



Mackenzie Valley Land and Water Board
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September 27, 2018

Files: MV2005C0032
MV2005L2-0015

Mr. Rick Walbourne
Acting Manager, Water Resources
Environment and Natural Resources
Government of the Northwest Territories
Box 1320
Yellowknife, NT X1A 2L9

Email: Nathen_Richea@gov.nt.ca

Dear Mr. Walbourne:

Land Use Permit MV2005C0032 and Water Licence MV2005L2-0015 – Additional Information Required
2018 RECLAIM Financial Security Estimate Report – Gahcho Kue Project – Kennady Lake, NT

On July 20, 2018, the Government of the Northwest Territories-Environment and Natural Resources (GNWT-ENR) submitted comments and recommendation to the Mackenzie Valley Land and Water Board (MVLWB or the Board) in relation to the revised financial security estimate (RECLAIM Version 5) as submitted by De Beers Canada Inc. (De Beers). Upon review of the comments and recommendations received, Board staff are requesting the GNWT-ENR provide further rationale/information, by **October 5, 2018**, on the following:

- 1) Related to GNWT-ENR comment-1
 - a. As the developer of the RECLAIM model, and the party that is responsible for clean-up of the site in the case of abandonment, please provide a recommended amount of security, to be considered by the Board, related to air and wildlife monitoring that would be in line with the other diamond mines operating in the NWT (as noted by GNWT-ENR in their comment). Please also indicate in which phase(s) of the payment schedule these amounts would be added to, based on those presented by De Beers in RECLAIM Version 5.

- 2) Related to GNWT-ENR comment-3
 - a. It is understood that consistency with other diamond mines operating in the NWT should be considered, however, there may be different circumstances at each site that should be considered before standardized grouping occurs. As such, please provide further rationale as to why the cost code, and associated unit costs, for the placement of cover on the fine processed kimberlite containment facility should be changed and increased from what De Beers has provided.
 - b. Provide further rationale as to why this recommendation is related to only the fine processed kimberlite containment facility, and not to any of the other areas of the mine site that required mine rock for cover that used the same cost code and unit costs; including the coarse processed kimberlite pile, the landfill, or other associated areas of the mine site (i.e. concrete foundations).

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Following receipt of GNWT-ENR's responses, they will be forwarded to De Beers for their response.

If you have any questions or concerns, please contact Angela Love at (867) 766-7456 or email angela.love@mvlwb.com.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Chris Hotson", is centered on a light gray rectangular background.

Chris Hotson
Regulatory Manager

Copied to: Distribution List

Attachment: Review Comment Table

Review Comment Table

Board:	MVLWB
Review Item:	De Beers Gahcho Kue - Financial Security Estimate / RECLAIM update V.5 (MV2005L2-0015 and MV2005C0032)
File(s):	MV2005C0032 MV2005L2-0015
Proponent:	De Beers Canada Inc - Gahcho Kue
Document(s):	Security Estimate RECLAIM Report v.5 (5242 KB) Security Estimate RECLAIM Excel Report v.5 (14176 KB)
Item For Review Distributed On:	June 29 at 16:09 Distribution List
Reviewer Comments Due By:	July 20, 2018
Proponent Responses Due By:	Aug 1, 2018
Item Description:	<p>De Beers Canada Inc. (De Beers) Gahcho Kue has submitted a revised financial security estimate using RECLAIM on June 29, 2018 to the Board. This submission is required by Part C, condition 2 of Licence MV2005L2-0015.</p> <p>Please note that this review is separate from the amendments currently being processed for De Beers Gahcho Kue. However, Board staff would like to clarify that any changes to the existing conditions related to security, based on comments received during this review, will be brought before the Board when a decision is made on the amendments. Based on the work plan associated with the amendment applications, the Draft Licence and Permit will be circulated on August 29, 2018 and will be updated to address any comments received through this review.</p> <p>Reviewers are invited to submit questions, comments, and recommendations using the Online Review System (ORS) by the review comment deadline specified below.</p> <p>All documents that have been uploaded to this review are also available on our public registry. If you have any questions or comments about the ORS or this review, please contact Board staff identified below.</p>
General Reviewer Information:	<p>In addition to the email distribution list, the following organizations received review materials by fax:</p> <p>NWT Metis Nation - Tim Heron, NWTMN IMA Coordinator (867) 872-3586; rcc.nwtmn@northwestel.net</p>
Contact Information:	<p>Angela Love 867-766-7456 Jen Potten 867-766-7468 Kierney Leach 867-766-7470</p>

