



**Mackenzie Valley Land and Water Board**  
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**De Beers Canada Inc. – Gahcho Kué Mine  
 Technical Workshop – October 7, 2016**

**DATE & TIME:** October 7, 2016; 8:30 a.m. – 4:30 p.m.

**LOCATION:** Mackenzie Valley Environmental Impact Review Board Room  
 (2nd Floor, Scotia Centre) 5102 50th Ave Suite 200

**TELECONFERENCE DETAILS:** 1-866-512-0904 (call-in number)  
 6103809 (Participant code)

Meeting Goals:

- Interim Closure and Reclamation Plan: Open discussion based on the July 25, 2016 submission to allow Reviewers the opportunity to ask any questions/seek any clarification from De Beers prior to submitting comments to the MVLWB (due October 18, 2016).

The meeting will follow agenda topics. Times are provided as a guideline only.

Item #	Approximate Timing	Agenda Item	Specific topics/issues/questions submitted prior to Technical Session
1	8:30 – 9:00 am	Meet and Greet	
2	9:00 – 9:10 am	Welcome, introductions and opening comments from the MVLWB	
3	9:10 – 9:20 am	Introductory presentation by De Beers	
4	9:20 – 9:40 am	Project Environment and Project Description	<ul style="list-style-type: none"> <li>• No specific questions were submitted with respect to the information in sections 2 (Introduction), and 3 (Project Environment) of the ICRP; however, time will be given for questions on these topics.</li> <li>• Clarification from the Board on approved uses/storage areas of PAG Rock (ENR)</li> <li>• Options for management of PAG Rock/Mine Rock (ENR)</li> <li>• Overburden/lake sediment storage and management (ENR)</li> <li>• Barren kimberlite (or LGO) management (ENR)</li> </ul>
5	9:40 – 10:10 am	Permanent Closure – Overall goal	<ul style="list-style-type: none"> <li>• Closure principles (ENR)</li> <li>• Can the long term objective be amended to include ecosystem function? De Beers stated it will consider post closure land use objectives with respect to ecosystem function, but this is not clear in the current version of the ICRP. (DKFN)</li> </ul>

			<ul style="list-style-type: none"> <li>The Closure plan lacks a clear high level vision. The goals and principles echo the guidance documents, but provide insufficient context for the reader to broadly/generally understand what this land will look like in the future. These sections should be able to convey the big picture in plain language narrative statements. As an example, it is not clear what type of ecosystem (Section 2.2) the project is attempting to restore. This is not defined nor described. (NHX)</li> </ul>
6	10:10 – 10:20 am	<b>BREAK</b>	
7	10:20 – 11:15 am	Permanent Closure - Activities	<ul style="list-style-type: none"> <li>PAG Management: Discussion on placement of PAG rock (e.g., final elevations, locations, cover construction, etc.) (ENR)</li> <li>PAG Management: The current ICRP anticipates that some PAG mine rock will be encapsulated in the waste rock piles, above the water line, with granular cover. The volume of PAG rock that would be managed in this fashion is approximately 1% of the total mine rock volume. Has the proponent considered alternative closure plans for this portion of the PAG rock? For example, could it be stockpiled during mine operations and then transferred to the Tuzo pit during closure, thereby providing a water cover? Would this be justified based on the reasonable worst case ARD and metal leaching scenario? (MVLWB)</li> <li>Elevation of mine rock placement in 5034 (ENR)</li> <li>Fine PK: questions on capacity (ENR)</li> <li>Course PK: research and monitoring results at Diavik and Ekati and implications for closure (ENR)</li> <li>Use of overburden in reclamation (ENR)</li> <li>This ICRP seems to be completed in isolation – without real learnings from other closure efforts. The EA noted that there needed to be an urgency to the completion of detailed closure plans, while the company promised that they would work with other mines to learn from those efforts. There is no evidence to this effect. Again, as an example, when considering site restoration – either natural recolonization or a more active approach, none of the lessons learned (appendix D) have been incorporated into the ICRP document. (NHX)</li> <li>Closure of the Fine PK facility, including removal of the water pond, the cover/rock</li> </ul>

