



7<sup>th</sup> Floor - 4922 48th Street,  
P.O. Box 2130, Yellowknife NT X1A 2P6

Tel: 867-669-0506 Fax: 867-873-6610  
www.mvlwb.com

### Staff Report

<b>Applicant:</b> De Beers Canada Inc.	
<b>Location:</b> Kennady Lake, NT	<b>File Number:</b> MV2005L2-0015
<b>Date Prepared:</b> September 10, 2020	<b>Date of Board Meeting:</b> September 17, 2020
<b>Subject:</b> AEMP Response Plan	

#### 1. Purpose

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board) an Aquatic Effects Monitoring Program (AEMP) Response Plan submitted by De Beers Canada Inc. (De Beers) to fulfill Part I, Condition 7 of Water Licence (Licence) MV2005L2-0015.

#### 2. Background

- April 29, 2020 – AEMP Notification received;
- June 4, 2020 – AEMP Notification distributed for review;
- June 25, 2020 – AEMP Notification reviewer comments and recommendations due and received;
- June 30, 2020 – AEMP Response Plan received;
- July 2, 2020 – AEMP Notification responses due and received and AEMP Response Plan distributed for review;
- July 23, 2020 – AEMP Response Plan reviewer comments and recommendations due and received;
- July 30, 2020 – AEMP Response Plan responses due and received; and
- **September 17, 2020 – AEMP Response Plan presented to the Board for decision.**

#### 3. Discussion

##### AEMP Response Plan History

On April 29, 2020, De Beers submitted a notification indicating the following Low Action Levels were triggered:

**Table 1 Action Level Exceedances in the Core Lakes**

	<b>Area 8</b>	<b>Lake N11</b>	<b>Lake 410</b>
<b>Toxicological Impairment</b>	Water Quality Benthic Invertebrates	<i>Water Quality</i> - Normal Range - <i>Drinking Water</i> Sediment Quality Benthic Invertebrates	<i>Water Quality</i>
<b>Nutrient Enrichment</b>	Plankton	Water Quality Plankton	None

Description of AEMP Notification

In the Notification, De Beers noted that it had submitted a revised AEMP Design Plan (version 6) and proposed submitting AEMP Response Plans in accordance with the revised AEMP Design Plan. The Board approved Version 5 of the AEMP Design Plan on December 3, 2015. Version 6 of the AEMP Design Plan is currently under review.

Due to De Beers’ request above, Board staff distributed the AEMP Notification for review on June 4, 2020. During the review of the AEMP Notification, ENR pointed out that Version 6 of AEMP Design Plan has yet to be approved by the Board. Therefore, De Beers should submit response plans in accordance with the approved AEMP Design Plan (Version 5). In response, De Beers agreed and submitted AEMP Response Plans in accordance with the approved AEMP Design Plan (Version 5).

De Beers noted that AEMP Response Plan will be submitted for action level triggers for manganese in Lake N11 and lead in Lake 410 during ice cover in 2019 by June 30, 2020 (attached).

Description of AEMP Response Plan

On June 30, 2020, De Beers submitted an AEMP Response Plan to address low action level exceedances for Toxicological Impairment – Drinking Water. This Response Plan addresses the action levels that are italicized in Table 1 above. Board staff note that the AEMP Response Plan for the remaining action level exceedances shown in Table 1 are currently under review.

The AEMP Response Plan addresses the low action level exceedances for manganese in Lake N11 and lead in Lake 410 in 2019 because their concentrations were higher than 75% of the Canadian drinking water quality guidelines during ice-cover season.

De Beers does not believe that the elevated manganese and lead were due to mine discharges, but due to natural variability. De Beers hypothesized elevated manganese is caused by lower dissolved oxygen in the water when under ice. De Beers also included some preliminary data from 2020, to demonstrate that the concentrations are similar to baseline.

Engagement

An Engagement Record was not included in the AEMP Response Plan. Engagement is typically not required for low action level exceedances.

