1. Purpose/Report Summary

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board):

a) An Application to amend Land Use Permit (Permit) MV2017D0032, submitted by De Beers Canada Inc. (De Beers);
b) Seek confirmation on preliminary screening exemption;
c) Consider the Waste Management Plan (for Extended Care and Maintenance), version 3 as required by condition 42 of Land Use Permit MV2017D0032;
d) Consider the Spill Contingency Plan (for Extended Care and Maintenance), version 3 as required by condition 66 of Land Use Permit MV2017D0032; and

e) Consider the Interim Closure and Reclamation Plan, version 3.2, to fulfill Condition 71 of Land Use Permit MV2017D0032, including the following updated Extended Care and Maintenance Plans:
   • Extended Care and Maintenance Plan, version 3;
   • Water Management Plan for Extended Care and Maintenance, version 3; and
   • Emergency Response Plan for Extended Care and Maintenance, version 2.

2. Background

- October 12, 2017 – Issuance of Permit MV2017D0032;
- March 19, 2018 – Amendment Application received;
- March 21, 2018 – Amendment Application deemed incomplete;
- May 14, 2018 – Additional information provided; Amendment Application deemed complete and review commenced;
- May 31, 2018 – Reviewer comments and recommendations due and received;
- June 6, 2018 – Responses due and received;
- June 7, 2018 – Additional details from SLEMA on their ORS comment submitted;
- June 12, 2018 – De Beers’ response to the addition details from SLEMA submitted;
- June 20, 2018 – Amendment Application presented to the Board for decision; and
- June 25, 2018 – End of 42-day timeline.
3. Discussion

On February 22, 2018, the Board issued a letter (attached) to De Beers deferring its decision on De Beers’ Extended Care and Maintenance Plan (ECMP), version 2, and associated Management Plans, because Condition 52, which requires an examination of all Fuel Storage Containers and Tanks a minimum of once per day, and to repair all leaks immediately, directly contradicted information presented in the ECMP version 2 regarding periods of zero-occupancy from near freeze up to prior to freshet. In addition, the Board deferred its decision on De Beers’ request to not file the Interim Closure and Reclamation Plan (ICRP), version 4 because this submission, with a due date of January 30, 2018, is described by Permit condition 71. This letter also outlined required updates to some of the ECMP management plans based on reviewer comments and recommendations. Thus, on March 19, 2018, De Beers applied to amend Type A Permit MV2017D0032, with an updated ECMP version 3, and associated Management Plans (attached); this application was deemed incomplete on March 21, 2018. On May 14, 2018, De Beers provided the outstanding information, and the application was deemed complete and the review commenced.

De Beers is requesting to amend 3 conditions in Permit MV2017D0032. These are:

**Condition 52: “Check for Leaks”**. As outlined in the amendment application cover letter, De Beers has requested that this condition be updated to align with requirements in the Storage tank systems for Petroleum Products and Allied Petroleum Products Regulations (the Regulations), specifically Clause 19(1). This would mean a change from weekly visual inspections of the tanks to monthly inspections of the tanks. Further details are provided in the Reviewer Comment section below.

**Condition 71: “Interim Closure and Reclamation Plan”**. De Beers has requested that this condition be removed from the Permit, as they plan to submit the Final Closure and Reclamation Plan (required by Condition 72) in 2019. Additional details are provided below.

**Condition 50: “Security Deposit – Commencement”**. On January 30, 2018, De Beers submitted a 2018 Financial Security Estimate report, version 1. This was reviewed in February 2018 and reviewer comments were provided. De Beers updated the 2018 Financial Security Estimate report as per reviewer comments and resubmitted version 2 with this amendment application. On May 31, 2018, GNWT-ENR provided an additional recommendation. This was subsequently distributed for further public review. De Beers has requested that the amount of security required in Condition 50 of Permit MV2017D0032 be amended to the value suggested in the updated 2018 Financial Security Estimate report, version 3, as submitted June 4, 2018 in response to GNWT-ENR comment ID-4. Additional details are provided below.

**Condition 71: “Interim Closure and Reclamation Plan”**

The previous ICRP (Version 3.2) was approved by the Board January 30, 2014, with the next submission due 3 years later (January 30, 2017) (attached). On August 17, 2016, De Beers submitted a request to extend the submission deadline of ICRP Version 4; the Board approved this extension on September 23, 2016 and set a new submission date of January 30, 2018 (attached).

On December 14, 2017, De Beers submitted a letter notifying the Board they are preparing for the final closure of the Snap Lake Mine (attached). In this letter De Beers requested they not file the ICRP
(Version 4), which was due to the Board January 30, 2018; De Beers proposed to submit a Final Closure Plan (FCRP) in 2019 instead.

The ICRP is required under Part I, condition 1 of Licence MV2011L2-0004, and Condition 71 of Permit MV2017D0032. Condition 71 of Permit MV2017D0032 currently states the following:

*The Permittee shall submit to the Board for approval, by January 30, 2018, an Interim Closure and Reclamation Plan. Revisions to the Plan shall be submitted to the Board, for approval, every 3 years after the date of approval, or as directed by the Board.*

This non-standard condition was included in Permit MV2017D0032 so that the next version of the ICRP could be reviewed and considered concurrently under both the Licence MV2011L2-0004 and Permit MV2017D0032 authorizations. On February 22, 2018, the Board decided to defer its decision on this request to not file the ICRP version 4 until De Beers submitted an application to amend condition 71 of Permit MV2017D0032. De Beers has requested the removal of condition 71, however, as the Extended Care and Maintenance Plans are submitted under section 7.0 of the ICRP, and in order for those plans to be considered under the Permit authorization, there needs to be a condition in the Permit requiring an ICRP. Board staff suggest that the Board amend condition 71 to simply state that the Permittee shall adhere to the ICRP, once approved. The Board could then approve ICRP, version 3.2, which has already been approved under the Licence, to satisfy condition 71 of Permit MV2017D0032.

**Condition 50: “Security Deposit – Commencement”**

The Board Package presented immediately prior to this one summarized the public reviews, including all comments and recommendations, of the 2018 Financial Security Estimate reports. Board staff suggest the Board reference that package in making its decision on the amendment to the security required by Condition 50. A summary of the 2018 Financial Security Estimate report estimates, submitted by De Beers, are provided in the Security section below.

**Fees**

No application fee is required for Permit Amendment Applications.

**Term**

De Beers has not requested to change the term of their Permit.

4. **Comments**

**Management Plans**

An Engagement Plan was submitted with the Amendment Application. This same Engagement Plan was submitted with the new Type A Permit MV2017D0032 application on August 25, 2017 and was approved by the Board upon issuance on October 12, 2017. No changes have been made by De Beers to the Engagement Plan since it was last approved.

Board staff have carried out a conformity check on the Extended Care and Maintenance Plan version 3, and associated Management Plans, and have determined that the updates requested by the Board
in the February 22, 2018 decision letter have been made. The plans requiring updates (version 3) also went out for a review with the amendment application.

5. Reviewer Comments

By May 31, 2018, comments and recommendations on the Amendment Application, Extended Care and Maintenance Plans, and 2018 Financial Security Estimate Report, version 2 were received from the following reviewers:

- Environment and Climate Change Canada (ECCC);
- Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR);
- Government of the Northwest Territories – Lands Inspector;
- Board staff; and
- Snap Lake Environmental Monitoring Agency (SLEMA).

De Beers responded on June 6, 2018. The Review Summary and Attachments are attached. The following summarizes the main issues raised during the review:

Check for Leaks

As previously stated, De Beers’ amendment application requested that the ‘Check for Leaks’ condition be updated to align with language in the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (the Regulations), specifically Clause 19(1). In his review comments (Lands-1, -2) the Lands-Inspector agreed, and also suggested including other clauses from those Regulations that describe in-tank leak detection and reconciliation. Board staff note that these conditions mentioned by the inspector were written for tanks without Secondary Containment. Since De Beers is required to have adequate secondary containment by Conditions 54, 59, and 60, Board staff do not feel that any further conditions are necessary to stop fuel from spreading outside of the lined and bermed containment area, and that monthly in person tank examinations during periods of zero-occupancy would be sufficient.

Final Closure and Reclamation Plan

The Inspector commented (Lands-3) that the Final Closure and Reclamation Plan should be reviewed and approved prior to the new Water Licence application submission in 2019. Board staff agree with the inspector in that it would be beneficial to at least have the Final Closure and Reclamation Plan (FCRP) submitted prior to the Water Licence Application in 2019. The final closure process is very elaborate and the FCRP may undergo many iterations and reviews before it is approved by the Board. The FCRP discussions and workshops will also help to inform the development of draft Licence conditions, and therefore should commence prior to the new Water Licence application. Board staff also note that Part I, condition 3 of Licence MV2011L2-0004 states:

_The Licensee shall submit to the Board, a minimum of twenty-four (24) months prior to the end of operations, for approval, a Final Closure and Reclamation Plan._

As De Beers has announced final closure (December 14, 2017 letter attached) and will be applying for a closure Water Licence in 2019, the Final Closure and Reclamation Plan should have already been submitted to the Board.
Zero occupancy, Extended Care and Maintenance, and Management Plans

Board staff commented (MVLWB-2) requesting clarification on how De Beers plans to adhere to Part E, condition 5 of their Licence during periods of zero occupancy (monthly site visits). Part E, condition 5 of Licence MV2011L2-0004 states:

*The Licensee shall maintain all structures designed to contain, withhold, retain, or divert Water or Waste in a manner consistent with the Geotechnical Engineering Report referred to in Part D, item 11 of this Licence, the geotechnical and geochemical reports referred to in Part E, item 3, the approved North Pile Management Plan referred to in Part E, item 7, and the approved Acid Rock Drainage and Geochemical Characterization Plan referred to in Part E, item 10 so as to prevent the escape of Waste. Weekly inspections of these structures shall be conducted and the records of these inspections shall be kept for review as requested by an Inspector. The Licensee shall perform more frequent inspections at the request of an Inspector.*

De Beers responded stating that the engineer of record has provided a technical memo confirming that monthly monitoring of the structures designed to withhold and retain waste is sufficient to manage any potential risks associated with these facilities. This memo articulating the rationale and alignment with a risk-based approach will be submitted to the Board on June 11th, 2018. De Beers also responded that remote technologies have been implemented on site and the system has been deemed sufficient to meet inspection requirements for the facility by the Engineer of Record.

Board staff received this technical memo from De Beers on June 12, 2018 (attached). Board staff suggest that this memo, indicating that remote technologies are a sufficient surrogate to the weekly inspections required by Part E, condition 5, should go out for a public review and be brought to the Board for decision. Therefore, Board staff are of the opinion the Extended Care and Maintenance Plans, and associated Management Plans should not be approved under the Licence authorization until the technical memo undergoes a public review and is brought to the Board for consideration.

SLEMA commented (SLEMA-1) stating that monthly inspections of fuel storage containers and tanks are acceptable for Snap Lake Mine only if reasonable measures are taken during the periods of zero occupancy at the mine site. SLEMA recommended the MVLWB provide clear directions in the amended Land Use Permit on remote monitoring. Board staff were unclear on what SLEMA meant by ‘reasonable measures’ and ‘clear directions in the amended Land Use Permit on remote monitoring’, and so Board staff requested that SLEMA provide additional details to support their comment and recommendation. SLEMA responded on June 7, 2018 (attached). De Beers in turn responded on June 12, 2018. Table 1 below summarizes the additional comments and recommendations from SLEMA, De Beers’ response and Board staff’s analysis:
### Table 1: SLEMA’s June 7, 2018 memo, De Beers responses, and Board staff analysis

<table>
<thead>
<tr>
<th>Topic</th>
<th>SLEMA comment/recommendation</th>
<th>De Beers’ response</th>
<th>Board Staff Analysis</th>
</tr>
</thead>
</table>
| Active Tank Farms            | - Ensure water is free from the berm of tank farm  
- Monitor fuel level within the tank via video camera (frost line) or sensors  
- Remove snow or ice within the berm of all tank farms whenever capacity is less than 110%.                                                                 | Snow removal within the lined, bermed areas is not possible as it could cause damage to the liner. The containment areas on site are sufficient to provide containment should a breach occur. Additionally, no active pumping will occur during the monthly site visits. | The draft Permit conditions satisfy SLEMA’s concern, specifically condition 54 requiring adequate secondary containment. De Beers’ Extended Care and Maintenance Plans indicate that they will be monitoring the site via cameras in real time. |
| Site Water Management        | - Ensure water level in sumps and Water Management Pond (WMP) as low as possible. Set up posts in sumps/WMP with marked level indicating when dewatering/snow removal operation should be carried out.  
- Monitor water/snow/ice level in sumps/WMP via video camera or sensors.  
- Remove snow or ice if necessary.                                                                                                   | As per the Engineer of Record memo regarding site monitoring, snow and ice may be removed prior to freshet as deemed necessary to in anticipation of seasonal inflows. | See above Board staff Analysis.                                                                                                                                                                                                       |
| Spill Response               | - Be ready to deploy the Spill Response Team to the Snap Lake mine while a spill is identified by the site surveillance system.                                                                                        | Spill response is discussed in the Emergency Response Plan and the Spill Contingency Plan. If necessary, De Beers will have the ability to deploy emergency response. | Acceptable response. Board staff can confirm that these details are in the provided Spill Contingency Plan and Emergency Response Plan for Extended Care and Maintenance.                                                                 |
| Reporting                    | - Submit staff checklist of mine site visit/inspection and template of mine site visit/inspection report for Board approval.  
- Submit Monthly Site/Inspection Visit Report for Board review.                                                                                                                   | The surveillance Network Program monthly report will continue to be submitted to the MVLWB and as always will include the requirements of this report as set out in Water License MV2011L2-0004. | The Board could require De Beers to submit these monthly site inspection reports as part of the Annual Water Licence Report on March 31 each year (Part B, condition 7; Schedule 1, condition 1(cc)). |

SLEMA’s letter also outlined their rationale for “reasonable measures”. Board staff are of the opinion that most reasonable measures would be addressed by current conditions of the Permit and Licence, and by the Board’s direction in their February 22, 2018 Decision Letter which stated: **“The Board further requires De Beers to submit details about new remote monitoring systems at least 60 days prior to their implementation to replace a physical presence at Snap Lake, for approval, including, at**
a minimum, information on the new technology proposed, data and results of field trials, relevant studies, and rationale for the proposed program.”

