

D E B E E R S

GROUP OF COMPANIES

Gahcho Kué Mine

**March 2018 Water Licence Amendment
Applications (MV20015L2-0015
and MV2005C0032)
Fisheries and Oceans Canada
Intervention Responses**

July 2018

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1 INTRODUCTION

De Beers Canada Inc. (De Beers) submitted a Water Licence (WL) and Land Use Permit (LUP) Amendment Application Package to the Mackenzie Valley Land and Water Board (MVLWB) for the Gahcho Kué Mine on March 15, 2018, to amend the existing WL (MV2005L2-0015) and LUP (MV2005C0032).

The WL and LUP amendments are required to accommodate necessary changes to the mine plan resulting from a geotechnical issue within the pits (i.e. joint sets) that will result in additional mine rock to be extracted from each of the three pits. It is not possible to mine the ore bodies safely without making these adjustments. The additional mine rock must be extracted in order to ensure the pits remain safe for workers and equipment throughout the life of mine. It is expected that up to 100 Mt of additional mine rock may be removed. This mine rock will be stored on the West Mine Rock Pile resulting in a small increase in the footprint of the project. Most of the increase in the size of the West Mine Rock Pile will be within the water management pond, an area already designated for disturbance. Adjustments to the mine schedule and water management will also be required.

Review comments on the Amendment Application and the associated documents were received on May 8, 2018, and De Beers provided responses to these review comments on May 21, 2018. Following this, as part of the MVLWB permitting and licencing process, De Beers participated in a Technical Session held in Yellowknife on May 30 and 31, 2018.

On June 26, 2018, the Fisheries Protection Program (FPP) of Fisheries and Oceans Canada (DFO) submitted their final intervention (DFO 2018) for the WL and LUP Amendments containing recommendations on the remaining topics of concern. The following provides responses to those recommendations outlined in the DFO intervention, with the intent of resolving the remaining topics of concern prior to the Public Hearing scheduled for July 25 to 26, 2018.

2 RECOMMENDATIONS AND RESPONSES

2.1 OFFSETTING ADDITIONAL HABITAT LOSSES

2.1.1 DFO Recommendation 3.1.1

DFO recommends that De Beers continue to work with DFO-FPP to update their offsetting plan to account for any additional serious harm resulting from the proposed mine changes.

2.1.2 Proponent Response

De Beers provided an update to the Offsetting Plan to DFO based on the 2018 mine plan amendment. De Beers will continue to consult with DFO on the quantification of habitat losses and gains from the proposed offsetting measures to demonstrate that the gains will counterbalance the losses predicted to occur as a result of the Gahcho Kué Mine's

activities. The Final Offsetting Plan will include offsetting measures as required by DFO to achieve equivalency as per *Fisheries Act* Authorization 03-HCAA-CA6-00057.1 issued to De Beers for the serious harm to fish associated with the construction, operation, and closure of the Mine.

2.2 STREAM DIVERSION REPLACING THE RECONNECTION OF STREAM D1

2.2.1 DFO Recommendation 3.2.1

DFO recommends that De Beers continue to work with DFO-FPP in regard to the proposed stream diversion and will await De Beers' DFO 'Request for Review'.

2.2.2 Proponent Response

As indicated in the response to DFO Comment #4 on the Water Licence application, De Beers will provide additional information to DFO in a Request for Review related to the design of the proposed closure diversion channel, including information related to fish passage and use, once further design details are available. De Beers is also committed to continuing to engage DFO with respect to the accounting of losses and gains in the updated Offsetting Plan, including for Lake and Stream D1. However, it must be noted that, in Authorization 03-HCAA-CA6-00057.1, Lake D1 was already considered as a permanent alteration and destruction of habitat and Stream D1 as a permanent alteration of habitat; these losses were also considered in the Offsetting Plan. There are no additional habitat losses under the 2018 mine plan amendment for Lake and Stream D1.

