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February 6, 2015

Angela Love
Regulatory Officer
Mackenzie Valley Land and Water Board
P.O. Box 2130
Yellowknife, NT X1A 2P6

Dear Ms. Love:

De Beers Gahcho Kué Dewatering Update:
Area 3 to N11 Pumping Rate Increase from 0.73m³/s to 1.0m³/s [MV2005L2-0015]

De Beers Canada Inc. (De Beers) is seeking clarification from the Mackenzie Valley Land and Water Board (Board) if a minimal increase in the pumping rate of 0.73m³/s to 1.1 m³/s from Kennady Lake (Area 3) to Lake N11, during low flow conditions (e.g., winter) as referenced in the Board approved Water Construction Management Plan (Version 3), requires Board approval. The minimal increase would allow De Beers to achieve the dewatering/construction schedule while ensuring protection to the receiving and downstream environment.

De Beers submitted a Construction Water Management Plan Version 3 (CWMP) that was approved by the Board on October 16th 2014 in accordance with Part G, Item 3 of the Gahcho Kué Water License (MV2005L2-0015). Included within the CWMP was planned average discharge or pumping rate from Kennady Lake (Area 3) to Lake N11, which was determined, based on pump capacity associated with the dewatering infrastructure. Specific to Lake N11, the CWMP states:

> "The planned average discharge rate to Lake N11 [is] 0.73 m³/s. [this discharge rate is] well below the two year (median) flow condition indicated in the EIS (De Beers 2010) that [lists the target] for pumped plus natural discharge of approximately 6.0 m³/s (500,000 m³/d) at the Lake N11 outlet."

The planned average pumping rate of 0.73m³/s estimated within the CWMP was based on the estimated pumping capacity of the site dewatering infrastructure at that time. The latest assessment of the dewatering infrastructure's capability indicates that a discharge rate of 1.1m³/s is well within the operational limits of the infrastructure and consistent with the engineering design of pumps, piping and the outfall/diffuser into Lake N11.

Within the EIS (Section 9.7.3.1.3), it was stated that the Lake N11 outlet is capable of sustaining flow volumes up to the 1/100 year flood value of approximately 10m^3/s without adverse effects due to the outlets size as well as the natural well armored boulder substrate and banks. The approved CWMP references the WL (MV2005L2-0015) Part G, item 7 that states:

> The Licensee shall ensure that the Discharge rates do not cause the total (pumped and natural) flow rate at the outlets of Lake N11 and Area 8 to exceed the two-year (median) maximum daily flow rates at these outlets, as follows:
>
> a) During Discharge to Lake N11, the total flow rate at the outlet of Lake N11 shall not exceed five hundred thousand (500,000) cubic meters per day (m_3/d).

The proposed 0.28m^3/s pumping rate increase from 0.73m^3/s to 1.1m^3/s represents a minimal increase (1/6th) in flow when compared to both the License specified maximum flow rate of 6.0m^3/s and the 1/100 year flood event of 10m^3/s specified within the WL and EA, respectively. Moreover, during low flow conditions (e.g., winter season), discharge at outlet of N11 is well below those maximums flow rates and the action levels established in the CWMP.

Table 6 Action Level for Winter and Open Water Discharge (Hydrology)

Parameter	Low Action Level	Mitigations
Under Ice: Ice/Water Level Elevation	0.6 m above zero discharge elevation	These are low action levels that are consistent with the Aquatic Effects Monitoring Program (AEMP) Design Plan (De Beers 2014). They represents the levels at which further investigation occurs if reached, and may include a temporary suspension of the pumping
Open water: Outlet flows Bank stability	Flows exceed the 2-year flow rate during pumping (dewatering) **OR** Evidence of widespread bank instability (i.e., bank slumping in the range of 0.5 m by 3 m in length, or greater	

(a) This is a preliminary value. Site-specific values will be established using recently collected topographic data, and existing lake outlet stage-discharge rating curves, for Lake N11 and Area 8 by the week ending 24 October 2014. Values will be expressed as geodetic elevations to allow direct comparison to monitoring data.

As such, the proposed increase during low flow conditions is protective of receiving and downstream environment.

In addition to water quantity, MV2005L2-0015 also specifies conditions applicable to water quality in accordance to Part G, item 9 which states:

> During Drawdown of Kennady Lake, Water Discharged to Lake N11 and Area 8 shall meet the following quality criteria at SNP stations 02 and 04, respectively:

Parameter	Maximum Average Concentration (MAC)	Maximum Grab Concentration (MGC)
Total Suspended Solids (TSS) [2]	15 mg/L	25 mg/L
Action Levels[1]	12 mg/L	22 mg/L

[1] Action Levels defined in the CWMP (De Beers 2014)

During the Area 7 – Area 8 dewatering activities, Station SNP-04 was monitored daily for Turbidity (as a surrogate of TSS) and compared to action level and compliance requirements in accordance with Part G, Item 9. Results of this monitoring found that TSS concentrations were well below both action levels and compliance limits allowing the winter dewatering program to be completed without interruption from water quality concerns. Discharge to Area 8 was eventually concluded as a result of lake level increase approaching the 0.6m, the action level as specified within the CWMP.

De Beers offers that the increase in the pumping rate to 1.1 m^3/s during low flow conditions (e.g., winter) represents an infrastructure update rather than a modification to the overall CWMP because it will not alter the underlying scope of the dewatering activity or the monitoring conditions (i.e., action levels and compliance limits) presented in the approved CWMP.

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Moreover, the minimal rate increase would allow for larger amount of discharge during low flow conditions (e.g., winter), which would allow De Beers to advance dewatering objectives efficiently and responsibly while ensuring the overall protection of the receiving and downstream aquatic environment.

De Beers therefore respectfully requests clarification on the regulatory process required to increase the discharge or pumping rate from Kennady Lake (Area 3) to Lake N11 from 0.73m^3/s to 1.1m^3/s during low flow conditions for the Gahcho Kué Project.

Thank You

Veronica Chisholm

Veronica Chisholm
Permitting Manager
Gahcho Kué Project

cc: Tracy Covey, GNWT Inspector, Department of Lands
Andrew Howton, GNWT Inspector, Department of Lands

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