SLEMA further suggested that the Board direct De Beers to increase monitoring frequency if efforts/measures in place to detect or resolve environmental impacts prove insufficient to meet environmental protection objectives. Board staff agree and have included similar language in the draft decision letter.

Preliminary Screening
De Beers’ amendment application requests an exemption from a preliminary screening as per Schedule 1, section 2.1 of the Mackenzie Valley Resource Management Act Exemption List Regulations (ELR), which state:

A development, or a part thereof, for which a permit, licence or authorization is requested that

(a) was part of a development that fulfilled the requirements of the environmental assessment process established by the Mackenzie Valley Resource Management Act; and

(b) has not been modified since the development referred to in paragraph (a) fulfilled the requirements of the environmental assessment process by the Mackenzie Valley Resource Management Act.

The Snap Lake Mine project has undergone Environmental Assessment (EA) EA01-004 between 2001 and 2003, with the Report of EA and Reasons for Decision issued on July 24, 2003. Board staff are of the opinion that the requested changes to conditions in the Permit MV2017D0032 amendment application are within the scope of EA01-004 and Permit MV2017D0032, and therefore could be exempt from preliminary screening.

Draft Permit
The draft Permit (attached) contains the amended conditions as requested in the amendment application submitted by De Beers and also reflects reviewer and Board Staff recommendations.

6. Security
Table 2 below compares De Beers’ Summary Table from the 2018 Security Estimate Report, version 1 (January 30, 2018), version 2 (April 16, 2018), and version 3 (June 4, 2018). The differences for land and water liabilities between report versions are highlighted in green and blue, respectively.
### Table 2: Breakdown of De Beers’ 2018 Security Estimate Report

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td>Land</td>
<td>Water</td>
<td>Land</td>
</tr>
<tr>
<td>Open pit</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Underground mine</td>
<td>$357,643</td>
<td>$0</td>
<td>$357,643</td>
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<tr>
<td>Tailings facility</td>
<td>$6,612,779</td>
<td>$1,085,293</td>
<td>$6,612,779</td>
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<tr>
<td>Rock pile</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Buildings and equipment</td>
<td>$18,948,846</td>
<td>$75,000</td>
<td>$18,948,846</td>
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<tr>
<td>Chemicals and contaminated soil management</td>
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<td>$2,528,688</td>
<td>$2,528,688</td>
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<tr>
<td>Surface &amp; groundwater management</td>
<td>-</td>
<td>$3,543,769</td>
<td>-</td>
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<tr>
<td>Interim care and maintenance</td>
<td>-</td>
<td>$8,263,107</td>
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<tr>
<td><strong>SUBTOTAL: Capital Costs</strong></td>
<td>$28,447,956</td>
<td>$15,495,857</td>
<td>$28,447,956</td>
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<tr>
<td><strong>PERCENT OF SUBTOTAL</strong></td>
<td>65%</td>
<td>35%</td>
<td>65%</td>
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<tr>
<td><strong>INDIRECT COSTS</strong></td>
<td>Land</td>
<td>Water</td>
<td>Land</td>
</tr>
<tr>
<td>Mobilization/ demobilization</td>
<td>$5,994,744</td>
<td>$3,265,391</td>
<td>$5,191,364</td>
</tr>
<tr>
<td>Post-closure monitoring and maintenance</td>
<td>$7,831,767</td>
<td>$4,266,033</td>
<td>$7,831,767</td>
</tr>
<tr>
<td>Engineering (5%)</td>
<td>$1,422,398</td>
<td>$774,793</td>
<td>$1,422,398</td>
</tr>
<tr>
<td>Project management (5%)</td>
<td>$1,422,398</td>
<td>$774,793</td>
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<tr>
<td>Health and safety plans/ monitoring &amp; QA/QC (1%)</td>
<td>$284,480</td>
<td>$154,959</td>
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<td>Bonding/insurance (1%)</td>
<td>$284,480</td>
<td>$154,959</td>
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<td>Contingency (20%)</td>
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<td>$3,099,171</td>
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<td>Market price factor adjustment (0%)</td>
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<td><strong>SUBTOTAL: Indirect Costs</strong></td>
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<td><strong>TOTAL COSTS</strong></td>
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<td>$27,985,956</td>
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<td><strong>GRAND TOTAL COSTS</strong></td>
<td>$79,363,769</td>
<td>$78,122,780</td>
<td>$78,963,088</td>
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</table>

As portrayed in the above table, the only difference between the security estimates presented in all 3 versions of De Beers’ 2018 Security Estimate Reports is the Mobilization/demobilization line item. The resulting total costs of all three estimates are relatively the same.
As noted above in Section 3 of this staff report (Discussion), the GNWT currently holds a grand total of $60,401,918.00 for the project. De Beers has suggested that the Licence security be reduced by approximately $11M, and Permit security be increased by approximately $30M. Therefore, overall, De Beers has suggested an increase in security of approximately $18.6M for the Snap Lake Mine.

It is important to note that the mine is no longer in an operation or production phase, which greatly contributes to the decrease in reclamation liability for the water portion of the estimate. RECLAIM has also been updated since the version used to calculate the 2012 estimate; RECLAIM 7.0 was used by De Beers for the 2018 estimates.

Board staff suggest that the amounts proposed by De Beers in version 3 of the 2018 Security Estimate are likely the most accurate as they have incorporated two rounds of review comments and recommendations. If the Board revises the amount of security required, then these amounts would be reflected in Permit MV2017D0032 conditions.

7. Conclusion

The amended Permit conditions are based upon De Beers’ amendment request, reviewer comments, and Board staff recommendations. Board staff concludes that the conditions contained within this draft Permit should mitigate the potential environmental impacts this project may have on the land and water.

Board staff conclude that further information was provided by De Beers in their responses to reviewer comments. Board staff conclude that there are no outstanding concerns with the Extended Care and Maintenance Plan and associated management plans in relation to the Land Use Permit conditions.

8. Recommendation

Board staff recommend the Board:

a) Confirm the Amendment Application for Land Use Permit MV2017D0032 is exempt from preliminary screening;
b) Make a motion to approve the Type A Land Use Permit MV2017D0032, and Reasons for Decision;
c) Make a motion to approve the Waste Management Plan, version 3 (for Extended Care and Maintenance) as required by condition 42 of Land Use Permit MV2017D0032;
d) Make a motion to approve the Spill Contingency Plan, version 3 (for Extended Care and Maintenance) as required by condition 66 of Land Use Permit MV2017D0032; and
e) Make a motion to approve the Interim Closure and Reclamation Plan, version 3.2, as required by Condition 71 of Land Use Permit (Permit) MV2017D0032, including:
   • Extended Care and Maintenance Plan, version 3;
   • Water Management Plan for Extended Care and Maintenance, version 3; and
   • Emergency Response Plan for Extended Care and Maintenance, version 2.

A draft decision letter is attached.
Board staff recommend including the following text in the decision letter:

- The Board reminds De Beers that the management plans approved with this June 20, 2018 issuance letter have only been approved under the Permit MV2017D0032 authorization.
- The Board directs De Beers to submit the Final Closure and Reclamation Plan by January 30, 2019 to allow sufficient time to begin closure discussions prior to the submission of the Water Licence Application.
- The Board reminds De Beers that the Inspector has the authority to require more frequent in-person site visits during periods of zero-occupancy if conditions in the Permit are not being adhered to, or if De Beers’ is not following their approved Management Plans.
- As was outlined in the Board’s February 22, 2018 Decision Letter to De Beers, the Board requires De Beers to submit details about new remote monitoring systems at least 60 days prior to their implementation to replace a physical presence at Snap Lake, for approval, including, at a minimum, information on the new technology proposed, data and results of field trials, relevant studies, and rationale for the proposed program.
- Lastly, The Board requires De Beers to submit their monthly site inspection checklists/reports as part of the Annual Water Licence Report submission due on March 31 each year, commencing March 31, 2019.

9. Attachments

- Amendment Application
  - Extended Care and Maintenance Plan, version 3
  - Waste Management Plan for Extended Care and Maintenance, version 3
  - Spill Contingency Plan for Extended Care and Maintenance, version 3
  - Emergency Response Plan for Extended Care and Maintenance, version 2
  - Water Management Plan for Extended Care and Maintenance, version 3
  - Engagement Plan – Approved October 12, 2017
  - Interim Closure and Reclamation Plan, version 3.2
- September 23, 2016 – Board Extension Approval Letter
- January 30, 2014 – Board Approval of ICRP V3.2
- December 14, 2017 – Letter from De Beers announcing Final Closure
- Review Summary and Attachments (1) – Financial Security Estimate report review
- Review Summary and Attachments (2) – Amendment Application review
- Additional Details from SLEMA on SLEMA comment-1
- Additional Response from De Beers on SLEMA comment-1
- De Beers June 12, 2018 – Technical Memo
- The Board’s February 22, 2018 Decision Letter to De Beers
- Draft Land Use Permit Cover Page
- Draft Land Use Permit Conditions
- Draft Reasons for Decision
- Draft Decision Letter from the Board
Respectfully submitted,

Kierney Leach
Technical Regulatory Specialist
**Review Comment Table**

<table>
<thead>
<tr>
<th>Board:</th>
<th>MVLWB</th>
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</table>
| File(s): | MV2011L2-0004  
MV2017D0032 |
| Proponent: | De Beers Canada Inc. - Snap Lake |
| Document(s): | 2018 Financial Security Estimate / RECLAIM (29MB) |
| Item For Review Distributed On: | Feb 1 at 15:37 Distribution List |
| Reviewer Comments Due By: | Mar 6, 2018 |
| Proponent Responses Due By: | Mar 13, 2018 |
| Item Description: | De Beers Canada Inc. (De Beers) Snap Lake submitted a revised financial security estimate using RECLAIM on January 30, 2018 to the Board. This submission is required by Part C, item 3 of Licence MV2011L2-0004.  
On August 17, 2016, De Beers submitted a request to extend the submission deadline of the Interim Closure and Reclamation Plan (ICRP) Version 4. On September 23, 2016 the Board approved an extension to January 30, 2018, and also decided to extend the submission deadline for the revised reclamation security estimate to January 30, 2018.  
Reviewers are invited to submit questions, comments, and recommendations on this submission by Tuesday March 6, 2018 at 5pm MST.  
All documents that have been uploaded to this review are also available on our public registry. If you have any questions or comments regarding this submission or using the Online Review System, please contact Kierney Leach at 867-766-7470 or kleach@mvlwb.com. |
| General Reviewer Information: | In addition to the email distribution list, the following organizations received review materials by fax:  
Fort Resolution Métis Council - Trudy King (867) 394-3322  
Hay River Metis Council - Trevor Beck, President (867) 874-4472  
NWT Metis Nation - Tim Heron, NWTN IMA Coordinator (867) 872-3586 |
| Contact Information: | Jacqueline Ho 867-766-7465  
Jen Potten 867-766-7468  
Kierney Leach 867-766-7470 |
## Comment Summary

