

DE BEERS GROUP

Lee Ann Malley
A/Manager, Environmental Assessment and Monitoring
Environmental Stewardship and Climate Change
Environment and Natural Resources
Government of the Northwest Territories
Email transmittal

March 18, 2021

Dear Ms. Malley:

Re: Snap Lake Mine Environmental Agreement 2019 Annual Reports

On January 15, 2021, Snap Lake Environmental Monitoring Agency (SLEMA) submitted comments on the 2019 annual reports for Snap Lake for their review of the 2019 Environmental Agreement Annual Report (EAAR). On February 10, 2021, SLEMA issued a retraction of their recommendations regarding the annual reports, indicating they had misunderstood the purpose of the Government of the Northwest Territories Environment and Natural Resource's (ENR) call for comments on the 2019 EAAR. Nonetheless, De Beers Canada Inc. (DBCI) has endeavoured to address SLEMA's comments. De Beers is therefore pleased to provide the following documents that address the January 15, 2021 SLEMA comments received on the 2019 EAAR:

1. Memorandum: 2019 EAAR Response to SLEMA Comments
2. Wildlife Effects Monitoring Program 2019 Annual Report (version 2)
3. Wildlife and Wildlife Habitat Protection Plan 2019 Annual Report (version 2)

The provided memorandum summarizes De Beers' responses to each of SLEMA's recommendations for the annual reports. The 2019 wildlife reports have been resubmitted to address the SLEMA recommendations and De Beers' responses detailed in the memorandum. SLEMA recommendations pertaining to other annual reports will be addressed in next year's (2020) report submissions to be provided under separate cover.

Should you have any questions or concerns, please feel free to contact me by phone at (867) 688-9227 or by email at Sarah.McLean@debeersgroup.com.

Sincerely,



Sarah McLean
Environment and Permitting Manager

De Beers Canada inc.

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MEMORANDUM	
File:	2021-De Beers Snap Lake Mine
To:	De Beers Canada Inc.
Attention:	Sarah McLean, Environment and Permitting Manager
Subject:	2019 EAAR Response to SLEMA Comments
Author:	Jamie Van Gulck, Ph.D., P.Eng., Principal Drew Stavinga, M.Sc., P.Geo. Environmental Geoscientist Stephen Anderson, M.Sc., Environmental Specialist
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PREAMBLE

The 2019 Snap Lake Mine Environmental Agreement Annual Report (EAAR) was submitted in November 2020 to the Snap Lake Environmental Monitoring Agency (SLEMA) for review. In January 2021, SLEMA provided comments and recommendations. SLEMA's recommendations were primarily focused on the content of the annual monitoring reports that are summarized by the EAAR. The annual reports where SLEMA's comments and recommendations were focused include:

- 2019 Air Quality Meteorological Monitoring and Emissions Annual Report (AQMMEP);
- 2019 Hydrology Annual Report;
- 2019 Wildlife Effects Monitoring Program Annual Report (WEMP);
- 2019 Wildlife and Wildlife Habitat Protection Plan Annual Report (WWHPP); and,
- 2019 Vegetation Monitoring Program Annual Report (VMP).

The purpose of this memorandum is to provide ARKTIS' suggested responses and updates to the EAAR and associated annual monitoring reports to address SLEMA's recommendations. Provided below is SLEMA's recommendation followed by the proposed response for De Beers' consideration.

Air Quality Meteorological Monitoring and Emissions 2019 Annual Report

Recommendation 1:

SLEMA recommends the Minister to accept the Report

Response:

No action required.

Hydrology 2019 Annual Report

Recommendation 2:

SLEMA recommends above noted inconsistencies to be addressed before the Minister accepts the 2019 Hydrology Annual Report.

Response:

The water balance, as presented, is considered to correctly reflect the current status of the mine and no changes are required. In 2019, the line item “Losses from Snap Lake via groundwater recharge”, assumed to be equal to the volume of mine water pumped from the underground workings, was zero. This reflects the current situation of the mine, as well as the closure/post-closure groundwater flow model, where the underground is flooded, no further pumping from the underground is occurring, regional groundwater flow patterns have re-established, and therefore losses from Snap Lake due to groundwater recharge of the mine workings did not occur. However, it is noted achievement of steady-state conditions within the underground mine remain an uncertainty, and thus the water balance does not account for potential ongoing loss of Snap Lake water to re-establish a steady-state condition when no mine water is being removed. If water was pumped from the underground, the water balance would instead reflect the groundwater model during operations, this water would be considered as a loss from Snap Lake by flowing into the underground workings as groundwater.