## Authorization Requirements

AEMP Response Plans require Board approval as per Part I, Condition 7 of Licence MV2005L2-0015:

If any Action Level as defined in the approved AEMP Design Plan is exceeded, the Licensee shall:

- (a) Notify the Board within thirty (30) days of when the exceedance is detected; and
- (b) Within ninety (90) days of when the exceedance is detected, submit an AEMP Response Plan that satisfies the requirements of Schedule 6, item 4 to the Board for approval.

## **4. Comments**

The AEMP Response Plan meets the requirements of Schedule 6, Condition 4 of Licence MV2005L2-0015.

## **5. Public Review**

The public review of the AEMP Notification is described in section 3 of the staff report. This section is focused on the public review of the AEMP Response Plan for Drinking Water.

By July 23, 2020, comments and recommendations on the AEMP Response Plan were received from 1 reviewer:

- Government of Northwest Territories – Department of Environment and Natural Resources (GNWT-ENR)

De Beers responded by July 30, 2020. The Review Summary and Attachments (attached) presents the concerns identified through this review.

### Main Issues Raised during the Review

The following summarizes the main issues raised during the review:

- Manganese Confirmatory Sampling
- Lake N11 Station L5 Sampling
- AEMP Workshop

### *Manganese Confirmatory Sampling:*

In the AEMP Response Plan, De Beers hypothesized that the elevated manganese in Lake N11 was due to the lower dissolved oxygen concentrations at station L5, which makes it easier for metals to be released from the sediment into the water column. De Beers referred to Figure 2.3-3 which demonstrated the lower dissolved oxygen concentration at station L5. During the review, GNWT-ENR recommended De Beers add a measurement of redox potential (Eh) in the sediments of Core and Reference Lakes, in addition to dissolved oxygen and pH in the water column at all AEMP stations during ice-cover conditions (GNWT-ENR ID-5). In this situation, redox potential measurements would provide insight on the sediment's capacity to release manganese into the water column. In response, De Beers noted that it would consider measuring redox potential in future sampling programs. However, De Beers has not committed to measuring redox potential in the next confirmatory sampling, because baseline conditions have also shown elevated manganese levels under-ice in Lake N11, therefore the hypothesis of elevated manganese and lower dissolved oxygen is not confirmed.

Board staff agree that a confirmatory sampling of dissolved oxygen and pH is appropriate for year 2020, which has already occurred this year. If the future confirmatory sampling results indicate elevated manganese under ice, and De Beers do not have further evidence of the cause, then De Beers should add a measurement of redox potential (Eh) in the sediment of Core and Reference Lakes, in addition to

dissolved oxygen and pH at all AEMP stations during ice-cover conditions in future sampling years. **Board staff recommend the Board require De Beers to revise the AEMP Response Plan to reflect GNWT-ENR's recommendation for future sampling program if the confirmatory sampling show elevated manganese under ice.** Board staff have included this recommendation in Table 2 below, for the Board's consideration.

*Lake N11 Station L5 Sampling:*

In the AEMP Response Plan, De Beers stated that elevated manganese concentrations were not repeated during the ice-cover sampling event in April of 2020. During the review, GNWT-ENR commented that Table 2.3-3 does not show that station L5 in Lake N11 was sampled in April of 2020 (GNWT-ENR ID-6). Therefore, De Beers' conclusion that elevated manganese was not repeated in April of 2020 is not verified. In response, De Beers acknowledged that station L5 was in fact not sampled due to reduced sampling efforts during the early stages of COVID-19 pandemic, and De Beers' intentions to provide the 2020 data was meant to be an overall assessment, and not focussed on station L5.

Board staff are of the opinion that De Beers' response is adequate and the AEMP Response Plan should be revised to reflect De Beers' intentions of providing the 2020 preliminary data. **Board staff recommend the Board require De Beers to revise the Response Plan to clarify that station L5, in particular, was not sampled in April 2020 but was selected to provide an overall assessment of water quality in Lake N11. In addition, Board staff recommend the Board require De Beers remove any conclusions that seem to indicate that manganese concentrations were not higher in 2020 at this specific station.**

Board staff understand the early stages of the covid-19 pandemic may have affected sampling efforts. However, given there is an action level exceedance, it is reasonable to prioritize sampling at station L5. **Board staff recommend the Board require De Beers to revise the AEMP Response Plan to ensure it is a priority to sample station N11-L5 yearly in ice-cover conditions given the action level exceedance.** Board staff have included these recommendations in Table 2 below, for the Board's consideration.