<table>
<thead>
<tr>
<th>ID</th>
<th>Topic</th>
<th>Reviewer Comment/Recommendation</th>
<th>Proponent Response</th>
<th>Board Staff Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>General File</td>
<td><strong>Comment</strong> <em>(doc)</em> ENR Letter with Comments and Recommendations and Attached Brodie Consulting Memo <strong>Recommendation</strong></td>
<td></td>
<td>Noted.</td>
</tr>
<tr>
<td>1</td>
<td>Topic 1: General - Cover letter &amp; Crediting System</td>
<td><strong>Comment</strong> In reference to Environmental Agreement (the Agreement) security held with the GNWT-ENR, De Beers states in the cover letter expectations for a consistent process approach when allocating the entire security for the Mine, as with the last RECLAIM revision. Two types of security are provided for under the Agreement. As outlined in Clause 12.1(a) of the Agreement, the Security Deposit and the Additional Security Deposit are to be held by the Minister of Environment and Natural Resources &quot;as security for the performance by DBCMI of its closure and reclamation obligations under the Water Licence and Land Leases, any other indebtedness or obligations of DBCMI under environmental laws, regulations or other</td>
<td><strong>Mar 13: Noted.</strong></td>
<td>Noted.</td>
</tr>
<tr>
<td></td>
<td>Regulatory Instruments for which the Minister is responsible and any other obligations of DBCMI under this Agreement.&quot;. The Security Deposit is currently set at $47,000,000. The GNWT does not hold any security under the Security Deposit (for Environmental Agreement) due to the crediting schedule outlined in Clause 12.1(e) and 12.1(f), which requires the amount of security posted under Land Leases, the Water Licence and Land Use Permits (LUPs) (provided the LUP security is for the purpose of final closure and reclamation) to be credited against the Security Deposit. <strong>Recommendation 1)</strong> GNWT-ENR will continue to credit the Security Deposit up to $47,000,000.</td>
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<td><strong>Comment</strong> De Beers acknowledges that a portion of the total security under the Agreement is held with the GNWT-ENR. The amount held by the Minister is $20,000,000 for performance obligations that are not covered by the security deposit, which as stated, is credited against the relevant licenses, permits or leases. <strong>Recommendation 1)</strong> ENR holds security for obligations under the Agreement, such as wildlife and air quality monitoring, and that we believe that those items should be removed from RECLAIM to avoid double bonding. While it is the <strong>Mar 13:</strong> De Beers’ estimate is the quantum of the total security, of which a portion is covered under the Environmental Agreement and the remainder under the water licence/land use permit.</td>
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<td>GNWT’s position that security for air and wildlife should be held under the Agreement, the GNWT is providing comments on those topics for the Board’s consideration.</td>
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<td>3</td>
<td>Topic 3: Wildlife and Wildlife Habitat Protection Plans (WWHPPs)</td>
<td><strong>Comment</strong> The Updated Financial Security Estimate notes on page A-19, that the Wildlife Effects Monitoring Program (WEMP) will be reduced to monitoring on a five year cycle following the end of mining. There is no mention of the Wildlife and Wildlife Habitat Protection Monitoring Program (WWHPP) that is currently undertaken by De Beers. <strong>Recommendation</strong> 1) Please clarify De Beers’ proposed monitoring schedule for the WWHPP.</td>
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<td><strong>Mar 13:</strong> The WWHPP will be conducted concurrently with the WEMP. The RECLAIM report will be updated to clarify this aspect.</td>
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<td>Acceptable response. This has been updated in version 2 and version 3 of the 2018 Security Estimate Report submitted on April 16, 2018 and June 4, 2018, respectively.</td>
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<td>4</td>
<td>Topic 4: Cost Estimates for Combined Aquatic and Wildlife Effects</td>
<td><strong>Comment</strong> Table A.9 page A-21 and 22 displays aquatic and wildlife effects monitoring programs as a combined cost item. <strong>Recommendation</strong> 1) Wildlife effects monitoring would be better reflected as a single line item separated from that of aquatics in order to assess what costs are being assigned to wildlife effects monitoring. More information, such as which valued components are being monitored and the frequency and method of monitoring, are required in order to assess whether De Beers’ cost estimate for wildlife effects monitoring is accurate.</td>
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<td><strong>Mar 13:</strong> The RECLAIM report will be updated to separate out the aquatic and wildlife effects into separate line items. The monitoring programs for final closure will be updated with the final closure and reclamation plan.</td>
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<td>Acceptable response. This has been updated in version 2 and version 3 of the 2018 Security Estimate Report submitted on April 16, 2018 and June 4, 2018, respectively.</td>
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<td>5</td>
<td>Topic 5: Environmental</td>
<td><strong>Comment</strong> While the Interim Closure and Reclamation Plan</td>
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<td><strong>Mar 13:</strong> The monitoring programs for air and wildlife</td>
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<td>Acceptable response.</td>
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Agreement Monitoring & RECLAIM Security Alignment outlines some monitoring schedules it is important for De Beers to also consider requirements under the Agreement when proposing new monitoring schedules. Clause 6.3(d) requires De Beers to design an Air Quality and Emissions Management Plan in consultation with Environment Canada, and the GNWT, and for the plan to be reviewed with Environment Canada, the GNWT and SLEMA if there is a major change in infrastructure or emission quantity/quality. Likewise, Clause 6.3(g) requires consultation with the GNWT and SLEMA when developing a Wildlife Monitoring Plan. The GNWT takes this to mean that consultation is required when deviating from the current Air Quality and Emissions Monitoring and Management Plan, WEMP and WWHPP monitoring programs. In addition, the Agreement also identifies what components need to be monitored for air and wildlife. 

Recommendation 1) The GNWT would welcome a meeting between De Beers and SLEMA to discuss the closure and post-closure air and wildlife monitoring requirements under the Agreement. Until an agreement between De Beers, GNWT and SLEMA is reached on the closure and post-closure air and wildlife monitoring frequency it is difficult to assess whether the monitoring at final closure will be updated with the final closure and reclamation plan. De Beers will fulfill its requirements of the EA to engage the GNWT and SLEMA when these plans are further developed.
|   | Topic 6: Cohesion of Table A.9 page A-21 | **Comment** The monitoring phases are projected by year. The dates do not appear to be correct. In addition, the phases in this table do not match the phases that are described in Table A.7. For example, Interim Care and Maintenance (ICM) on Table A.9 is a phase that is not described in table A.7 and the ICM phase is described to start in 2029. **Recommendation** 1) Please review and revise the discussed table(s) accordingly for better cohesion of the document. | **Mar 13:** Table A.9 will be updated include the correct years. | Acceptable response. This has been updated in version 2 and version 3 of the 2018 Security Estimate Report submitted on April 16, 2018 and June 4, 2018, respectively. |
|---|---|---|---|
| 7 | Topic 7: Table A.8 Timelines | **Comment** This table includes a progression of timelines, but it would be more effective if the years were recorded. **Recommendation** 1) It is recommended to include the year in which costs are being attributed. | **Mar 13:** Table A.8 will be updated to include the years. | Acceptable response. This has been updated in version 2 and version 3 of the 2018 Security Estimate Report submitted on April 16, 2018 and June 4, 2018, respectively. |
| 8 | Topic 8: Air Quality Monitoring | **Comment** Page A-19 indicates that "Air quality monitoring will continue at a similar scope to operations during the final reclamation phase, following which it will be reduced to activities completed once each summer, then terminated following Year 3 post closure". Was this statement made in consideration of the Agreement, which requires air | **Mar 13:** Noted, see response to GWNT #5. | Acceptable response. |
|   |   | quality monitoring (Clause 6.3(d) and 7.2(a))? Will this include TSP monitoring, as was done during operations and required under the Agreement? **Recommendation** 1) It is recommended that changes to air quality monitoring, that would be considered a departure from the Agreement, have evidence of support and sign-off by all parties. Can greater clarity on the monitoring (eg. TSP) be provided at this time? Until the parameters and frequency of the closure and post-closure air monitoring is agreed to by the GNWT and SLEMA, as required by the Agreement, it is difficult to assess whether the cost estimates put forward by De Beers in the RECLAIM estimate are accurate. |
| 9 | Topic 9: Scaling Approach for Cost Estimates | **Comment** The scaling factor takes into account several things, including reductions in monitoring requirements that were strictly related to operations. Without updates to monitoring plans, it is very difficult to determine if these estimates (which give an indication on the approach to monitoring) are sufficient. **Recommendation** 1) It is recommended that approval of the security update is re-evaluated as additional information is available through the Final Closure and Reclamation Plan. | Mar 13: Noted. The monitoring programs for final closure will be updated with the final closure and reclamation plan. | Acceptable response. |
| 10 | Topic 10: Final Closure Information | **Comment** ENR notes that the current estimate is based upon assumptions made prior to decision making. | Mar 13: Agree. | Acceptable response. |
to the decision to proceed with the closure of the Snap Lake Mine. As such, information remains outstanding regarding several important closure components such as:

- Updated water quality models that consider the North Pile thermal predictions, geochemistry and weathering of processed kimberlite;
- Updated thermal monitoring and predicted time for the North Pile to freeze;
- Final Closure Plan for the North Pile;
- Approved closure criteria for seepage and runoff;
- Reclamation research, which includes vegetation trials that have only just gotten underway (De Beers, 2017b) as well as approval for what is being proposed;
- Assessments to support pumping of surface water and or water treatment residuals underground and for how long; and
- Monitoring and maintenance requirements following active closure, for a transition period, and post-closure. ENR expects that these topics will become better understood as the Final Closure and Reclamation Plan is developed for the site. **Recommendation** 1) ENR recommends that a thorough review of the security be undertaken with submission of the Final Closure Plan.

| 11 | Topic 11: Water Management “Pumping” | Comment | Within the Mine Water Management Plan De Beers describes the option to pump poor quality water | Mar 13: This type of analysis has not been completed. Mar 13: ~As per De Beers Response to Comments ECMP | Acceptable response. |
to Underground from the surface that has interacted with mine surface infrastructure either directly underground, or through the water treatment system with process residuals pumped underground. De Beers has indicated that: "Due to the nature of the Snap Lake Mine Underground, the upper levels of the mine will be buffered from turbulent flow (limited to seasonal discharge) associated with the pumping of surface water underground allowing for the stabilization of the chemocline." ENR is not aware whether De Beers has conducted any studies such as hydrogeological assessments or stratification modelling to support the plan.

**Recommendation**

1) ENR recommends that De Beers provide any reports available of hydrogeological assessments and stratification modelling to support the plan to pump surface water and/or process residuals underground. Any restrictions should be described, such as pumping rates, the volume that can be disposed of annually, as well as how many years this could be relied upon if required.

v2: De Beers removed contaminated materials from the underground prior to commencing flooding, which ensured that the surface and groundwater are not contaminated - this was verified by the GNWT Inspector during bi-weekly inspections of the underground. The estimated volume of surface waters to manage each year is approximately 400,000 m³. This water is expected to have high TDS levels and to have a similar chemical signature as the underground mine water encountered during mining operations. The chemical composition and nature of connate water at Snap Lake was the subject of EA1314-02 requiring De Beers to treat the deep connate water and develop EQCs and SSWQOs that are protective of Snap Lake. De Beers notes that the surface water can be dealt with in one of three ways: 1. Discharged to Snap Lake if it meets the EQC's 2. Discharged underground if it does not meet the EQC's 3. Treated and discharged to Snap Lake and with process residuals being discharged underground. De Beers expects approximately 30-50% of the surface waters will be discharged underground. At the time of the May 2017 overtopping of the fresh-air raise De Beers had pumped a total of approximately 30,000 m³ of water underground to the 5180 level. Upon
identification of the overtopping De Beers then ceased pumping underground and obtained emergency discharge authorization from the GNWT Inspector until the cessation of freshet (refer to spill follow up report and subsequent water management updates). De Beers' authorization did not allow for the recommencement of pumping surface water underground until after the site was stabilized and the emergency authorization discontinued. The overtopping was caused by the initially high pumping rates and faster than expected refilling rate. Upon recommencing with water pumping to the underground it was at a substantially reduced rate of approximately 2000 m³ per day or less. At this rate, the water level in the mine workings remained relatively constant. De Beers will continue to discharge TDS water underground to the 5180 level (consistent with the MVLWB approve water management plan) approximately 260m below the mine entrance. This discharge is into the deeper connate (saline) waters already present at those depths in the mine workings. This deep saline water forms a chemocline within the underground mine water column, which restricts this water from rising due to its
| 12 | Topic 12: Water Treatment Duration | **Comment** The North Pile collection system will continue to function for some period of time until the surface runoff and any seepage waters are of acceptable quality for direct discharge. The security estimate currently includes three years of water treatment: two during Interim Care and Maintenance, and one during Closure. ENR | **Mar 13**: De Beers recommends this decision be based on the updated water quality predictions (see response to GNWT#13), and not necessary to adjust at this time. Acceptable response. | density. Connote water in the underground workings and the De Beers Notes the following for the decision note from Board Staff: Board Staff note the water management practices are approved under the Water Management Plan, and that Snap Lake water quality is monitored and analyzed through the Surveillance Network Program (SNP) and Aquatic Effects Monitoring Program (AEMP). SNP monitoring would foreseeably detect a large input of TDS into Snap Lake. Board Staff note that the AEMP Design Plan notes TDS as one of the major mine-related stressors and notes various TDS pathways of aquatic effects; however, the concentration of TDS in Snap Lake has been decreasing since the mine has ceased operation. Board Staff recommend that De Beers ensure that AEMP annual reporting specifically and adequately accounts for this decreasing trend as they analyze for potential.<br type="_moz"/> |
acknowledges that deposition into the North Pile ceased when Snap Lake operations finished and therefore drainage, consolidation and freezing of the pile have been occurring for approximately three years. However, the following factors give rise to uncertainty in the number of years remaining: . Updated thermal monitoring and water quality modelling has not been submitted; . It is not clear what passive treatment is being proposed and how effective it will be (see comment regarding passive treatment); . Criteria for surface water quality have not been finalized. Given the high concentrations of contaminants in the North Pile (De Beers 2017a), and that active closure will result in increased disturbance of the site, it seems optimistic that only three years of water treatment will be required.