As discussed in Section 4.6.3 of the Environmental Screening Assessment, the diversion channel will be developed at closure to allow for flow from the D watershed to contribute to Kennady Lake in post-closure; this will also maintain De Beers' commitment for re-establishing the natural drainage pattern for the D watershed at closure. The diversion channel will be constructed as a permanent channel that will allow for fish movement to maintain connection between Kennady Lake and upstream locations in the D watershed in post-closure. The design specifications for the channel to facilitate upstream fish passage for target species will be discussed with DFO with the detailed design developed as part of closure planning. Therefore, it is De Beers' expectation that Condition 4.1 of the Authorization will continue to be met (i.e., allowing fish to migrate back into the lake and use the re-established habitats in Kennady Lake).

2.3 INCREASED WATER USAGE AND EFFECTS ON THE DOWNSTREAM FLOW

2.3.1 DFO Recommendation 3.3.1

DFO-FPP recommends that De Beers conduct an assessment to determine the efficacy of the downstream flow mitigation plan and whether the current flow augmentation is adequate. The assessment should include but not be limited to updated water volumes for

Area 8, anticipated changes to flow volume and velocity with additional water usage, consideration of reduced input to Area 8 from Lake N11 due to increased water withdrawal from Lake N11 and a robust contingency plan in the event the arctic grayling are again absent in the 2018 year.

2.3.2 DFO Recommendation 3.3.2

DFO-FPP recommends that De Beers continue to work with DFO to resolve the downstream flow and arctic grayling presence issue and ensure appropriate mitigation is enacted. In addition, if the downstream flow mitigation plan is no longer a viable option, DFO-FPP recommends that De Beers recognize the potential need to submit a new 'Application for a Fisheries Act authorization' to account for previously unanticipated losses to the area downstream of Area 8 or the KLM watershed.

2.3.3 Proponent Response to DFO Recommendation 3.3.1 and 3.3.2

De Beers would like to clarify that the freshwater withdrawal for Operations listed under Schedule 3, Part D, Item 1b of the Water Licence is from Area 8 (and not from Lake N11). This water is withdrawn from Area 8 for camp water use through the existing potable water system, which has screens installed at the intake cage in Area 8 as per the DFO requirement. To account for additional workforce requirements at site, De Beers wishes to amend the annual withdrawal limit for camp water use for Operations from 27,000 m³ to 45,000 m³. This is less than the 60,000 m³ specified in the Water Licence for Construction, and similar to the annual quantities withdrawn in 2015 and 2016. Potable water supply from Area 8 is a small annual supply volume compared to the volume of Area 8 and predicted outflows during construction and operations and would continue to meet the DFO protocol for winter water withdrawals (DFO 2010). Please see responses to GNWT-ENR Comments #36 and 37 and Section 4.6.3 of the Environmental Screening Assessment for additional information on freshwater withdrawals for camp water use.

Schedule 3, Part D, Condition 1c of the Water Licence references the freshwater withdrawal of 1,555,200 m³ from Lake N11 per year for every three out of four years for downstream flow mitigation, as per the Downstream Flow Mitigation Plan (DFMP; Golder 2012, 2014). Use of Area 7 as an additional source of water for downstream flow mitigation as requested in the Water Licence amendment application would reduce the requirements for water withdrawal from Lake N11 during years when water is taken from Area 7. The DFMP and commitments are already in place as determined through the Water Licence process for the Gahcho Kué Mine.

The fish habitat and community in streams downstream of Area 8, including the Arctic Grayling population, is monitored by De Beers under the existing Aquatic Effects Monitoring Program (AEMP), as a requirement of Water Licence MV2005L2-0015 issued by the Mackenzie Valley Land and Water Board (MVLWB). Based on the results of the 2017 fish habitat and community monitoring, De Beers submitted a letter on September 21, 2017 notifying the MVLWB that Low Action Levels as defined in the approved AEMP Design Plan

(Version 5), were triggered (De Beers 2017a). On December 19, 2017, De Beers submitted Version 1 of the *Gahcho Kué Mine 2017 Aquatic Effects Monitoring Program Response Plan – Fish Habitat and Community* (AEMP Response Plan; De Beers 2017b) for public review and MVLWB consideration. Review comments were provided on Version 1 of the AEMP Response Plan, including by DFO; written responses were provided by De Beers and incorporated into Version 2 (De Beers 2018). Version 2 of the AEMP Response Plan was approved by the MVLWB on May 2, 2018. The AEMP Response Plan details the specific Low Action Level criteria that were triggered in 2017 and the preliminary response actions that will be undertaken by De Beers. Note that the proposed 2018 Water Licence amendment does not affect monitoring that will be conducted as part of the AEMP, or the AEMP Response Plan.