*AEMP Workshop:*

During the review, comments on proposed action levels and response actions were received (GNWT-ENR ID-2 and 3). Board staff note that the upcoming AEMP Workshop include topics on proposed action levels. Therefore, **Board staff recommend the Board not approve the proposed action levels in the AEMP Response Plan and direct De Beers to discuss them in the upcoming AEMP Workshop. The Board could direct De Beers to revise the AEMP Response Plan to reflect that the proposed action level and response actions will be addressed through the upcoming AEMP Workshop and review of the AEMP Design Plan.**

**Table 2 Recommendations for revisions to the AEMP Response Plan**

	<b>Recommendations</b>	<b>Comment ID</b>
1.	Revise section 2.2 to reflect the details of the confirmatory sampling that will occurred during the ice-cover season and associated quality assurance/quality control.	GNWT-ENR ID-4
2.	Revise section 2.3.1 to reflect future sampling program for year 2021 and beyond if 2020 confirmatory sampling shows elevated manganese.	GNWT-ENR ID-5
3.	Clarify that station L5 was not sampled in April 2020 but was selected to provide an overall assessment of water quality in Lake N11. Remove any conclusions that seem to indicate that manganese concentrations were not higher in 2020 at this specific station.	GNWT-ENR ID-6
4.	Revise the AEMP Response Plan to ensure it is a priority to sample station N11-L5 yearly in ice-cover conditions given the action level exceedance.	GNWT-ENR ID-6

5.	Clarify the average concentration considered in the statement in Section 2.3.2 "If water from Lake 410 was used as a drinking water source, then average concentrations at Station L3 would be more representative of actual exposure; and average concentrations are well below the Low Action Level."	GNWT-ENR ID-7
6.	Revise the AEMP Response Plan to reflect that the proposed action level and response actions will be addressed through the upcoming AEMP Workshop and review of the AEMP Design Plan.	GNWT-ENR ID-2 and 3

## 6. Conclusion

Board staff conclude that further information was provided by De Beers in their responses to reviewer comments. This Plan should be revised and re-submitted to incorporate items in Table 2. The Board will need to determine whether the information requested shall be submitted and reviewed prior to approval, or whether the Permit/Licence provides enough flexibility for staff conformity of revisions.

Board staff conclude that the proposed action levels and associated response actions in the AEMP Response Plan should not be approved and should be addressed through the AEMP Workshop and review of AEMP Design Plan.

## 7. Recommendation

Board staff recommend the Board **make a motion to approve the AEMP Response Plan for Water Licence MV2005L2-0015 as an interim submission**. De Beers Canada Inc. is required to submit a revised submission in accordance with Table 2 by **October 20, 2020**, for confirmation of conformity from Board staff.

A draft decision letter is attached. Board staff recommend the following statement be included in the letter.

"Although the Board has approved the AEMP Response Plan as an interim submission, the Board has not approved the proposed action level in the AEMP Response Plan. The Board requires further discussion on the proposed action level in the upcoming AEMP Workshop and will consider the proposed action level through the AEMP Design Plan. "

## 8. Attachments

- [AEMP Notification](#)
- [AEMP Response Plan](#)
- Review Summary and Attachments
  - AEMP Notification
  - AEMP Response Plan
- Draft Decision Letter from the Board