**Recommendation 1)** ENR recommends that the security estimate be adjusted to assume a minimum of five years of water treatment will be required: two years during ICM, two years during active closure, and one year following active closure. Based on the annual cost presented in the security estimate, this would result in an increase in direct costs of $1,283,858.

| Recommendation 2) | ENR recommends that future updates to the security estimate | Mar 13: Updated water quality predictions will be completed as part of the final closure and reclaim plan. | Acceptable response. |
| Topic 13: Water Treatment Costs | **Comment** As part of the Post-EA Information Package, DeBeers provided the report "Preliminary Evaluation of Best Available Technologies Economically Achievable (BATEA) for Reduction of Total Dissolved Solids (TDS) in Effluent at Snap Lake Mine" (DeBeers, 2014). At that time, DeBeers reported that a minimodular test unit was to be commissioned in 2015 having a capacity of 3,000m³/day with a cost of $0.5M/yr operating expenditure, $1.4M/yr for power, and $1M/year labour for a total of $2.9M/year ($2.65/m³ if assumed this was based on year round operation). The 2018 security estimate includes a provision for water treatment of 235,754m³ at a RECLAIM default unit cost of $2.00/m³ for a subtotal of $471,508. Based on earlier estimates of running the RO plant, combined with the existing water treatment system, this seems low. ENR understands that a microfiltration and reverse osmosis unit will be commissioned for treatment in the coming months and refined information regarding efficiency and costs will become available. **Recommendation** 1) ENR recommends that a detailed breakdown of costs for water treatment should link the duration of water treatment to water quality predictions based on updated water quality models. The updated predictions will build upon the predictions provided to the MVLWB as part of the ECM Plan V.1. | **Mar 13:** De Beers notes that the $2/m³ is an appropriate measure to treat water at Snap Lake Mine. The RO/MF treatment system procured for Snap Lake is energy efficient and De Beers has completely re-organized the operational structure of the mine to align with the limited water treatment duration of the operation. Until the mine has conducted a few years of water treatment with the new system it is premature to provide operational data at this time. De Beers will provide an update on treatment costs coupled with the final closure plan and ultimate water treatment solutions. As predicted in 2016 in the ECM V.1 Plan, water quality has improved since operations. De Beers notes that as per the Emergency Discharge Authorization granted in 2017 only a handful of times was the mine out of compliance and could have discharged water directly to the environment outside of these instances. As such, water treatment costs may be limited in duration and reduce over time. Thus De Beers stands behind the current $2/m³ estimate and notes that this is likely a conservative value that will be reducing annually. | Acceptable response. |
treatment be provided. Costs should be based on known costs of operating the existing water treatment system, and estimates of the microfiltration and RO units. Costs should include: labour, power, all chemicals, supplies, analytical testing, and maintenance costs. The security estimate should be revised accordingly. ENR notes that this information is requested for most mines operating in the NWT.

| 15 | Topic 14: Passive Wetland Treatment | **Comment** Section 2.2.5 of the Financial Security Report (Arktis, 2018) indicates that: After three years of active treatment, seepage and contact water will be allowed to flow naturally through a constructed wetland passive treatment system in the area of PS5/IL6 and the WMP before entering into the aquatic environment. Primary costs for water management via constructed wetlands include those related to construction and revegetation. Provisions in the security estimate for a wetland treatment system make reference to the proposed Fortune Minerals Nico Project (Golder, 2014). It is not known what parameters De Beers intends to target with passive treatment, or whether a similar system to Nico is what is being proposed. It should be noted that AANDC's intervention for the Nico Project (AANDC, 2014) can be summarized as having stated |
| Mar 13: Noted. The final closure and reclamation plan will further assess the passive treatment requirements for the Mine. |
| As outlined by ENR and noted by De Beers, Post-Closure Monitoring and Maintenance costs should be further evaluated upon submission of the Final CRP. |
support for passive water treatment, but that considerable more work was required to demonstrate reliable performance. This was in addition to the work that had already completed. It is not known what parameters a constructed wetland semi-passive water treatment system is required for, how effective it will be, and for how many years it will be required (security estimate states “assume 3 years”). Typically, additional active water treatment would be recommended for the security estimate until a semi-passive system can be demonstrated to be effective. However, as the 2018 security estimate includes a provision of nearly $2.5M for a passive system the $2.5M could be allocated to longer term active water treatment if a passive system is not approved. This will have to be reviewed further with submission of a Final Closure and Reclamation Plan that details the proposed semi-passive system.

**Recommendation** 1) ENR recommends that further evaluation of the proposed semi-passive water treatment system and associated costs be carried out with submission of a Final Closure and Reclamation Plan. If not approved, the security estimate should be updated to reflect longer term active water treatment.
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<th>Topic 15: North Pile “high” Unit Rate</th>
<th><strong>Comment</strong> De Beers is proposing to use the “high” unit cost from RECLAIM Ver. 7 for estimating the cost to close the North Pile. ENR notes that this unit cost is lower than in previous estimates for Snap Lake, but that the selected rate is from the RECLAIM model, and is higher than the unit cost used at the Diavik and Ekati sites. ENR does not have specific recommendation regarding the selected unit rate at this time, but notes that closure costs for the North Pile should be further evaluated as additional information becomes available through completion of the Final CRP. <strong>Recommendation</strong> 1) ENR recommends that the closure costs for the North Pile be further evaluated upon submission of the Final CRP.</th>
<th><strong>Mar 13:</strong> Noted. The final closure Unit reclamation plan will further assess the north rate requirements for the Mine.</th>
<th>As outlined by ENR and noted by De Beers, Post-Closure Monitoring and Maintenance costs should be further evaluated upon submission of the Final CRP.</th>
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<td>17</td>
<td>Topic 16: Post-Closure Management</td>
<td><strong>Comment</strong> De Beers has included an allowance for 25 years of post-closure monitoring and 15 years of post-closure maintenance. ENR is concerned that the maintenance provisions in the security estimate are insufficient. As noted previously, information on a number of items (such as thermal modelling and time to freezing predictions, seepage quality criteria, vegetation trials, etc.) will become available as the Final CRP is developed and reclamation research is completed. The post-closure monitoring allowance should be further evaluated as this</td>
<td><strong>Mar 13:</strong> Noted.</td>
<td>As outlined by ENR and noted by De Beers, Post-Closure Monitoring and Maintenance costs should be further evaluated upon submission of the Final CRP.</td>
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information becomes available in the Final CRP. This need for further evaluation is acknowledged in the Arktis estimate. **Recommendation** 1) ENR recommends that the Post-Closure Monitoring and Maintenance costs be further evaluated upon submission of the Final CRP.

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<th>18</th>
<th>Topic 17: Mobilization</th>
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<td><strong>Comment</strong></td>
<td>It appears that there is an error in the calculation of heavy equipment mobilization costs, which may be a carryover from the previous estimate. It appears that the loads per machine may be incorrect (column D) and as a result the calculation of mobilization costs. <strong>Recommendation</strong> 1) ENR recommends that mobilization costs be based on the equipment list provided in the Financial Security Report (Arktis, 2018) as well as known costs for mob/demob that De Beers may have available.</td>
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<td><strong>Mar 13:</strong></td>
<td>Noted. The loads per machine will be updated accordingly.</td>
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<td>Version 2 of the 2018 Security Estimate Report submitted on April 16, 2018 did not properly address ENR’s comment and recommendation. However, De Beers submitted Version 3 of the 2018 Security Estimate Report on June 4, 2018, and Board staff suggest that Version 3 sufficiently incorporates ENR’s comment and recommendation.</td>
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<td><strong>Comment</strong></td>
<td>Please find attached, the Brodie Consulting Memo - March 6, 2018 - Review of DeBeers Snap Lake Mine 2018 Financial Security Estimate. <strong>Recommendation</strong> 1) It is recommended that De Beers and the Board refer to the attached memo that is submitted in support of ENRs comments and recommendations.</td>
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<td><strong>Mar 13:</strong></td>
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Comment Summary

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<th>ID</th>
<th>Topic</th>
<th>Reviewer Comment/Recommendation</th>
<th>Proponent Response</th>
<th>Board Staff Response</th>
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<td>1</td>
<td>General File</td>
<td>Comment (doc) ENR Letter with Comments, Recommendations and Attachments Recommendation</td>
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<td>4</td>
<td>Topic 2: Securities</td>
<td>Comment Of note, the Department of Lands and the Department of ENR have reviewed the securities submission provided by De Beers and are in agreement with the comments below. Within the Land Use Permit amendment, De Beers has included an updated security estimate dated April 16, 2018. It is noted on the ORS review that: Condition 50: &quot;Security Deposit -</td>
<td>On June 4, 2018 De Beers submitted version 3 of the 2018 Security Estimate Report to address the</td>
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Comments from review of the Updated 2018 Financial Security Estimate Report, version 2

Commencement". On January 30, 2018 De Beers submitted a 2018 Financial Security Estimate Report. This was reviewed in February 2018 and reviewer comments were provided. De Beers has updated the 2018 Financial Security Estimate Report as per reviewer recommendations and has resubmitted it with this amendment application. De Beers has requested that the security amount in Condition 50 of Permit MV2017D0032 be amended to the value suggested in the updated 2018 Financial Security Estimate Report (Version 2)." In general De Beers responses to ENR comments, based on review of the January 30, 2018 Financial Security Estimate report, are reasonable in that most comments (e.g. water treatment types and duration and post-closure maintenance) are to be addressed or updated with submission of the Final Closure and Reclamation Plan. As per the assessment in the attached memo, the only difference between the January 2018 and April 2018 versions of the Financial Security Estimate is a reduction to Mob/Demob. This change stems from GNWT Comment ID 18 Topic 17: Mobilization on the previous Financial Security Estimate: "Mobilization: It appears that there is an error in the calculation of equipment mobilization costs resulting in the estimate being too high. This may be a carryover from the Diavik estimate that was originally used for the Snap Lake mine. It appears that the loads per machine may be incorrect (column D) and as a result the calculation of mobilization costs. In any case, De Beers will have accurate costs for mobilization of equipment and supplies upon which the security estimate can be based. Recommendation: It is recommended that mobilization costs be based on the equipment list provided in Table A.6 of the Financial Security Estimate (Arktis, 2018) and known costs for mob/demob that De Beers will have available to them. This may result in a lower cost for mob/demob than what is in the 2018 estimate." De Beers’ response was "Noted. The loads per machine will be updated accordingly". ENR’s original comment was related to the table on the bottom of the Mob/Demob page in the Jan 30, 2018 estimate. This table presents the number of
pieces of heavy equipment that will be required on-site, the number of loads that each machine will need to be broken into to meet ice road weight restrictions, and the round trip kilometres. The number of pieces of equipment is multiplied by the loads per machine which is multiplied by the round trip kilometres, which is multiplied by the per/km unit cost to provide an estimate of the mob/demob cost for heavy equipment. ENR noted that there appeared to be errors in this table, i.e. dump trucks are noted as requiring 10 loads per individual machine to move them to the site, service vehicles require 2 loads per individual machine, etc. It appears that De Beers’ has addressed ENR’s comment in the April 16, 2018 estimate by removing the "loads/machine" column from the calculation. This does not seem correct to ENR, since the heavier equipment may still require multiple loads to meet the ice road weight restrictions. ENR’s intention was that De Beers should either re-visit the Mob/Demob table or else update the estimate with actual values based upon De Beers’ experience getting heavy equipment to and from Snap Lake. It appears that the resulting mob/demob costs are now too low. Further, with attention focussed on this item, ENR has noted several other items that should be reviewed such as that the costs do not consider mob/demob from a regional center, which is typical practice for the other Diamond Mines.