The water balance line item “Gains to Snap Lake via groundwater displacement” is recorded as the volume of site water pumped from surface into the underground workings. This line item does not contradict the closure/post-closure groundwater flow model, which only predicts groundwater would naturally flow away from Snap Lake following closure and cessation of all pumping out of the underground mine, and does not address temporary, active pumping of water to the underground mine.

Considerations for Species At Risk

Recommendation 3:

SLEMA recommends above noted inconsistencies in the descriptions of Species at Risk in the Annual Report be corrected before the Minister accepts the report.

Response:

- Species of conservation concern and associated protected status designations has been updated throughout the text, tables, and footnotes of the WEMP and WWHPP annual reports where applicable, including for but not limited to grizzly bear, peregrine falcon, and red-necked phalarope.
- Table 2-3 in the WWHPP annual report has been updated to identify the number of observations for both bank and barn swallows. Tree swallow observations were correctly counted to be 5.

Wildlife Impact Mitigation

Recommendation 4: SLEMA recommends clarification be provided as to whether and how mitigation measures were taken for Species at Risk observed at site in 2019.

Response:

No mitigation measures in response to potential SAR observations at site in 2019 were applied, as no wildlife interactions occurred to trigger a response by Mine staff. Existing mitigations implemented at the Mine (e.g., wildlife awareness training, speed limits, zero harassment tolerance, avoid destruction of bird nests, etc.) per the approved WEMP (2013) were considered sufficient. Should any further mitigations be considered necessary in the future, and/or responses from Mine staff to wildlife presence occur, they will be documented in the WWHPP annual report and within incident reports as appropriate.

Recommendation 5:

SLEMA recommends a description of potential waterfowl nests at/around the mine site in the Annual Report, and any mitigation applied, moving forward.

Response:

Should wildlife logs or surveys identify potential waterfowl nests at/around the mine site, they will be described in the WWHPP annual report moving forward. Should any mitigations be applied, they will be documented in the WWHPP annual report as well as detailed in incident reports as appropriate.

Recommendation 6:

SLEMA recommends further information to be provided about the deceased hare found at the site.

Response:

The cause of death for the arctic hare found at the process plant is unknown. The hare mortality and unknown cause of its death has been updated within the Executive Summary, Section 2.4.1 and Section 3 of the 2019 WWHPP annual report, which previously incorrectly reported no mortalities in 2019.

Recommendation 7:

SLEMA recommends DBCI to implement further preventative actions to improve food waste management at the site.

Response:

De Beers appreciates SLEMA's concern regarding food waste. Given that previous occurrences of food waste have been low, the measures in place are considered effective. Site staff continue to be trained and reminded of proper waste management protocols that will mitigate against future food waste occurrences.

Black Bear and Other Wildlife**Recommendation 8:**

SLEMA recommends the inclusion of black bear as VEC for future Annual Reports to be considered acceptable.

Response:

Black bear observances will continue to be documented in Table 2-3 of the WWHPP annual report in future reports. Moving forward, all VEC activity in the mine area, including black bears, will be considered to support any conclusions presented in the WEMP and WWHPP annual reports.

Habitat Loss**Recommendation 9:**

SLEMA recommends DBCI to clarify the inconsistencies in total habitat loss noted above.

Response:

Disturbed areas were updated in 2018 during the five-year VMP detailed review. The VMP and WWHPP annual reports are reporting the correct values for habitat loss based on the 2018 review. The WEMP annual report is incorrectly reporting values from the previous 2013 review. The WEMP annual report (i.e., Executive Summary, Section 3, and Table 3-1) was updated with the correct values from the 2018 review.

Caribou Monitoring

Recommendation 10: SLEMA recommends DBCI to consider reconnaissance caribou survey in 2020/2021.