			<p>placement, and controlled runoff. Specifically, there are concerns with dewatering, ice lensing, porewater and settlement. We will also be seeking clarification on provisions for controlled runoff and discharge past Dyke L. (NHX)</p> <ul style="list-style-type: none"> <li>• What are the anticipated challenges associated with constructing permanent covers on the fine PK (e.g., physical access)? How are those challenges being managed? (MVLWB)</li> </ul>
8	11:15 am – 12:00 pm	Permanent Closure – Closure Objectives <sup>1</sup> and Criteria	<p><b>Kennady Lake Objectives (KL1 – KL3)</b></p> <ul style="list-style-type: none"> <li>• Habitat to support aquatic ecosystem vs. establishment of an aquatic ecosystem (ENR)</li> <li>• Timing of development of numerical closure criteria and water quality modeling (ENR)</li> <li>• Sediment quality in the pits (ENR)</li> <li>• There is no objective to return Kennedy Lake to the regional system. There is only discussion on breaching internal dykes. (NHX)</li> </ul> <p><b>Mine Rock Pile Objectives (MR1- MR2)</b></p> <ul style="list-style-type: none"> <li>• Chemical stability as a closure objective (ENR)</li> </ul> <p><b>Open Pit Objectives (OP1 – OP2)</b></p> <ul style="list-style-type: none"> <li>• Factors related to decisions regarding transfer of water to Tuzo (ENR)</li> <li>• Closure criteria related to stability of meromixis (ENR)</li> </ul>
9	12:00 – 1:00 pm	<b>LUNCH</b>	
10	1:00 – 1:45 pm	Permanent Closure – Closure Objectives <sup>1</sup> and Criteria (CONTINUED)	<p><b>Site Wide Objectives (SW1 – SW7)</b></p> <ul style="list-style-type: none"> <li>• Assumptions regarding raised lakes and contingencies (ENR)</li> <li>• Wildlife Habitat – despite previous concerns, there is a single objective that directly relates to habitat – SW6 which provides for safe passage, with a lack of definition. There is a distinct lack of commitment to provide useful habitat. This is an issue that has been raised numerous times, with the company ‘noting’ the issue, but it has seemingly not altered the closure plan not provided meaningful responses to community concerns (NHX)</li> <li>• Caribou were a key line of inquiry during the EA, and we all know the situation isn’t getting any better. The company should be aware of the concerns as they have been raised many times...to continue to not provide clear goals or meaningful objectives</li> </ul>

<sup>1</sup> See Table 20 of the ICRP entitled “Closure objectives, criteria, method of measurements to evaluate achievement of criteria, and any planned reclamation research)