**Recommendation**

1) To resolve errors and clarify the components of the mobilization costs, ENR recommends that De Beers include the following considerations for their mob and demob costs:

- Mobilization to/from regional center (e.g. Edmonton) to Yellowknife; Winter ice road tariff from Yellowknife to/from Snap Lake;
- Number of machine loads where equipment must be delivered on more than one transport truck due to weight or size restrictions;
- Use of appropriate unit costs or lump sums to account for other logistical considerations, such as mechanics required to assemble/disassemble equipment for transport.
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<th>Reviewer Comment/Recommendation</th>
<th>Proponent Response</th>
<th>Board Staff Analysis</th>
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| 4  | Financial Security Estimate Report, V. 2. p.4. "It is expected that expansion of the existing quarry by 7.5 ha can provide the necessary materials for final closure" | **Comment** Ensure that the expansion area is within established Leasehold boundaries.  
**Recommendation** Provide a copy of a map to the Inspector/GNWT Lands Administration showing the extent of the proposed quarry expansion vs. the existing Snap Lake Leasehold boundaries. | June 6: Should a quarry expansion be required, then De Beers would provide the requested map to GNWT lands administration. | Acceptable response. |
| 5  | Financial Security Estimate Report, V. 2. p.6 "Contaminated soil from light hydrocarbon spills will be treated using an on-site landfarm" | **Comment** Is De Beers proposing a new landfarm location for this treatment, or is it planning to utilize the existing Landfarm? If the latter, when will treatment of the existing material currently staged in the Landfarm be treated, thereby creating space for this new landfarming?  
**Recommendation** 1. Is De Beers proposing a new landfarm location? If so, provide that information to the Bd. 2. Is De Beers proposing to utilize the existing landfarm location? If so, provide information on when/how De Beers will treat existing materials and thus make space for treatment of new contaminated soils. | June 6: De Beers proposes that the landfarm be relocated to an existing lined facility currently on site. Further detail will be proposed in future in the FCRP and Water License submission. | Acceptable response. |
| 6  | Financial Security Estimate Report, V. 2. p.6 2.2.5 Water Treatment" | **Comment** 1. Has the concept of treatment of seepage and processed water through a constructed wetland passive treatment system been conceptually approved by the EAR or MVLWB for Snap Lake? 2. What parameters of concern will require treatment (does modelling show what volumes and quality of water will need to be treated by the proposed wetland)? 3. Can wetlands fully treat all the parameters which are expected to need treatment during closure? 4. Will the water quality objectives for closure be achieved in the long term? Does water quality modelling predict that water quality will change over the long term, and will wetland treatment be sufficient to achieve | June 6: The concept of a wetland treatment process would be included in the final closure plan and water license renewal application should it be determined to be the best option to mitigate parameters of concern. De Beers is currently updating the site and lake models which will | Acceptable response. |
treatment objectives in the long term as well as short term)?

**Recommendation** Answer 1-4.

- inform the EQCs proposed as a component of the Licensing process. Currently wetland treatment is being evaluated to determine what could be required for post closure treatment. The modeling will inform whether this is in fact necessary.

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**Comment** It appears that this 2 year interim care and maintenance period ends in Q2 2020, and thus is in place during the remaining 2018 period, 2019, and Q1 of 2020. (1). Does the caretaker presence thus mean that a minimum of 2 staff (caretakers) will be on site at all times during that time span?

**Recommendation** Answer question (1).

**June 6:** For the purpose of a conservative financial security estimate, 2 caretakers are assumed to be at site during interim care and maintenance. The security estimate is based on the assumption that the government would execute the reclamation program. De Beers actual execution of care and maintenance and implementatian of final closure differ in this regard. No personnel will be on site from approximately September to March aside from Monthly visits based from either Yellowknife or Gahcho Kué.

**Acceptable response.**
## Review Comment Table

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<thead>
<tr>
<th>Board:</th>
<th>MVLWB</th>
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<tr>
<td>Review Item:</td>
<td>De Beers Snap Lake - Permit Amendment Application (MV2017D0032)</td>
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<tr>
<td>File(s):</td>
<td>MV2011L2-0004</td>
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<tr>
<td></td>
<td>MV2017D0032</td>
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<tr>
<td>Proponent:</td>
<td>De Beers Canada Inc. - Snap Lake</td>
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### Document(s):
- **Amendment Application, Cover Letter, Engagement** (6MB)
- **updated 2018 Financial Security Estimate report (version 2)** (25MB)
- **Extended Care and Maintenance Plan, Version3** (0.6 MB)
- **Waste Management Plan for ECM, version 3** (1.5 MB)
- **Spill Contingency Plan for ECM, version 3** (1 MB)
- **Water Management Plan for ECM, version 3** (0.7 MB)
- **The Board's February 22, 2018 Decision Letter** (0.7 MB)
- **Current Land Use Permit MV2017D0032 (Issued Oct 12, 2017)** (1.7 MB)
- **Engagement Plan - Approved April 18, 2016** (1.6 MB)

### Item For Review Distributed On:
- May 14 at 14:34 [Distribution List](#)

### Reviewer Comments Due By:
- May 31, 2018

### Proponent Responses Due By:
- June 6, 2018

### Item Description:

On March 12, 2018 De Beers Canada Inc. (De Beers) submitted a request to amend Land Use Permit (Permit) MV2017D0032 for the Snap Lake Mine. The Application was deemed incomplete on March 21, 2018. Additional information was provided in April and May, and the Amendment Application was deemed complete on May 14, 2018.

On February 22, 2018 the Board deferred its decision on De Beers’ Extended Care and Maintenance Plan (ECMP), version 2, and associated Management Plans, because Condition 52, which requires an examination of all Fuel Storage Containers and Tanks a minimum of once per day, and to repair all leaks immediately, directly contradicted information presented in the ECMP version 2 (periods of zero-occupancy from near freeze up to prior to freshet). In addition, the Board deferred decision on De Beers’ request to not file the Interim Closure and Reclamation Plan (ICRP), version 4 because this submission is required by Permit condition 71. Therefore, De Beers is requesting to amend the following conditions:

**Condition 52**: “Check for Leaks”. As outlined in the cover letter of the Amendment Application, De Beers requested that this condition be updated to align with requirements in the Storage tank systems for Petroleum Products and Allied Petroleum Products Regulations (the regulations), specifically Clause 19(1).

**Condition 71**: “Interim Closure and Reclamation Plan”. De Beers has requested that this condition be removed from the Permit, as they plan to submit the Final Closure and Reclamation Plan (required by Condition 72) in 2019.
**Condition 50**: “Security Deposit – Commencement”. On January 30, 2018 De Beers submitted a 2018 Financial Security Estimate report. This was reviewed in February 2018 and reviewer comments were provided. De Beers has updated the 2018 Financial Security Estimate report as per reviewer recommendations and has resubmitted it with this amendment application. De Beers has requested that the Security amount in Condition 50 of Permit MV2017D0032 be amended to the value suggested in the updated 2018 Financial Security Estimate report (version 2).

In addition, De Beers has submitted an updated Extended Care and Maintenance Plan, version 3, and associated Management Plans. **Version 3 of these Plans have been submitted to address the review comments and recommendations from the January/February 2018 review of Version 2, and to address the required updates as directed by the Board in the February 22, 2018 decision letter (attached below).**

Reviewers are invited to submit questions, comments and recommendations using the Online Review System (ORS) by the review comment deadline specified below. Please provide comments and recommendations on the:
- Amendment Request;
- Financial Security Estimate report, Version 2 (updated based on reviewer comments in February/March 2018 review);
- Extended Care and Maintenance Plan, Version 3;
- Waste Management Plan for ECM, Version 3;
- Spill Contingency Plan for ECM, Version 3;
- Water Management Plan for ECM, Version 3; and
- Engagement Plan for ECM, Version 1 (approved April 18, 2016).

This amendment request may be exempt from preliminary screening, in accordance with the Preliminary Screening Exemption List Regulations and Exemption List Regulations. If you have comments or recommendations on the possible exemption, please include them in your submission.

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, please contact Board staff identified below.

**General Reviewer Information:**
In addition to the email distribution list, the following organizations received review materials by fax:
- Hay River Metis Council - Trevor Beck, President (867) 874-4472; hrmc@northwestel.net
- NWT Metis Nation - Tim Heron, NWTMN IMA Coordinator (867) 872-3586; rcc.nwtmn@northwestel.net

**Contact Information:**
- Angela Love 867-766-7456
- Jen Potten 867-766-7468
- Kierney Leach 867-766-7470
## Comment Summary

### Environment and Climate Change Canada: Gabriel Bernard-Lacaille

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<tr>
<th>ID</th>
<th>Topic</th>
<th>Reviewer Comment/Recommendation</th>
<th>Proponent Response</th>
<th>Board Staff Analysis</th>
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<tr>
<td>1</td>
<td>General</td>
<td>Comment ECCC has reviewed in accordance with its mandate and doesn't have any comments at this time.</td>
<td>June 6: De Beers thanks ECCC for their review.</td>
<td>Noted.</td>
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<tr>
<td></td>
<td></td>
<td>Recommendation Not applicable.</td>
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### GNWT - ENR: Central Email GNWT

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<tr>
<th>ID</th>
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<th>Proponent Response</th>
<th>Board Staff Analysis</th>
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<tr>
<td>1</td>
<td>General File</td>
<td>Comment <a href="#">doc</a> ENR Letter with Comments, Recommendations and Attachments</td>
<td></td>
<td>Noted.</td>
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<td></td>
<td></td>
<td>Recommendation</td>
<td></td>
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<tr>
<td>3</td>
<td>Topic 1: Interim Closure and Reclamation Plan</td>
<td>Comment De Beers notes that the Land Use Permit requires that an updated Interim Closure and Reclamation Plan (ICRP) be submitted by January 30, 2018. Under the Water Licence, De Beers had requested that an updated ICRP not be required, given the Extended Care and Maintenance Phase, and that a Final Closure and Reclamation Plan be submitted with a Water Licence renewal application in 2019 (the current Water Licence expires in June 2020). In a letter from ENR to the Board dated January 15, 2018, in response to De Beers' request, ENR noted that: &quot;ENR supports the position of De Beers to delay submission of a Closure Plan until 2019 when a FCRP will be submitted. ENR will continue to work with the Board and De Beers through the development of this plan as required.&quot; Recommendation 1) ENR continues to support De Beers plan to submit a Final Closure and Reclamation Plan in 2019.</td>
<td></td>
<td>Noted.</td>
</tr>
<tr>
<td>4</td>
<td>Topic 2: Securities</td>
<td>Comment Of note, the Department of Lands and the Department of ENR have reviewed the securities submission provided by De Beers and are in agreement with the comments below. Within the Land Use Permit amendment, De Beers has included an updated security estimate dated April 16, 2018. It is noted on the ORS review that: De Beers has incorporated ENR's recommendations into a submission of Version 3 of the 2018 Financial Security Estimate</td>
<td></td>
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</table>
Condition 50: "Security Deposit - Commencement". On January 30, 2018 De Beers submitted a 2018 Financial Security Estimate Report. This was reviewed in February 2018 and reviewer comments were provided. De Beers has updated the 2018 Financial Security Estimate Report as per reviewer recommendations and has resubmitted it with this amendment application. De Beers has requested that the security amount in Condition 50 of Permit MV2017D0032 be amended to the value suggested in the updated 2018 Financial Security Estimate Report (Version 2)." In general De Beers responses to ENR comments, based on review of the January 30, 2018 Financial Security Estimate report, are reasonable in that most comments (e.g. water treatment types and duration and post-closure maintenance) are to be addressed or updated with submission of the Final Closure and Reclamation Plan. As per the assessment in the attached memo, the only difference between the January 2018 and April 2018 versions of the Financial Security Estimate is a reduction to Mob/Demob. This change stems from GNWT Comment ID 18 Topic 17: Mobilization on the previous Financial Security Estimate:

"Mobilization: It appears that there is an error in the calculation of equipment mobilization costs resulting in the estimate being too high. This may be a carryover from the Diavik estimate that was originally used for the Snap Lake mine. It appears that the loads per machine may be incorrect (column D) and as a result the calculation of mobilization costs. In any case, De Beers will have accurate costs for mobilization of equipment and supplies upon which the security estimate can be based. Recommendation: It is recommended that mobilization costs be based on the equipment list provided in Table A.6 of the Financial Security Estimate (Arktis, 2018) and known costs for mob/demob that De Beers will have available to them. This may result in a lower cost for mob/demob than what is in the 2018 estimate."

De Beers' response was "Noted. The loads per machine will be updated accordingly". ENR's original comment was related to the table on the bottom of the Mob/Demob page in the Jan 30, 2018 estimate. This table presents the number of pieces of heavy equipment that will be required on-site, the number of loads that each machine
will need to be broken into to meet ice road weight restrictions, and the round trip kilometres. The number of pieces of equipment is multiplied by the loads per machine which is multiplied by the round trip kilometres, which is multiplied by the per/km unit cost to provide an estimate of the mob/demob cost for heavy equipment. ENR noted that there appeared to be errors in this table, i.e. dump trucks are noted as requiring 10 loads per individual machine to move them to the site, service vehicles require 2 loads per individual machine, etc. It appears that De Beers' has addressed ENR's comment in the April 16, 2018 estimate by removing the "loads/machine" column from the calculation. This does not seem correct to ENR, since the heavier equipment may still require multiple loads to meet the ice road weight restrictions. ENR's intention was that De Beers should either re-visit the Mob/Demob table or else update the estimate with actual values based upon De Beers' experience getting heavy equipment to and from Snap Lake. It appears that the resulting mob/demob costs are now too low. Further, with attention focussed on this item, ENR has noted several other items that should be reviewed such as that the costs do not consider mob/demob from a regional center, which is typical practice for the other Diamond Mines.

**Recommendation**

1) To resolve errors and clarify the components of the mobilization costs, ENR recommends that De Beers include the following considerations for their mob and demob costs: 
Mobilization to/from regional center (e.g. Edmonton) to Yellowknife; Winter ice road tariff from Yellowknife to/from Snap Lake; Number of machine loads where equipment must be delivered on more than one transport truck due to weight or size restrictions; Use of appropriate unit costs or lump sums to account for other logistical considerations, such as mechanics required to assemble/disassemble equipment for transport.