Respectfully submitted,



Jacqueline Ho  
Regulatory Specialist



Angela Love  
Regulatory Specialist

### Review Comment Table

<b>Board:</b>	MVLWB
<b>Review Item:</b>	De Beers Canada Inc.- Gahcho Kue - AEMP Response Plan - Drinking Water (MV2005L2-0015)
<b>File(s):</b>	<a href="#">MV2005L2-0015</a>
<b>Proponent:</b>	De Beers Canada Inc - Gahcho Kue
<b>Document(s):</b>	<a href="#">AEMP Response Plan - Drinking Water</a> (2590 KB)
<b>Item For Review Distributed On:</b>	July 2 at 10:25 <a href="#">Distribution List</a>
<b>Reviewer Comments Due By:</b>	July 23, 2020
<b>Proponent Responses Due By:</b>	July 30, 2020
<b>Item Description:</b>	<p>De Beers Canada Inc. (De Beers) submitted Version 1 of its Aquatic Effects Monitoring Program (AEMP) Response Plan on June 30, 2020. This AEMP Response Plan is required by Licence MV2005L2-0015 Part I, Condition 7.</p> <p><b>Using the Online Review System (ORS), reviewers are invited to submit comments and recommendations on the documents linked below by the review comment deadline specified. Reviewers may also wish to consider providing an overarching recommendation regarding whether the Board should approve the submission, to provide context for the comments and recommendations and assist the Board with its decision. If reviewers seek clarification on the submission, they are encouraged to correspond directly with the Applicant prior to submitting comments and recommendations.</b></p> <p>All documents that have been uploaded to this review are also available on our public Registry. If you have any questions or comments about the ORS or this review, please contact Board staff identified below.</p>
<b>Contact Information:</b>	Angela Love 867-766-7456 Jacqueline Ho 867-766-7455 Katherine Harris

### Comment Summary

GNWT - ENR - EAM (Environmental Assessment and Monitoring): Central Email GNWT				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
8	General File	<b>Comment</b> ( <a href="#">doc</a> ) ENR Letter with Comments and Recommendations <b>Recommendation</b>		Noted
9	General File	<b>Comment</b> ( <a href="#">doc</a> ) Attachment: LGL LTd. Memo - 2019 AEMP Response Plan Comments Version 3 - July 20, 2020 <b>Recommendation</b>		Noted
1	Topic: General Comment	<b>Comment</b> ENR retained LGL Limited to conduct a review of De	<b>July 30:</b> Acknowledged.	Noted.

		<p>Beers Canada Inc. (De Beers) Gahcho Kue 2019 Aquatic Effects Monitoring Program Response Plan - Drinking Water Quality (the Plan). ENR has extracted and summarized the comments and recommendations from the memorandum and provided them below. ENR has also included the memorandum which provides additional background for the Board's information.</p> <p><b>Recommendation</b> 1) ENR recommends the Board refer to the attached memorandum for additional background and context supporting ENR's comments and recommendations.</p>		
2	Topic: Response Actions	<p><b>Comment</b> Table 8.5-1 in the AEMP Design Plan Version 5 lists suggested types of actions to be taken if an AEMP Action Level is exceeded. This includes setting Moderate and High Action Levels. ENR acknowledges that AEMP Design Plan Version 6 is currently being reviewed by the Board, and includes Moderate and High Action Levels for Toxicological Impairment. Does De Beers consider the Moderate and High Action Levels proposed in the AEMP Design Plan V.6 as being the proposed Moderate and High Action Levels in response to the Low Action Level which triggered the current Drinking Water Response Plan? ENR also notes that based on the proposed Moderate and High Action Levels, the 2019 manganese concentrations have triggered the Medium Action Level and nearly triggered a High Action Level.</p> <p><b>Recommendation</b> 1) ENR recommends De Beers confirm Response Actions in the event of a Moderate or High Action Level exceedance are those that are the proposed Action Levels in Version 6 of the AEMP Design Plan.</p>	<p><b>July 30:</b> The proposed Moderate and High Action Levels for Drinking Water Quality as presented in the AEMP Design Plan Version 6 were revised in responses to information requests on the updated design plan. These Action Levels are presented in Section 2.2 of the response plan. De Beers proposes that these Action Levels, and the criteria around their application, are adopted as part of the update to the AEMP Response Framework as well as in response to the Low Action Level triggers. As stated in Section 2.2, the drinking water Action Levels would apply during open-water season, to samples collected at surface or above mid-depth, and to Lake N11 and Area 8. Based on these criteria, the maximum ice-cover concentrations of manganese in Lake N11 or lead in Lake 410 would not trigger any Action Levels.</p>	<p>The action levels will be a discussion topic in the upcoming AEMP Workshop.</p>