			<p>that explain how this site will fit into the landscape is disconcerting (NHX)</p> <ul style="list-style-type: none"> <li>• Readers have only a vague idea what this site will look like after De Beers is done – the commitments remain vague and are linked to actions, not to results. The language used would allow anything from a gravel pad to a site that resembles what used to exist. At a minimum, precise language needs to be used to provide clarity. (NHX)</li> <li>• Again, as an example - the EA documents had quite a bit of vegetation and habitat mapping, with definitions as to the class. The company had committed to this similar approaches in 2014, but this remains absent from the ICRP, despite previous reviewer efforts seeking additional detail on what the site will look like and what habitats will be restored (NHX)</li> <li>• Changes and Updates – It’s not particularly clear how the company has modified or responded to reviewers since the initial post-EA September workshop. There seems to have been relatively little effort to address matters raised. As an example (there are other instances): in SW6, “Safe” is not defined, nor has there been an effort to do so. This has been previously identified and the issue remains. (NHX)</li> <li>• There were a number of suggestions on how traditional knowledge users could aide the project’s assessment of the closure. While this item has been acknowledged, there is no information as to what would constitute a ‘qualified person’ or how that would be established. Similarly, it’s not clear if the criteria requires approval of ‘aboriginal representatives’ (again, undefined) or if they will attend to the site and, as in other instances, be afforded the opportunity for an open conversation, with the achievement of the criteria defined solely by the risk assessment. (NHX)</li> <li>• Criteria – before the criteria can be fully understood, there needs to be clarity in terms of the language being used. As an example, the Objective SW6 notes that the area will be safe, as defined by a risk assessment. However, it’s unclear what the company is willing to accept as safe – they likely have a much higher acceptance of risk to wildlife after closure than those who depend on the wildlife. Other definitions could benefit the legibility of the document as well, including one for how the project is using the word ‘component’. (NHX)</li> </ul>
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11	1:45 – 2:45 pm	Permanent Closure – Uncertainties and Reclamation Research Plans	<ul style="list-style-type: none"> <li>• Mine Rock/PAG Rock: Contingencies (ENR)</li> <li>• Uncertainties and contingencies related to Kennady Lake post-closure (ENR)</li> <li>• Adaptive management/reclamation research during operations to monitor water quality in Kennady Lake (ENR)</li> <li>• The research plans should identify indicators of ecosystem function and how these will be monitored to measure self-sustaining capabilities. (DKFN)</li> <li>• Despite this goal, De Beers admits uncertainties remain regarding the successful achievement of closure objectives, which is of concern given the short lifespan of the mine. The Reclamation Research Plans are supposed to address these uncertainties, but these are incomplete and not comprehensive. (DKFN)</li> <li>• Vegetation – what type of experimental trials will occur? Who will be involved in these? How is traditional knowledge going to be incorporated? (DKFN)</li> <li>• Improving habitat quality for caribou and other wildlife – there is essentially nothing presented in this section. Given the major concerns regarding caribou it is critical that this research be identified now. (DKFN)</li> <li>• The Reclamation Research plans remain incomplete – sometimes lacking clear goals/research purpose, commitments, key actions, and resources. As this work should be underway already, the lack of information with regards to some research is surprising. (NHX)</li> <li>• Climate Change: To what extent will future climate uncertainty affect the long-term performance of the closure and reclamation</li> </ul>

			<p>plan? Have contingencies been built into the plan to address this uncertainty? (MVLWB)</p> <ul style="list-style-type: none"> <li>• Timing of resolution of uncertainties: The ICRP identifies a number of uncertainties that are included in the Reclamation Research Plan (RRP). While the RRP presents a high level schedule of activities, it does not specify when critical uncertainties will be sufficiently resolved to make final closure decisions. When will those uncertainties be resolved and how much flexibility will remain to modify the closure plan at that time? Specifically, will any of the contingencies described in Section 5.2.9 of the ICRP no longer be viable at a particular point in time? (MVLWB)</li> <li>• The ICRP indicates that a human-health and ecological risk assessment will be conducted to quantify post-closure risks. The findings of such an assessment would serve as valuable input to the decision-making process for the ICRP. Towards this end, what is the earliest date the post-closure assessment could be completed, assuming currently available information is used (as opposed to waiting for the output of reclamation research)? (MVLWB)</li> <li>• Meromixis: If stable meromictic conditions are not achieved, what are the anticipated impacts on water quality and aquatic receptors under a reasonable worst case scenario (i.e., if water in the Tuzo pit were to turnover)? (MVLWB)</li> <li>• Are there any scenarios in which active, long-term management of the site may be required (e.g., on-going physical isolation of a pit and active water treatment)? (MVLWB)</li> </ul>
12	2:45 – 3:00 pm	Permanent Closure – Post-Closure Monitoring	<ul style="list-style-type: none"> <li>• Monitoring requirements/duration for Kennedy Lake post-closure (ENR)</li> </ul>
13	3:00 – 3:15 pm	<b>BREAK</b>	
14	3:15 – 3:45 pm	Progressive Reclamation	<ul style="list-style-type: none"> <li>• Work to be done regarding early restoration of Area 7 (ENR)</li> </ul>
15	3:45 – 4:15 pm	Temporary Closure, Integrated Schedule of Activities, Post-Closure Site Assessment and Security	<ul style="list-style-type: none"> <li>• Potential for underground expansion and closure implications for water management, mine rock and PAG rock (ENR)</li> <li>• Security (ENR)</li> </ul>
16	4:15 – 4:30 pm	Closing Comments	