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**GNWT - Lands - North Slave Region: Tracy Covey**

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<tr>
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<tr>
<td>1</td>
<td>Amendment Request. Apr 17, 2018 Request to Revise LUP.</td>
<td><strong>Comment</strong> General comment. It should be noted that the Petroleum Products and Allied Petroleum Products Regulations cited (19(1)) technically does not apply for any of the tanks at Snap Lake, as these regulations apply to above ground tanks</td>
<td>June 6: De Beers thanks the Inspector for his support of reduced fuel tank monitoring at the</td>
<td>Noted.</td>
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<td>Amendment Request. Apr 17, 2018</td>
<td>Secondary containment currently in place at Snap Lake should, if kept snow/ice free, ensure 110% capacity. So the total content of the largest tank in any current Snap Lake fuel storage location could escape containment and the berm would (ideally) be capable of containing that entire volume of spill (if the berm is kept snow free). The inspector has concerns, however, that berm capacity will not be maintained in winter months when snow blows into bermed areas (particularly for the larger storage tanks which are single-hulled). Such loss of capacity might well negate the intention of the berms which would normally be mitigated by the daily presence of staff which could take action to remove snow or ice that would/might compromise the sump capacity. It should also be pointed out that clause 19(1) was accompanied by additional conditions which are intended to be complement 19(1), notably condition 19(2), 20 and 23. These other clauses make it a condition to: 19(2) measure the level of water and petroleum in every storage tank at least every seven days (19[2][a]) A similar condition would seem in order for the new LUP (with reconciliation measurement occurring somewhere between 7 days and monthly). The Federal Regulations clause 20 states that...</td>
<td>June 6: De Beers agrees with the inspector that Federal Regulations should be referenced, but not duplicated in the LUP and propose that inventory reconciliation measures be in place during periods of active fuel transfer.</td>
<td>Board staff will consider the inspectors’ recommendations when drafting the amended Permit for the Board.</td>
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continuous in-tank leak detection referred to in 19(1)(b)(i) must have an alarm located at a place of work where it can be readily heard and seen (clause 20). During periods of zero occupancy, the inspector has concerns about whether or not De Beers staff will be able to readily see/hear such an alarm (can this be established to consistently work from a remote, distant location like GK during the zero occupancy periods)?

23. (1) and (2). These conditions are already covered by the Federal (Environment Canada) Storage Tank Regulations and as such would be regulated by Environment Canada. Since adding a similar condition to this LUP would be duplication, a similar condition is not essential in the LUP.

Recommendation: Consider adding a condition indicating inventory reconciliation measures (i.e., wording identical to clause 19(2)) which would measure the level of water and petroleum in every storage tank to occur every X days. The frequency of reconciliation (X) should be longer than the 7 days utilised in the Storage Tank Regs, as this frequency is applied to tanks without secondary containment (and Snap tanks all have this additional measure of containment in place). Given the added measure of containment already given by secondary berms at Snap Lake, it seems reasonable that the proposed reconciliation regime be longer than 7 days but less than 30 days (when full tank inspection occurs anyway). The Inspector suggests reconciliation every 30 days or less would seem reasonable. i.e., the fuel storage inventory reconciliation must include (a) the measurement of the combined level of water and petroleum product in every storage tank at least every 30 days and (b) a comparison of the measurement with readings of any meters that measure the volume of liquid transferred and the calculation of any gain or loss of liquid each time the measurements are taken. The Board should also consider adding a condition to the LUP which specifies how De Beers shall provide continuous in-tank leak detection in accordance with Clause 20 i.e., wording similar to De Beers shall maintain an alarm located at a place of work where it can be readily heard and seen from a remote location (i.e., in this case Gahcho Kue). With regards to the request to conduct visual inspections when tanks newer than 2008 are in use once/yr., it should again be noted that the Federal Petroleum
Regulations actually do not technically apply to tanks at Snap Lake (the regulations only refer to above-ground storage tanks without secondary containment). Again, the Board can choose to adopt that regulations wording into this LUP & make them apply thru the LUP, taking into account the additional containment provided (containment berms). This is recommended. Given the proposed zero occupancy, the Inspector proposes that all the LUP condition created treat all tanks the same and require monthly inspections (for clarity). So, wording similar to the following should be adopted into the LUP: the owner or operator of all storage tank systems in use at Snap Lake must visually inspect the walls of those tanks at least once per month and perform an inventory reconciliation in accordance with subsection (2) & (subsection 2 would have the wording listed above which is adopted from 19(2) of the Federal Regulations).

<p>| Amendment Request. Apr 17, 2018 | Comment | De Beers requests that the submission of an ICRP (condition 71) be replaced with a requirement to submit a Final Closure Plan submitted on the same date as a submission for renewal of a new water licence. The submission of a FCP on the same date as a renewal for a new water licence would appear to be problematic. If we are to successfully develop terms/conditions in a WL which will meet objectives of a FCP, a FCP needs to first be approved. For example, we can’t establish conditions for reporting associated with the SNP or AEMP or specifying water quality conditions for discharges (EQC) in a new water licence without knowing what the sampling requirements are for SNP and AEMP (what needs to be sampled, what quality results are expected, where SNP/AEMP sampling locations will be, etc.). Basically, FCP needs to be approved before a Final WL is considered or developed. Reviewing load caused by the simultaneous submission of a FCP and WL Renewal process would also be excessive if these two documents were to be submitted for review at the same time. | June 6: De Beers disagrees with the Inspector’s proposal. The water license process and associated technical sessions would allow for ongoing discussions related to closure and reclamation. Furthermore, having two separate processes would unnecessarily delay the closure process. | Board staff agree with the inspector in that it would be beneficial to have the Final Closure and Reclamation Plan (FCRP) submitted prior to the Water Licence Application in 2019. The final closure process is very elaborate and the FCRP may undergo many iterations and reviews before it is approved by the Board. The FCRP discussions and workshops will also help to inform the development of draft Licence conditions, and therefore should commence as soon as possible. |
| Deferral of the submission of the ICRP discussion. | | | |</p>
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<th>Submission to renew the WL but defer the comment period until after the FCP is approved. At which time an updated application would probably be required (this is the downside of this option, multiple WL renewal submissions).</th>
<th>Part I, condition 3 of Licence MV2011L2-0004 states: <em>The Licensee shall, submit to the Board, a minimum of twenty-four (24) months prior to the end of operations, for approval, a Final Closure and Reclamation Plan.</em> As De Beers has announced final closure, and will be applying for a closure licence in 2019, the Final Closure and Reclamation Plan should have been submitted already.</th>
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| 4 | **Financial Security Estimate Report, V. 2. p.4.** "It is expected that expansion of the existing quarry by 7.5 ha can provide the necessary materials for final closure" | **Comment** Ensure that the expansion area is within established Leasehold boundaries.  
**Recommendation** Provide a copy of a map to the Inspector/GNWT Lands Administration showing the extent of the proposed quarry expansion vs. the existing Snap Lake Leashold boundaries.  
**June 6:** Should a quarry expansion be required, then De Beers would provide the requested map to GNWT lands administration.  
**Acceptable response.** |
| 5 | **Financial Security Estimate Report, V. 2. p.6** "Contaminated soil from light hydrocarbon spills will be treated using an on-site landfarm" | **Comment** Is De Beers proposing a new landfarm location for this treatment, or is it planning to utilize the existing Landfarm? If the latter, when will treatment of the existing material currently staged in the Landfarm be treated, thereby creating space for this new landfarming?  
**Recommendation** 1. Is De Beers proposing a new landfarm location? If so, provide that information to the Bd. 2. Is De Beers proposing to utilize the existing landfarm location? If so, provide information on when/how De Beers will  
**June 6:** De Beers proposes that the landfarm be relocated to an existing lined facility currently on site. Further detail will be proposed in future in the FCRP and Water License submission.  
**Acceptable response.** |
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<td><strong>6</strong></td>
<td><strong>Financial Security Estimate Report, V. 2. p.6 2.2.5 Water Treatment</strong></td>
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<td><strong>Comment</strong> 1. Has the concept of treatment of seepage and processed water through a constructed wetland passive treatment system been conceptually approved by the EAR or MVLWB for Snap Lake? 2. What parameters of concern will require treatment (does modelling show what volumes and quality of water will need to be treated by the proposed wetland)? 3. Can wetlands fully treat all the parameters which are expected to need treatment during closure? 4. Will the water quality objectives for closure be achieved in the long term? Does water quality modelling predict that water quality will change over the long term, and will wetland treatment be sufficient to achieve treatment objectives in the long term as well as short term?</td>
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<td><strong>Recommendation</strong> Answer 1-4.</td>
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<td><strong>June 6:</strong> The concept of a wetland treatment process would be included in the final closure plan and water license renewal application should it be determined to be the best option to mitigate parameters of concern. De Beers is currently updating the site and lake models which will inform the EQCs proposed as a component of the Licensing process. Currently wetland treatment is being evaluated to determine what could be required for post closure treatment. The modeling will inform whether this is in fact necessary.</td>
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<td>Acceptable response.</td>
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<td><strong>7</strong></td>
<td><strong>Financial Security Estimate Report, V. 2. p.7 2.6. &quot;A full-time on-site caretaker will be required throughout the entire 2 year Interim Care and Maintenance Period and a crew of 2 caretakers was assumed for safety reasons&quot;</strong></td>
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<td><strong>Comment</strong> It appears that this 2 year interim care and maintenance period ends in Q2 2020, and thus is in place during the remaining 2018 period, 2019, and Q1 of 2020. (1). Does the caretaker presence thus mean that a minimum of 2 staff (caretakers) will be on site at all times during that time span?</td>
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<td><strong>Recommendation</strong> Answer question (1).</td>
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<td><strong>June 6:</strong> For the purpose of a conservative financial security estimate, 2 caretakers are assumed to be at site during interim care and maintenance. The security estimate is based on the assumption that the government would execute the reclamation program. De Beers actual execution of care and maintenance and implementation of final closure differ in this regard. No</td>
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<td>De Beers has answered the question.</td>
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8 Appendix A. A.1.1 Underground Mine. 3rd bullet. "two exhaust raises on the north shore of Snap Lake".

**Comment** As I recall, two exhause raises were initially planned, but only one exhause raise actually was built on the north shore of Snap Lake. Perhaps this changed.

**Recommendation** Clarify whether one or two exhause raises exist on the north shore.

**June 6:** The there are two (fresh air) vent raises on the North shore of Snap Lake, and one (return air) vent raise, NE across Snap Lake.

De Beers has answered the question.

9 Appendix A. A.2.1 second bullet.

**Comment** If workers will total about 50 for years of active reclamation (roughly Q3 2020-Q2 2022). (1) Can the current WTP and STP accomodate such numbers? (2) If not, how does De Beers propose to achieve potable WTP and STP treatment goals.

**Recommendation** Answer 1 and 2.

**June 6:** The current WTP and STP is sufficient for current planned demolition headcount. However, De Beers will investigate the requirement to amend the land lease to include the historic STP should it be necessary. As such, should operation of this facility be required in future, it will be authorized.

De Beers has answered the question.

10 Appendix A. A.2.1 last bullet (on winter roads).

**Comment** (1) Does this mean that De Beers proposes to construct winter roads during the Jan-March 2019, 2021 and 2022 seasons? i.e., three roads in total will be available to achieve off-site shipment objectives?

**Recommendation** Answer question 1.

**June 6:** De Beers will construct winter roads aligned with site demolition requirements and other closure related work according to existing winter road authorizations. The dates of winter road construction are not yet determined. Additionally De Beers is required to notify the Inspector prior to

De Beers has answered the question.
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<td>11</td>
<td>Extended Care and Maintenance Plan (v. 3).</td>
<td><strong>Comment</strong> Inspector comments and concerns associated with the effectiveness of proposed zero occupancy practices were already raised in earlier versions of this and other plans. No further discussion of those comments or concerns will thus be raised. For purposes of this review process, Inspector recommendations were thus confined to aspects which have not already been commented on in previous versions of this/other related plans. <strong>Recommendation</strong> None.</td>
<td>June 6: Acknowledged.</td>
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<tr>
<td>12</td>
<td>Extended Care and Maintenance Plan (v. 3). p. 7 and 9.</td>
<td><strong>Comment</strong> p. 7 should include leaseholds in the statement in the 4th paragraph that To ensure compliance with De Beer’s water licence and LUP. Page 9 should also add leaseholds to the first sentence. <strong>Recommendation</strong> p. 7 should state To ensure compliance with De Beer’s water licence, LUP, and Leasholds p. 9 should state maintain compliance with De Beers’ water license and land use permit and leaseholds.</td>
<td>June 6: De Beers agrees with the Inspector request to include a reference to the leases for discussion. Acceptable response.</td>
</tr>
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<td>13</td>
<td>Extended Care and Maintenance Plan (v. 3). p. 37. 3.1.5., Table 4, SNP 02-14 Sampling Frequency.</td>
<td><strong>Comment</strong> To be clear, Quarterly is every 3 months or so. Regardless of whether or not the WMP is being pumped. <strong>Recommendation</strong> None.</td>
<td>June 6: De Beers disagrees with the Inspector as there is no value in quarterly monitoring when water is not being pumped. Annex A of Licence MV2011L2-0004 outlines the frequency of sampling and when the sampling is active. For station 02-14, the Licence indicates quarterly sampling and does not specify ‘only during pumping’. If De Beers wants to change the frequency to only ‘when pumping’ they will need to submit a request to the Board to make this change to Annex A.</td>
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<td>14</td>
<td>Extended Care and Maintenance</td>
<td><strong>Comment</strong> The sentence reads “The scope of activities covered by this ECM document shall be undertaken during Snap lakes ECMII.” What does</td>
<td>June 6: ECM2 is the second unmanned phase of extended De Beers has answered the question.</td>
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| 15 | Waste Mgt. Plan (v. 3) | **Comment** To determine compliance, it is important to put the version onto each page of all plans. It is noted that both this and the Water Mgt. Plan submitted for review fail to identify which version they represent. And the Spill Contingency Plan is apparently version 3 (as identified in the title page), yet it is identified throughout the document as version 2. **Recommendation** Clearly state which version applies to each and every Plan (on the cover as well as body of the report). | June 6: De Beers will update the version in the footnotes for the next iteration of this plan. | }
to about 198,000 m$^3$ (accounting for loss of volume due to sedimentation). The actual capacity, accounting for loss of volume due to sedimentation, should be cited in Table 2.1 (i.e., actual capacity, not theoretical capacity). **Recommendation** Replace theoretical capacity with actual (accounting for loss of capacity due to sedimentation).