3	Topic: Action Level Determination	<p><b>Comment</b> Section 2.2 of the Plan states "The proposed Action Levels were developed on the premise that only open-water data from surface or mid-depth samples collected from the Core Lakes would be compared to the maximum average concentration drinking water guidelines, which is reflective of the expected exposure pathways for drinking water (e.g., drinking water would be sourced from the surface water region of a lake or stream). The Action Levels would therefore not apply to ice-cover data or to samples taken below mid-depth." But De Beers also acknowledges that the core lakes "may be used as a drinking water source during any fishing or hunting activities in the area." Therefore, ENR notes that it is possible that water under the ice or below mid-depth is used for consumption.</p> <p><b>Recommendation</b> 1) ENR recommends that the Significance Threshold "Water is safe to drink" applies to all seasons and ice cover levels.</p>	<p><b>July 30:</b> The proposed Action Levels listed in Section 2.2 were developed on the premise that only open-water data from surface or mid-depth samples collected from the Core Lakes would be compared to the MAC drinking water guidelines, which is reflective of the expected exposure pathways for drinking water (e.g., drinking water would be sourced from the surface water region of a lake or stream). The Action Levels would therefore not apply to ice-cover data or to samples taken below mid-depth. No changes to the interpretation of the Significance Threshold is proposed at this time.</p>	<p>Board staff note that proposed action level listed in section 2.2 have not been approved by the Board. As pointed out by ENR, De Beers acknowledged that the core lakes could be used for all seasons, not only open water.</p> <p>Board staff recommend this proposed action level and significant threshold be further discussed the upcoming AEMP Workshop, and addressed through the AEMP Design Plan.</p>
4	Topic: Confirmatory Measurements	<p><b>Comment</b> Section 2.2 of the Plan further states that "given the reliance of the Action Level triggers on individual measurements, these measurements would need to be confirmed and the associated quality assurance/quality control criteria be met, thus rendering the data both reliable and reproducible. If measurements are not confirmed, then the Action Levels would not be triggered." It isn't clear, from these sentences, if the measurements that are triggering the Action Levels under ice-cover conditions could be confirmed with additional measurements or quality assurance/quality control, prior to open water conditions.</p>	<p><b>July 30:</b> In the event of an individual measurement triggering an Action Level for drinking water quality, the first step will be to confirm the measurement with the analytical laboratory, ideally by re-analyzing the preserved sample, or at least having the laboratory conduct a thorough review of the analytical result. In addition, if the laboratory result has been confirmed, a second sample would be collected at the same location as soon as reasonably possible during ice-cover conditions. The original elevated result would be considered to be confirmed if the second sample has a manganese concentration within 20% of the original</p>	<p>Adequate response. Board staff recommend the details of the confirmatory measurements be included in the AEMP Response Plan.</p>