Comment Summary

GNWT - ENR: Central Email GNWT				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
7	General File	Comment (doc) ENR Letter with Comments, Recommendations and Attachment Recommendation		
8	General File	Comment (doc) Attachment: July 13, 2018 - Brodie Consulting Memo - Review of DeBeers Gahcho Kue Mine 2018 Financial Security Estimate Recommendation		
1	Topic 1: Post Closure Monitoring	Comment The post-closure monitoring tables in the Gahcho Kue RECLAIM Excel Report v.5 contain security for geotechnical investigations, regulatory costs, maintenance, and SNP, AEMP and vegetation monitoring. There is no security for air or wildlife monitoring; however, it is acknowledge in Figure 40 of the ICRP v.4 for Gahcho Kue that air quality monitoring will be conducted during the summer for three years post-closure and that there will be wildlife monitoring at the mine post-closure for seventeen years, although detailed monitoring plans have not been developed yet. ENR notes that approved RECLAIM estimates for Snap Lake, Diavik and Ekati diamond mines contain security for air and wildlife monitoring post-closure. Recommendation 1) ENR recommends that De Beers provide an estimate on the amount of security that should be held for air and wildlife monitoring for Gahcho Kue, consistent with other diamond mines operating in the NWT.	July 30: The MVLWB Water Licence 2014 Reasons for Decisions states that air quality effects monitoring and wildlife effects monitoring is outside the Boards' jurisdiction and therefore the estimated costs associated with these programs were not included in determining the security amount. This approach was applied to the current security estimate and therefore no costs for these programs is warranted.	
2	Topic 2: GNWT	Comment As noted in De Beers' cover letter, De Beers provided GNWT with a draft security	July 30: Noted.	

	Feedback on Draft Estimate	<p>estimate for discussion, prior to De Beers submitting the estimate to the Board. GNWT identified a number of items in the draft estimate that were discussed with De Beers. These topics included: . Long term maintenance costs; . Interim closure pumping times; . Origin of equipment for mobilization and break-down of equipment for ice road transport; . Interim care and maintenance costs; . Unit Costs for breaching dykes; . Potential requirement for turbidity curtains during dyke breaching; . Use of overburden; . Fine PK facility infilling and cover unit costs; and . Pumping fuel costs. As noted in the attached memorandum from Brodie Consulting Limited (BCL), most of these items were addressed. The following comments relate to items that remain outstanding.</p> <p>Recommendation 1)None - for information.</p>		
3	Topic 3: Fine PK Facility - Cover Unit Costs	<p>Comment Where possible and appropriate, GNWT attempts to maintain consistency between security estimates for different mines operating in the NWT. This includes using the same unit rate for activities on different sites that are substantially the same, e.g. costs to construct covers using waste rock. In a recent decision by the Wekeezhi Land and Water Board (WLWB) for the Diavik Mine Waste Rock Storage Area Closure Plan, the WLWB accepted GNWT's recommendation to increase the unit costs to construct covers such that they match unit costs from the Dominion Diamond Ekati Corporation's (Dominion) security estimate for the similar activity at the Ekati mine (WLWB, 2018). Cover construction includes unit costs for the activities of ripping or blasting,</p>	<p>July 30: The RECLAIM estimate includes the cost to load/short haul/spread waste rock onto the PK facilities. The RECLAIM estimate does not include an additional cost to rip/blast the waste rock from the mine rock piles. Ripping and blasting to access mine rock for PK cover will not be required as sufficient non-frozen mine rock is available in the South and West Mine Rock piles. The non-frozen waste rock will be available from the active layer of the each pile. The active layer thickness for the mine rock piles is anticipated to be about 3 m. To demonstrate sufficient non-frozen waste rock is available in the waste rock piles to cover the PK facilities, a volume balance was completed. For an end of mine life (Year 12) scenario: - The total volume of waste rock to cover the Fine PK</p>	

