,075 m<sup>3</sup> in 2006? Further groundwater investigation is recommended for better understanding the water balance analysis.

#### **Comments from Traditional Knowledge Panel**

- “We could not see the change of water level in Snap Lake, and we totally depend upon the hydrologist. We are really concerned on water level change.”
- The report provides some data, but they are not enough. De Beers should improve the hydrological monitoring, such as site runoff, snowfall, and groundwater.
- De Beers should conduct further hydrological and hydro-geological study. Traditional Knowledge (TK) should be incorporated into it, and communities and elders should be involved. In the workshop next February, De Beers staff can discuss with the communities about how to incorporate TK into the study.
- The dust from construction, explosion and vehicles travels certain distance and falls on the land and the waters, where it will impact the vegetation, water and sediment quality, further it will contaminates the food of caribou and fish. In addition, the dust will enter into lakes with snowmelt, and so will the dust on the ice road. The link between the air quality (Total Suspended Particulate [TSP] concentration) and water and sediment quality should be studied.