Response:

Surveys in 2020/2021 will be completed should there be sufficient caribou in the regional study area to exceed triggers. Triggers for aerial caribou surveys are outlined in the updated Wildlife Effects Monitoring Program (2020).

Recommendation 11:

SLEMA recommends the inclusion of the number of caribou groups observed in the Annual Report.

Response:

The number of caribou groups observed during aerial surveys has been added to the WEMP Table 2-2 and will be recorded in future annual reports. For other caribou observations outside of aerial surveys, Table 2-3 in the WWHPP was updated to include the number of caribou groups observed and will continue to be recorded in future annual reports.

Vegetation Monitoring

Recommendation 13: SLEMA recommends DBCI to clarify and present the actual loss of water land cover type in next year's Annual Report.

Response:

The actual loss of water land cover (10.5 ha) compared to predicted loss (8.7 ha) was presented in the 2018 VMP annual report Table 3-2 for the five-year detailed review. The VMP Executive Summary will be updated in future annual reports to also present the actual loss of water land cover compared to predicted loss, as is done for the esker land cover.

Recommendation 14: SLEMA recommends DBCI to clarify whether the disturbance or change to ELC unit areas exceeded EAR predictions by more than 10% and, if so, provide information on the follow-up actions taken, if any.

Response:

The disturbance to the esker ELC exceeded EAR predictions by greater than 10%. No follow-up actions were considered warranted given the esker was already reclaimed and the nature, extent, and source of impacts was fully understood (i.e., quarrying a larger area). This followed the approved adaptive management approach associated with the Vegetation Monitoring Program.

The disturbance to the water ELC also exceeded EAR predictions by greater than 10%. No follow-up actions were considered warranted given that water cover does not have soils or vegetation communities that can be assessed for impacts, which is the focus of monitoring and follow-up investigations. Changes to the water ELC continued to be tracked in subsequent disturbance reviews. This followed the approved adaptive management approach associated with the Vegetation Monitoring Program.

ELC Units and Maps

Recommendation 15: SLEMA recommends DBCI to explain what accounts for the differences between vegetation community results, as explained above.

Response:

Differences in vegetation communities between the 1994 Landsat and 2002 Landsat, both with 30 m resolution, can be attributed to supporting aerial reconnaissance and ground surveys for the 2002 image, that produced a more accurate vegetation community classification of the area. The 2006 QuickBird satellite image, with a better 2.4 m resolution, was later used to reclassify vegetation communities and resulted in different areas and fewer types, as described in the 2006 VMP annual report.

Recommendation 16: SLEMA recommends DBCI to make the VMP reporting method consistent.

Response:

Within Section 1.4.2 of the VMP annual report, existing text (a) will be replaced with text (b) to improve consistency in next year's report:

- (a) "As outlined in the EAR (De Beers, 2002a), seven ELC types were mapped within the LSA: heath boulder, heath tundra, open spruce forest, birch seep, tussock-hummock, sedge wetlands, and deep water. The dominant ELC type was the heath boulder complex, followed by tussock-tundra. In addition, smaller units of spruce forest and several shrub units were identified."
- (b) "As outlined in the EAR (De Beers, 2002a), seven ELC types were mapped within the LSA: heath boulder, heath tundra, open spruce forest, birch seep, tussock-hummock, sedge wetlands, and deep water. In addition, smaller units of spruce forest and several shrub units were identified. Following revisions to the ELC classifications in 2006, six ELC types were mapped within the LSA: heath boulder, boulder, open spruce forest, riparian tall shrub, tussock-hummock, and water. The dominant ELC type was the heath boulder complex, followed by tussock-hummock."

Within Section 3.1.1 of the VMP annual report, the existing text (a) will be replaced with text (b) for additional clarity in next years report:

- (a) "Since accuracy increased between the 1994 and 2002 land cover classifications, the predicted area of disturbance was re-calculated by overlaying the computer-aided design drawings of the Mine plan from the EAR (De Beers, 2002a) on the 2002 ELC map. The revised calculation predicted the land altered by the Mine disturbance."
- (b) "The predicted area of disturbance from the Mine was calculated by overlaying the computer-aided design drawings of the Mine plan from the EAR (De Beers, 2002a) on the 2002 Landsat image."

Section 3.2.1 of the VMP annual report is correct with no change to this section required.