		<p><b>Recommendation 1)</b> ENR recommends De Beers clarify whether confirmatory measurements are possible during the ice-cover season, and if not, justify how confirmatory sampling or quality assurance/quality control will be carried out.</p>	<p>concentration (i.e., a relative percent difference of 20% or less between the manganese concentrations in the original and second samples). The confirmatory step with the second sample is the same as that to be employed by Snap Lake Mine, as per their AEMP Response Plan related to the Low Action Level for Manganese.</p>	
5	<p>Topic: Manganese in Lake N11</p>	<p><b>Comment</b> Section 2.3.1 of the Plan states that "There is evidence (i.e., low dissolved oxygen) to support sediment as a source of manganese to the water column and therefore as a possible pathway; however, lower dissolved oxygen saturation have been measured in 2016 and 2017 with lower manganese concentrations." Even though the concentrations in sediments are similar across the years (2016-2019), mobilization from the sediment to the water could be different in ice-cover conditions from year to year. It is difficult to verify that hypothesis with the current data, since the sediment concentrations are measured in late August or September, and so would already have accounted from mobilization and flushing from the water column during the ice-cover conditions and freshet, respectively, earlier in the year. In addition, measurements of metals at Station N11-L5 often showed higher concentrations than recorded at other stations (e.g., Iron, Cobalt; Table 5B-3 in De Beers 2020). It would be important to understand why metal concentrations in the water at this station are higher. One hypothesis would be that redox conditions at station L5 are more favorable to mobilization of metals from sediments than at other stations (this is supported by lower</p>	<p><b>July 30:</b> Thank you for your suggestion. In situ measurements of redox potential could be helpful in understanding transformation of redox sensitive elements, such as manganese. De Beers will consider including this measurement in future programs. As noted by the reviewer, it is possible that the redox conditions at Station L5 are more favourable to mobilization of metals from sediments than at other stations, for reasons not yet determined. However, it is important to recognize that elevated manganese concentrations have been observed under baseline under-ice conditions in Lake N11 and not at the same location (in 2013, the elevated manganese concentration occurred at Station L1; Golder 2014), and that there is no link to the operational discharge from the Mine. Therefore, more intensive investigation of ice-cover manganese concentrations in water at Station L5 is not necessary at this time. De Beers will continue to monitor ice-cover and open-water concentrations in Lake N11, and report the findings in final AEMP annual reports. Reference: Golder. 2014. Gahcho Kué Project - 2013 Supplemental Monitoring Report - Water Quality and Sediment Quality - Core, Reference, and Raised Lakes. Submitted to De Beers</p>	<p>Board staff understands that it is unclear what the reasoning for elevated manganese is. However, Board staff are of the opinion that De Beers should be testing a hypothesis that it has proposed. Board staff agree that a confirmatory sampling is appropriate for 2020. However, if the confirmatory sampling indicates elevated manganese, and De Beers do not have further evidence of the cause, then De Beers should add a measurement of redox potential (Eh) in the sediment of Core and Reference Lakes, in addition to dissolved oxygen and pH at all AEMP stations during ice-cover conditions in future sampling years. Board staff recommend the Board require De Beers to revised the response plan to reflect ENR's recommendation for year 2021 and beyond if 2020 confirmatory sampling show elevated manganese.</p>

		<p>dissolved oxygen concentrations in Station L5, Figure 2.3-3).</p> <p><b>Recommendation</b> 1) ENR recommends that De Beers add a measurement of redox potential (Eh) in the sediments of Core and Reference Lakes, in addition to dissolved oxygen and pH in the water column at all AEMP stations of during ice-cover conditions in future years. This would allow a better understanding of the potential causes for water quality exceedances. This information should be included in the Annual AEMP Reports.</p>	Canada Inc. Golder Doc No. 12-1365-0018/DCN-192. April 2014.	
6	Topic: Station N11-L5 Sampling	<p><b>Comment</b> In Section 2.3.1 of the Plan, De Beers states that "In this case, the elevated manganese concentration at Station L5 in April 2019 was not sustained into the open-water season, and was not repeated during the ice-cover sampling event in April 2020." However, ENR notes that Station L5 was not sampled in April 2020 (Table 2.3-3) so it cannot be concluded that the manganese concentrations were not higher in 2020 at this specific station.</p> <p><b>Recommendation</b> 1) ENR recommends that Station N11-L5, which saw recurring lower dissolved oxygen concentrations since 2016 (Figure 2.3-3) be sampled yearly in ice-cover conditions, even under lower sampling effort.</p>	<p><b>July 30:</b> Acknowledged. Given circumstances associated with the early stages of the covid-19 pandemic, it was necessary to limit the sampling effort in April 2020. The stations chosen for sampling in April 2020 were selected to provide an overall assessment of water quality in Lake N11, and not to focus on particular stations.</p>	<p>Board staff recommend that De Beers revise the Response Plan to clarify that L5 Station in particular was not sampled in April 2020 but was selected to provide an overall assessment of water quality in Lake N11. Board staff also recommend that De Beers remove any conclusions that seem to indicate that manganese concentrations were not higher in 2020 at this specific station. Board staff understand the early stages of the covid-19 pandemic may have affected sampling efforts. Board staff recommend De Beers revise the AEMP Response Plan to ensure it is priority to sample station N11-L5 yearly in ice-cover conditions given the action level exceedance.</p>
7	Topic: Lead in Lake 410	<p><b>Comment</b> Section 2.3.2 of the Plan states that "If water from Lake 410</p>	<p><b>July 30:</b> The reference to an average concentration is because</p>	<p>Board staff recommend De Beers update the</p>