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<td>20</td>
<td><strong>E.C.M. Water Mgt. Plan. p. 14</strong></td>
<td><strong>Comment</strong> Discussion in the 7 paragraphs (above the RO section) is dated and should be updated. <strong>Recommendation</strong> Update the first 7 paragraphs to accurately describe the treatment processes associated with the current WTP.</td>
<td>June 6: This section adequately describes the current WTP process and was updated to include current site components.</td>
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<td>21</td>
<td><strong>E.C.M. Water Mgt. Plan. p. 14. Final paragraph (RO)</strong></td>
<td><strong>Comment</strong> A discussion of the chemicals involved with the RO treatment should be included. <strong>Recommendation</strong> Include a discussion of the chemicals involved with RO treatment.</td>
<td>June 6: This was provided to the Inspector during his monthly site visits. This can be added to the Water Management Plan in future iterations.</td>
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<td>22</td>
<td><strong>E.C.M. Water Mgt. Plan. p. 17. Figure 2-4.</strong></td>
<td><strong>Comment</strong> The Water Balance Schematic Diagram needs to be updated (i.e., it still includes water from the underground, etc.). This diagram also needs to be included in the discussion/body of the Plan. <strong>Recommendation</strong> Include discussion in the body of the Plan which refers to and explains Figure 2-4. Also update 2-4 to reflect the current water balance at the mine.</td>
<td>June 6: This schematic is accurate as the underground still forms a component of the water management system.</td>
</tr>
<tr>
<td>23</td>
<td><strong>E.C.M. Water Mgt. Plan. p. 23. Figure 2-5.</strong></td>
<td><strong>Comment</strong> This figure needs to be tied into discussion/explanation in the body of the report. It also needs a legend (what do the three shades of blue, yellow, and pink colours represent)? <strong>Recommendation</strong> Link the Figure into the body of this Plan/discussion. Add a legend.</td>
<td>June 6: A legend will be added to future iterations of this report.</td>
</tr>
<tr>
<td>24</td>
<td><strong>E.C.M. Water Mgt. Plan. Tables 3.2, 3.3, 3.4</strong></td>
<td><strong>Comment</strong> Threshold triggers and responses are lacking for medium and high. <strong>Recommendation</strong> Identify proposed triggers and responses for medium and high in Tables 3.2, 3.3, 3.4.</td>
<td>June 6: As per the MVLWB response framework, the medium and high action levels are only determined if a low action is triggered.</td>
</tr>
</tbody>
</table>
### MVLWB: Kierney Leach

<table>
<thead>
<tr>
<th>ID</th>
<th>Topic</th>
<th>Reviewer Comment/Recommendation</th>
<th>Proponent Response</th>
<th>Board Staff Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Check for Leaks: Condition 52</td>
<td><strong>Comment</strong> De Beers has requested the Board amend Condition 52 of Permit MV2017D0032 &quot;to align with requirements in the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (the regulations), specifically Clause 19 (1)&quot;. It is unclear exactly how De Beers envisions Condition 52 to be amended. Additionally, the Lands Inspector has recommended that in addition to clause 19 (1), consideration should also be given to adopting clauses 19(2), 20/21. <strong>Recommendation</strong> Please indicate how De Beers envisions Condition 52 to be amended based on the proposed monthly site visits during care and maintenance (as outlined in the Extended Care and Maintenance Plan, version 3), to ensure environmental protection.</td>
<td><strong>June 6</strong>: De Beers Canada Inc. suggests that the proposed conditions align with the ones currently approved under MV2018C0001, (Clauses 53 and 54) as such it be requested that the condition be removed and replaced by the requirement that all fuel storage containers be placed within adequate secondary containment. Clauses 19(2) and 20/21 are unnecessary as the tanks are located within secondary containment. Additionally, there is no benefit to weekly monitoring of a resource when no fuel is being actively transferred or utilised.</td>
<td>Board staff note that the mentioned conditions are already in Permit MV2017D0032 (conditions 54 and 60).</td>
</tr>
<tr>
<td>2</td>
<td>Extended Care and Maintenance Plan, version 3: Section 2.4.4 Water Management</td>
<td><strong>Comment</strong> Section 2.4.4 of the Extended Care and Maintenance Plan states the following: Monitoring and inspection of ditches, culverts, pipelines, WTP, containment dykes and other structural elements of the water management facilities will be completed on a regular basis by an extended care and maintenance team. Water Management Inspections are stipulated in the SNP, AEMP and Water Management Plan as well as Part E Conditions Applying to Waste Management-Inspections of Structures (Clauses 3-5), The North Pile (Clauses 6-8) and Acid Rock Drainage (Clauses 9-11). De Beers is committed to remaining compliant with the conditions of the licence and permits. Part E, condition 5 of Licence MV2011L2-</td>
<td><strong>June 6</strong>: The engineer of record has provided a technical memo confirming that monthly monitoring of the structures designed to withhold and retain waste is sufficient to manage any potential risks associated with these facilities. This memo articulating the rationale and alignment with a risk noted.</td>
<td>Board staff received this technical memo from De Beers on June 12, 2018. Board staff suggest that this memo indicating that remote technologies are a sufficient surrogate to the weekly inspections.</td>
</tr>
</tbody>
</table>
MV2011L2-0004 requires Weekly inspections of all structures designed to contain, withhold, retain, or divert Water or Waste. However, the Extended Care and Maintenance Plan requests monthly site visits from October to prior to freshet.

**Recommendation** Board staff recommend De Beers outline how they plan to adhere to Part E, condition 5 of the Licence MV2011L2-0004, while carrying out monthly site visits during the winter months.

Based approach will be submitted on June 11th, 2018 along with the North Pile Plan in fulfillment of the Board request made on April 12, 2018. De Beers Canada also has instruments (thermisters and piezometers) in place that operate as surrogates to visual monitoring and provide real time data. The thermisters (temperature instrumentation) and piezometers (water level instrumentation) within the pile are monitored continuously via satellite. This system has been deemed sufficient to meet inspection requirements for the facility by the Engineer or Record. This system is in fact more rigorous than the weekly monitoring requirements, especially during winter months, when visual inspections are impeded by snow cover. Additionally, it is worth noting that by the winter of 2018, the facility will have had no new deposition for three years. This continuous monitoring system is complimented as well by pressure transducers in the sumps which required by Part E, condition 5 should go out for a public review and be brought to the Board for decision.
continually monitor sump levels. De Beers will assess the functionality of these transducers and the potential need for adjustment through the adaptive management framework.

Snap Lake Environmental Monitoring Agency - SLEMA: Zhong Liu

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>2</td>
<td>General File</td>
<td><strong>Comment</strong> (doc) SLEMA comments <strong>Recommendation</strong></td>
<td></td>
<td>Noted.</td>
</tr>
<tr>
<td>1</td>
<td>SLEMA Comments on LUP Amendment</td>
<td><strong>Comment</strong> Monthly inspections of fuel storage containers and tanks are acceptable for Snap Lake Mine only if reasonable measures are taken during the periods of zero occupancy at the mine site. De Beers request on deferral of the submission of the Interim Closure and Reclamation Plan is acceptable, i.e. the submission of an interim closure and reclamation plan is not required and will be replaced by a Final Closure Plan, which will be submitted the same date as the submission for renewal of its water license. <strong>Recommendation</strong> It is recommended that the MVLWB provide clear directions in the amended Land Use Permit on remote monitoring.</td>
<td><strong>June 6:</strong> De Beers has implemented remote monitoring as per the directions of the engineer of record in order to mitigate risk. The current system provides real time data as such camp vacancy will not impede on the required compliance monitoring for Snap Lake.</td>
<td>Board staff are unsure of what SLEMA means by ‘reasonable measures’ and the directions they are recommending that the MVLWB provide in the amended LUP on remote monitoring.</td>
</tr>
</tbody>
</table>
Dear Ms. Leach,

As requested by Board staff via e-mail on June 6, 2018, Snap Lake Environmental Monitoring Agency (SLEMA) would like to provide additional information on what is meant by “reasonable measures” and “provide clear directions in the amended Land Use Permit on remote monitoring” as follows:

- The Decision to be made by the MVLWB will establish a precedent for zero occupancy of a mine site without full reclamation. It is recommended that the MVLWB, in its decision letter, provide general terms for a zero occupancy scenario to ensure the public is comfortable with De Beers’ zero occupancy at Snap Lake Mine and future requests for zero occupancy at other mine sites.

- In this context, “reasonable measures” would be:
  - “Any measures which a reasonable person tasked with the role of environmental steward of the water/land associated with the Snap Lake Mine would do, or would choose to not do, taking into account the potential or likely environmental risks associated with said activity”.

  In general, reasonable measures probably involve:
  - The proponent shall determine the extent and severity of known risks associated with zero occupancy.
  - The proponent shall monitor those potential and demonstrated risks.
  - The proponent shall mitigate those risks if any significant risk to the environment becomes likely.
  - The proponent will increase monitoring frequency if efforts/measures in place to detect or resolve environmental
impacts prove insufficient to meet environmental protection objectives.

- The proponent is required to monitor the effectiveness of remote sensing at detecting actual and potential negative environmental impacts and/or environmental risk. All remote monitoring must accurately portray environmental risk which can reasonably be expected/encountered under all normal weather regimes.
- Remote sensing must be capable of effectively and continually detecting breaches of containment (sump, fuel storage) under all weather regimes.
- The proponent will be responsible for mitigating any risks or environmental impacts detected by/resulting from remote sensing in a timely manner.
- The proponent will re-assess remote sensing on an annual or, if needed, case by case basis, to determine the effectiveness of remote monitoring (and refine if that review deems improvement is necessary).

Some specific recommendations are attached for reference.

If you have any questions whatsoever please feel free to contact the undersigned at 867-765-0961 / exec@slema.ca.

Sincerely,

Original signed by

Philippe di Pizzo
Executive Director

Attachment
# Recommendations for LUP Amendment Application

<table>
<thead>
<tr>
<th></th>
<th>Preparation for Zero Occupancy</th>
<th>During Zero Occupancy</th>
<th>Monthly Site Visit/Inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Tank Farms</strong></td>
<td>Ensure water free within the berm of tank farm.</td>
<td>Monitor fuel level within the tank via video camera (frost line) or sensors.</td>
<td>Remove snow or ice within the berm of all tank farms whenever capacity is less than 110%.</td>
</tr>
<tr>
<td><strong>Site Water Management</strong></td>
<td>Ensure water level in sumps and Water Management Pond (WMP) as low as possible. Set up posts in sumps/WMP with marked level indicating when dewatering/snow removal operation should be carried out.</td>
<td>Monitor water/snow/ice level in sumps/WMP via video camera or sensors.</td>
<td>Remove snow or ice in sumps/WMP if necessary.</td>
</tr>
<tr>
<td><strong>Spill Response Team</strong></td>
<td>Be ready to deploy the Spill Response Team to the Snap Lake mine while a spill is identified by the site surveillance system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reporting</strong></td>
<td>Submit staff checklist of mine site visit/inspection and template of mine site visit/inspection report for Board approval.</td>
<td></td>
<td>Submit Monthly Site/Inspection Visit Report for Board review.</td>
</tr>
</tbody>
</table>
June 12, 2018

Kierney Leach
Technical Specialist
4922 - 48th Street
7th Floor YK Centre Mall
P.O Box 2130
Yellowknife, NT.
X1A 2P6

Dear: Ms. Leach:

Re: Snap Lake Mine De Beers Canada Inc.
Permit Amendment Application (MV2017D0032)

De Beers Canada Inc. (De Beers) is in receipt of the Snap Lake Environmental Monitoring Agency (SLEMA) letter dated June 7, 2018 outlining SLEMA’s determination regarding “reasonable measures” for remote monitoring.