Pumping for downstream flow mitigation was carried out at the Mine for the first time in 2017. Monitoring results during 2017 indicated that flows in May were sufficient for the Arctic Grayling spawning migration to occur and that suitable rearing habitat conditions were present for the remainder of the open-water season. Based on these results, the 2017 flow augmentation as per the DFMP was considered to be suitable for mitigating effects to Arctic Grayling habitat in the downstream KLM watershed. However, as per Section 5.1.2 of the AEMP Response Plan, De Beers has committed to conducting an assessment as part of the 2018 AEMP downstream flow monitoring to determine whether the current flow augmentation as outlined in the DFMP is adequate; this will include an evaluation of the current flow monitoring and operational flow mitigation pumping activities. The small increase in potable water withdrawals from Area 8 will also be considered as part of this evaluation.

Section 5.1.7 of the AEMP Response Plan describes contingency planning and mitigation, which will be based on the results of the assessment of the DFMP (per Section 5.1.2), the 2018 monitoring results for fish habitat (depths, velocities), and the spatial and temporal extent of Arctic Grayling presence (or absence), and may include improvements to pumping activities if identified in the flow augmentation assessment.

Monitoring of the Arctic Grayling population and spawning/rearing habitat downstream of the Mine will continue as per the existing AEMP and AEMP Response Plan, and will be reported to the MVLWB under the existing AEMP mechanisms. It is expected that the continued implementation of the DFMP in 2018 will provide the appropriate mitigation for maintaining suitable fish habitat and will provide adequate depths and velocities to avoid further potential harmful effects on the fish communities between Area 8 and Lake 410. However, De Beers will continue to engage with DFO through the MVLWB-mandated AEMP and AEMP Response Plan, as well as directly with respect to any potential implications for the *Fisheries Act* Authorization for the Mine.

3 REFERENCES

De Beers. 2017a. Re: Gahcho Kué Mine De Beers Canada Inc – Low Action Level Exceedance – Arctic Grayling Presence Water Licence #MV2005L2-0015. Submitted to the Mackenzie Valley Land and Water Board, Yellowknife, NWT, Canada, September 21, 2017. File No. L020.

De Beers. 2017b. Gahcho Kué Mine. 2017 Aquatic Effects Monitoring Program Response Plan – Fish Habitat and Community (Version 1). Submitted to the Mackenzie Valley Land and Water Board, Yellowknife, NWT, Canada, December 2017.

De Beers. 2018. Gahcho Kué Mine. 2017 Aquatic Effects Monitoring Program Response Plan – Fish Habitat and Community – Version 2. Submitted to the Mackenzie Valley Land and Water Board, Yellowknife, NWT, Canada, April 2018.

DFO (Fisheries and Oceans Canada). 2010. DFO Protocol for Winter Water Withdrawal from Ice-Covered Waterbodies in the Northwest Territories and Nunavut. Current as of 21 June 2010. Department of Fisheries and Oceans Canada, Government of Canada.

DFO 2018. Final Interventions. De Beers Gahcho Kué – March 2018 Amendment Applications (MV2005L2-0015 and MV2005 0032) (MVLWB). Submitted to Mackenzie Valley Land and Water Board. June 26, 2018.

Golder (Golder Associates Ltd.). 2012. Gahcho Kué Flow Mitigation Plan (June 2012). Technical Memorandum to De Beers No. 11-1365-0012/DCN-068. Submitted to De Beers Canada Inc. June 2012.

Golder. 2014. Draft Gahcho Kué Operational Downstream Flow Plan (October 2014). Technical Memorandum prepared by Golder Associates Ltd. for De Beers Canada Inc. October 20, 2014.