		<p>was used as a drinking water source, then average concentrations at Station L3 would be more representative of actual exposure; and average concentrations are well below the Low Action Level." It isn't clear from this sentence if the "average concentrations [of lead] at Station L3" refers to the average from all measurements in 2019 (April to September) or average concentrations during ice-cover, from several years (i.e. 2016 to 2019) at Station L3.</p> <p><b>Recommendation 1)</b> ENR recommends De Beers provide clarification on which average concentration is considered in this sentence.</p>	<p>a single measurement is not representative of actual exposure; the BC MOH lead document indicates that health effects are dependent on frequency, duration, dose, and lead intake from other sources. Therefore, the average concentrations as it applies to the statement in Section 2.3.2 would only apply to measured data from station L3 in ice-cover conditions, and thus would represent the under-ice average concentration for operations years (2016 to 2019). However, De Beers would continue to evaluate the measured concentrations in an annual context; in this case, the average concentration would be based on annual measurements from station L3 during open-water and ice-cover. The use of average measurements in either context would be more appropriate than a single measurement to evaluate potential exposure during under-ice conditions or throughout the year.</p>	<p>AEMP Response Plan to clarify the average concentration considered in the statement in Section 2.3.2 "If water from Lake 410 was used as a drinking water source, then average concentrations at Station L3 would be more representative of actual exposure; and average concentrations are well below the Low Action Level."</p>
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June 25, 2020

Jacqueline Ho  
Regulatory Specialist  
Mackenzie Valley Land and Water Board  
7<sup>th</sup> Floor – 4910 50<sup>th</sup> Avenue  
P.O. Box 2130  
Yellowknife, NT  
X1A 2P6

Dear Ms. Ho,

**Re: DeBeers - Gahcho Kue  
Water Licence – MV2005L2-0015  
Notification of AEMP Exceedances  
Request for Comment**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the information 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: Low Action Level Response Plans**

#### **Comment(s):**

ENR acknowledges that De Beers has made recommendations in the 2015 to 2018 Aquatic effects Re-Evaluation Report to update the normal ranges and pre-development data, and adjust the Action Level criteria to reduce false positive triggers by requiring multiple criteria to be true before a Low Action Level is triggered. However, the latest version of the AEMP Design Plan Version 6 has not yet been approved. As such, it is important that De Beers adhere to the AEMP Response Framework outlined in the AEMP Design Plan Version 5.

ENR notes that while a response plan may be required for each low action level exceedance, the details of the plan may vary depending on the parameters and the risks. The level of response should be commensurate with nature of the exceedance.

For example, a water quality low action level exceedance may only require continued monitoring, whereas declining richness and diversity of benthic invertebrates should focus on understanding the factors contributing to the reduction in these endpoints.

Recommendation(s):

- 1) ENR recommends that De Beers submit response plans for all action level exceedances, as outlined in the approved AEMP Design Plan Version 5.

Comments and recommendations were provided by ENR technical experts in the Water Management and Monitoring Division and the North Slave Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Environmental Stewardship and Climate Change Division.

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](mailto:patrick.clancy@gov.nt.ca).

Sincerely,



Patrick Clancy  
Environmental Regulatory Analyst  
Environmental Assessment and Monitoring Section  
Environmental Stewardship and Climate Change Division  
Department of Environment and Natural Resources  
Government of the Northwest Territories