De Beers does not agree with SLEMA that this decision will set a precedent in the NWT. There are a number of sites currently being managed by Indigenous Affairs and Northern Development Canada and the Government of the Northwest Territories which are currently being managed utilizing a zero site occupancy during set periods of the year. This includes the Canadian Tungsten site as well as others that have periodic challenges related to site access. Furthermore, the monitoring and reporting related to the Snap Lake Mine is robust and more thorough than existing sites operating in a similar capacity.

A project risk assessment was completed for the extended care and maintenance period. This assessment included extensive consultation with the Engineer of Record to determine the requirements for monitoring structures designed to withhold, retain or divert waste. This assessment was provided to the MVLWB on June 11, 2018 in support of the updated North Pile Management Plan package. The trigger action response framework outlines potential changes that would trigger additional action.

Table 1 below illustrates SLEMA’s recommendation and De Beers’ response to their concerns:
<table>
<thead>
<tr>
<th>Aspect</th>
<th>Preparation for Zero Occupancy</th>
<th>During Zero Occupancy</th>
<th>Monthly Site Visit/Inspection</th>
<th>De Beers Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Tank Farms</td>
<td>Ensure water free within the berm of tank farm.</td>
<td>Monitor fuel level within the tank via video camera (frost line) or sensors.</td>
<td>Remove snow or ice within the berm of all tank farms whenever capacity is less than 110%.</td>
<td>Snow removal within the lined, bermed areas is not possible as it could cause damage to the liner. The containment areas on site are sufficient to provide containment should a breach occur. Additionally, no active pumping will occur during the monthly site visits.</td>
</tr>
<tr>
<td>Site Water Mgmt</td>
<td>Ensure water level in sumps and Water Management Pond (WMP) as low as possible. Set up posts in sumps/WMP with marked level indicating when dewatering/snow removal operation should be carried out.</td>
<td>Monitor water/snow/ice level in sumps/WMP via video camera or sensors.</td>
<td>Remove snow or ice in sumps/WMP if necessary.</td>
<td>As per the Engineer of Record memo regarding site monitoring, snow and ice may be removed prior to freshet as deemed necessary to in anticipation of seasonal inflows.</td>
</tr>
<tr>
<td>Spill Response Team</td>
<td>Be ready to deploy the Spill Response Team to the Snap Lake mine while a spill is identified by the site surveillance system.</td>
<td></td>
<td></td>
<td>Spill response is discussed in the Emergency Response Plan and the Spill contingency Plan. If necessary, De Beers will have the ability to deploy emergency response.</td>
</tr>
<tr>
<td>Reporting</td>
<td>Submit staff checklist of mine site visit/inspection and template of mine site visit/inspection report for Board approval.</td>
<td>Submit Monthly Site/Inspection Visit Report for Board review.</td>
<td>The surveillance Network Program monthly report will continue to be submitted to the MVLWB and as always will include the requirements of this report as set out in Water License MV2011L2-0004.</td>
<td></td>
</tr>
</tbody>
</table>

I trust that this Should you have any questions or concerns, please feel free to contact me by phone at (867) 766-7308 or by email at Alexandra.Hood@debeersgroup.com .

Sincerely,
De Beers Canada Inc.

Alexandra Hood
Regulatory Specialist
Snap Lake Mine

cc.
DATE: May 23, 2018

TO: Paul Green; GNWT – ENR

FROM: Lara Fletcher, P. Eng. (BC, NT/NU)

SUBJECT: Review of DeBeers Snap Lake Mine 2018 Financial Security Estimate v.2

1 INTRODUCTION


According to the MVLWB Online Review System, De Beers is requesting to amend the following condition:

Condition 50: “Security Deposit – Commencement”. On January 30, 2018 De Beers submitted a 2018 Financial Security Estimate report. This was reviewed in February 2018 and reviewer comments were provided. De Beers has updated the 2018 Financial Security Estimate report as per reviewer recommendations and has resubmitted it with this amendment application. De Beers has requested that the Security amount in Condition 50 of Permit MV2017D0032 be amended to the value suggested in the updated 2018 Financial Security Estimate report (version 2).

As requested by GNWT-ENR, BCL has reviewed the updated 2018 Financial Security Estimate v2, as well as De Beers responses to ENR's comments regarding the January 30, 2018 version.

2 PREVIOUS COMMENTS

In general, De Beers responses to comments regarding the January 30, 2018 Financial Security Estimate were reasonable, with most recommendations to be addressed or updated with submission of the Final Closure and Reclamation Plan.

The only difference between the January 2018 and April 2018 versions of the Financial Security Estimate is a reduction to Mob/Demob of $1,240,988, which stems from Comment ID 18 Topic 17: Mobilization, which was:

Mobilization:
It appears that there is an error in the calculation of equipment mobilization costs resulting in the estimate being too high. This may be a carryover from the Diavik estimate that was originally used for the Snap Lake mine. It appears that the loads per machine may be incorrect (column D)
and as a result the calculation of mobilization costs. In any case, De Beers will have accurate costs for mobilization of equipment and supplies upon which the security estimate can be based.

**Recommendation:**

It is recommended that mobilization costs be based on the equipment list provided in Table A.6 of the Financial Security Estimate (Arktis, 2018) and known costs for mob/demob that De Beers will have available to them. This may result in a lower cost for mob/demob than what is in the 2018 estimate.

De Beers response was "Noted. The loads per machine will be updated accordingly".

3 FOLLOW UP COMMENT

The difference between the January 30, 2018 and the April 16, 2018 version is that De Beers has deleted a column intended to capture the number of loads per piece of equipment. The result is a decrease of $1,240,988. In an email to GNWT-ENR (May 18), De Beers added "The adjustment is in response to GWNT’s (Brodie) review which noted that ARKTIS overestimated the number of pieces of equipment can fit onto one transport truck to/from site. As a result, the number of trucks used to haul reclamation equipment has reduced a marginal amount in the April 2018 report compared to the January 2018 version."

It appears that the resulting mob/demob costs are now too low. Further, with attention focussed on this item, it is noted that the costs do not consider mob/demob from a regional center.

**Recommendation:**

To resolve errors and clarify the components of the mobilization costs, ENR recommends that De Beers present mob and demob costs as:

- Mobilization to/from regional center (e.g. Edmonton) to Yellowknife;
- Winter ice road tariff from Yellowknife to/from Snap Lake;
- Where equipment must be delivered on more than one transport truck due to weight or size restrictions, this should also be reflected in the costs;
- Though there are other logistical considerations, such as mechanics to assemble/dissassemble equipment for transport, rather than attempt too detailed an estimate it can more simply be reflected in the selection of appropriate unit costs or lump sums.

As noted above, many of the other potential adjustments to security that have been recommended for review have been deferred to submission of the final CRP. Focusing on this item of the financial security estimate is not suggesting it is of any more or less significance. Rather, it is a follow up to De Beers’ request for a reduction to the security of $1.2M resulting in what was initially identified as a mistake in a calculation without fully considering the intent of the comment.

References:

Dear Ms. Leach,

Re: DeBeers - Snap Lake
Land Use Permit Amendment Application – MV2017D0032
Amendment of Permit Conditions
Request for Comment

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the amendment at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

**Topic 1: Interim Closure and Reclamation Plan**

**Comment(s):**

De Beers notes that the Land Use Permit requires that an updated Interim Closure and Reclamation Plan (ICRP) be submitted by January 30, 2018. Under the Water Licence, De Beers had requested that an updated ICRP not be required, given the Extended Care and Maintenance Phase, and that a Final Closure and Reclamation Plan be submitted with a Water Licence renewal application in 2019 (the current Water Licence expires in June 2020).

In a letter from ENR to the Board dated January 15, 2018, in response to De Beers’ request, ENR noted that:
“ENR supports the position of De Beers to delay submission of a Closure Plan until 2019 when a FCRP will be submitted. ENR will continue to work with the Board and De Beers through the development of this plan as required.”

Recommendation(s):

1) ENR continues to support De Beers’ plan to submit a Final Closure and Reclamation Plan in 2019.

Topic 2: Securities

Comment(s):

Of note, the Department of Lands and the Department of ENR have reviewed the securities submission provided by De Beers and are in agreement with the comments below.

Within the Land Use Permit amendment, De Beers has included an updated security estimate dated April 16, 2018. It is noted on the ORS review that:

**Condition 50**: “Security Deposit – Commencement”. On January 30, 2018 De Beers submitted a 2018 Financial Security Estimate Report. This was reviewed in February 2018 and reviewer comments were provided. De Beers has updated the 2018 Financial Security Estimate Report as per reviewer recommendations and has resubmitted it with this amendment application. De Beers has requested that the security amount in Condition 50 of Permit MV2017D0032 be amended to the value suggested in the updated 2018 Financial Security Estimate Report (Version 2).”

In general De Beers responses to ENR comments, based on review of the January 30, 2018 Financial Security Estimate report, are reasonable in that most comments (e.g. water treatment types and duration and post-closure maintenance) are to be addressed or updated with submission of the Final Closure and Reclamation Plan. As per the assessment in the attached memo, the only difference between the January 2018 and April 2018 versions of the Financial Security Estimate is a reduction to Mob/Demob. This change stems from GNWT Comment ID 18 Topic 17: Mobilization on the previous Financial Security Estimate:

**“Mobilization:**

*It appears that there is an error in the calculation of equipment mobilization costs resulting in the estimate being too high. This may be a carryover from the Diavik estimate that was originally used for the Snap Lake mine. It appears that the loads per machine may be incorrect (column D) and as a result the calculation of mobilization costs. In any case, De Beers will have accurate costs*
for mobilization of equipment and supplies upon which the security estimate
can be based.

Recommendation:

It is recommended that mobilization costs be based on the equipment list
provided in Table A.6 of the Financial Security Estimate (Arktis, 2018) and known
costs for mob/demob that De Beers will have available to them. This may result in a
lower cost for mob/demob than what is in the 2018 estimate.”

De Beers’ response was “Noted. The loads per machine will be updated accordingly”. ENR’s original comment was related to the table on the bottom of the Mob/Demob page in the Jan 30, 2018 estimate. This table presents the number of pieces of heavy equipment that will be required on-site, the number of loads that each machine will need to be broken into to meet ice road weight restrictions, and the round trip kilometres. The number of pieces of equipment is multiplied by the loads per machine which is multiplied by the round trip kilometres, which is multiplied by the per/km unit cost to provide an estimate of the mob/demob cost for heavy equipment. ENR noted that there appeared to be errors in this table, i.e. dump trucks are noted as requiring 10 loads per individual machine to move them to the site, service vehicles require 2 loads per individual machine, etc.

It appears that De Beers’ has addressed ENR’s comment in the April 16, 2018 estimate by removing the “loads/machine” column from the calculation. This does not seem correct to ENR, since the heavier equipment may still require multiple loads to meet the ice road weight restrictions. ENR’s intention was that De Beers should either re-visit the Mob/Demob table or else update the estimate with actual values based upon De Beers’ experience getting heavy equipment to and from Snap Lake.

It appears that the resulting mob/demob costs are now too low. Further, with attention focussed on this item, ENR has noted several other items that should be reviewed such as that the costs do not consider mob/demob from a regional center, which is typical practice for the other Diamond Mines.

Recommendation(s):

1) To resolve errors and clarify the components of the mobilization costs, ENR recommends that De Beers include the following considerations for their mob and demob costs:

- Mobilization to/from regional center (e.g. Edmonton) to Yellowknife;
- Winter ice road tariff from Yellowknife to/from Snap Lake;
• Number of machine loads where equipment must be delivered on more than one transport truck due to weight or size restrictions;
• Use of appropriate unit costs or lump sums to account for other logistical considerations, such as mechanics required to assemble/disassemble equipment for transport.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the North Slave Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Conservation, Assessment and Monitoring Division (CAM).

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick_clancy@gov.nt.ca.

Sincerely,

[Signature]

Patrick Clancy
Environmental Regulatory Analyst
Environmental Assessment and Monitoring Section
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories

May 31, 2018

Re: Request to Revise Condition Items of Land Use Permit

Dear Ms. Leach,

Snap Lake Environmental Monitoring Agency (SLEMA) has reviewed the above request, and would like to provide the following comments.

- Monthly inspections of fuel storage containers and tanks are acceptable for Snap Lake Mine only if reasonable measures are taken during the periods of zero occupancy at the mine site. It is recommended that the MVLWB provide clear directions in the amended Land Use Permit on remote monitoring.
- De Beers’ request on deferral of the submission of the Interim Closure and Reclamation Plan is acceptable, i.e. the submission of an interim closure and reclamation plan is not required and will be replaced by a Final Closure Plan, which will be submitted the same date as the submission for renewal of its water license.

If you have any questions whatsoever please feel free to contact the undersigned at 867-765-0961 / exec@slema.ca.

Sincerely,

Original signed by

Philippe di Pizzo
Executive Director