		<p>loading, hauling, and spreading rock. In the decision, the WLWB adopted the following unit costs: o \$7.09/m³ = ripping (\$1.05/m³) + load/short haul/spread (\$6.04/m³) o \$9.34/m³ = blasting (3.30/m³) + load/short haul/spread + (\$6.04/m³) o DDEC suggested that a conservative estimate of the ratio of waste rock requiring blasting vs ripping to excavate is 56:44% (DDEC, 2015). While it is recognized that this decision was specific to covers on the WRSA, the same unit costs have been used by Dominion for covers on the processed kimberlite storage facility (Dominion 2018). The difference to the Gahcho Kue Security Estimate in applying the above unit costs to the Fine PK facility as opposed to the RECLAIM v7 unit cost of SBSH = \$6.30/m³ selected by De Beers is provided in the following table.</p> <table border="1"> <thead> <tr> <th>Unit Cost (\$/m³)</th> <th>Fine PK Facility</th> </tr> </thead> <tbody> <tr> <td>De Beers 2018 Estimate</td> <td>\$6.30</td> </tr> <tr> <td>\$8,730,713 Unit Costs based on Ekati Security Estimate (WLWB 2018 and Dominion 2018)</td> <td>56% at \$9.34, 44% at \$7.09</td> </tr> <tr> <td>\$11,571,660 Difference</td> <td>\$2,840,947</td> </tr> </tbody> </table> <p>Recommendation 1) BCL recommends that the unit costs for the closure activity of capping the Fine PK Facility with material sourced from a waste rock pile be consistent with those approved by the WLWB for the Ekati Security Estimate and Diavik Waste Rock Storage Area Closure Plan.</p>	Unit Cost (\$/m ³)	Fine PK Facility	De Beers 2018 Estimate	\$6.30	\$8,730,713 Unit Costs based on Ekati Security Estimate (WLWB 2018 and Dominion 2018)	56% at \$9.34, 44% at \$7.09	\$11,571,660 Difference	\$2,840,947	<p>(1,385,827 m³) and Coarse PK (368,209 m³) facilities is 1,754,036 m³; - The surface area of the South (928,938 m²) and West Mine Rock (1,586,554 m²) Piles is 2,515,492 m²; - The volume of non-frozen waste rock within the active layer of the mine rock piles is 2,515,492 m² x 3 m = 7,546,476 m³; - The volume of non-frozen waste rock is greater than the volume required to cover the PK facilities. This is equivalent to about 0.7 m of waste rock removed from the 3 m active layer thickness. The RECLAIM estimate includes a phased approach to setting liability where the size of the rock piles and PK facilities grow between years 5, 7 and 12 based on the mine plan. Using the same volume balance mythology described above, at the end of year 5 and year 7, the volume of non-frozen waste rock is greater than the volume required to cover the PK facilities. The amount of waste rock removed from the active later for year 5 and year 7 is about 0.61 and 0.71 m, respectively. To further demonstrate that there is sufficient mine rock to cover the PK facilities, the following extreme scenario is presented. Assuming the PK facilities are fully developed as represented in Year 12 (rock cover volume required of 1,754,037 m³), and only rock from the South Mine Rock Pile from year 5 (2,786,813 m³) is available, the amount of rock removed from the active layer would be about 1.89 m, still within the 3 m active layer.</p>	
Unit Cost (\$/m ³)	Fine PK Facility											
De Beers 2018 Estimate	\$6.30											
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\$11,571,660 Difference	\$2,840,947											
4	Topic 4: Use of Overburden for Reclamation	<p>Comment This comment is provided to note the difference between the approved Security Estimate and the updated 2018 Security Estimate for placing overburden on mine rock piles</p>	<p>July 30: The RECLAIM estimate is consistent with the ICRP V.4 which is currently under review by the MVLWB. The ICRP V.4 was submitted to the MVLWB in 2018 as part of a final process step in</p>									

		<p>approach to include the cost of these activities until it has been proven that these activities will not be necessary to achieve the approved closure objectives.</p> <p>Recommendation 1) ENR recommends that the security estimate should reflect the activities ultimately approved under the ICRP.</p>		
5	Topic 5: References	<p>Comment Comment(s): References: Dominion Diamond Ekati Corporation, 2018. W2012L2-0001 - Ekati - Security Review - 2017 Progress Report RECLAIM Estimate (excel) - Jan 22_18 Wek'èezhìi Land and Water Board, 2018. Waste Rock Storage Area Closure Plan - Directive and Reasons for Decision. February 9, 2018</p> <p>Recommendation 1)ENR notes that the above references are provided in support of ENR comments.</p>	July 30: Noted.	
6	Topic 6: Table in Topic 3	<p>Comment The ORS sometimes does not accept table formats.</p> <p>Recommendation 1) ENR recommends that the Board and the proponent reference ENR's submitted letter to view the table if necessary.</p>	July 30: Noted.	