Snap Lake Environmental Monitoring Agency

2017-2018
ANNUAL REPORT

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Message from the Chairperson

On behalf of the Snap Lake Environmental Monitoring Agency, I am pleased to provide this report of activity for the 2017-2018 fiscal year. Again, as it has done since its inception in 2006, SLEMA has continued to provide oversight over the operations of the Snap Lake Mine, located about 250 km north of Yellowknife. While the mine has been in suspended operations since December 2015, a lot of work remains to be done on site to ensure the legacy of the mine's operations will not adversely affect the environment and the Indigenous communities that depends on its bounty, today and in the future. The land, the lakes and rivers, the animals, and the people who depend on them are all interconnected, and as De Beers will soon embark in the closure and reclamation of the site, it is of the utmost importance that we remain as vigilant now as we were during full operations of the mine. The mine was short-lived and provided some short-term economic benefits to the communities and the NWT, but the presence and land use by Indigenous communities will continue for several generations. For this reason, we must ensure the land is reclaimed to the highest standards with no long-term environmental impacts. This being said, and based on De Beers' continued environmental performance, we are confident De Beers will do what it takes to achieve these goals in collaboration with SLEMA, the Traditional Knowledge Panel, government agencies, and the surrounding communities.

Johnny Weyallon, Acting Chairperson

What Is SLEMA

The Snap Lake Environmental Monitoring Agency's (SLEMA) Board was created pursuant to the De Beers Snap Lake Diamond Project Environmental Agreement, established between De Beers, Government of Canada, Government of the Northwest Territories and the four affected Aboriginal Organizations: the Tłı̨chǫ Government, the Yellowknives Dene First Nation, the North Slave Metis Alliance and the Łutselk'e Dene First Nation. The mandate of SLEMA is to support the aboriginal parties in protecting the environment, support liaison and communication between the parties, review environmental performance, serve as a public watchdog for the regulatory process, and provide a public repository for reports and plans in relation to the Snap Lake Project.

What Are SLEMA's Responsibilities

SLEMA's mandate is established under Article IV Section 4.2 of the Environmental Agreement and is as follows.

(a) support the Aboriginal Parties' efforts to protect the environmental interests on which they rely;

(b) support collaborative and information-based liaison amongst all the Parties;

(c) support De Beers, Canada and GNWT in their respective efforts to protect the environment;

(d) review and monitor the environmental performance of the Project using western science and traditional knowledge;

(e) work with De Beers to mitigate environmental impacts of the Project thereby mitigating the potential for socio-economic effects;

(f) serve as a public watchdog of the regulatory process and the implementation of this Agreement;

(g) make recommendations to anybody having regulatory or management responsibility for a matter, for the achievement of the purposes and guiding principles in this Agreement;

(h) facilitate programs to provide information to and consult with the members of the Aboriginal Parties;

(i) report to the Parties and the public on the Monitoring Agency's activities and the achievement of its mandate; and

(j) provide an accessible and public repository of environmental data, studies and reports relevant to the Monitoring Agency's mandate.

How Is SLEMA Structured

SLEMA is directed by a board of eight, made up of two representatives each from the four signatory Aboriginal groups. The board also relies on two panels: A Science Panel and a Traditional Knowledge Panel. SLEMA has two full time employees: The Executive Director

who administers the agency, and the Environmental Analyst who reviews documents from De Beers and provides advice to the board.

Regular Board Members

James Marlowe

Vice-Chairperson

Łutselk'e Dene First Nation

Alex Power

Chairperson

Yellowknives Dene First Nation

Johnny Weyallon

Secretary

Tłı̨chǫ Government

Arnold Enge

Treasurer

North Slave Metis Alliance

Alternate Board Members

Greg Empson

Yellowknives Dene First Nation

Adrian D'Hont

North Slave Metis Alliance

Noel Drybones

Tłı̨chǫ Government

Charlie Catholique

Łutselk'e Dene First Nation

Traditional Knowledge Panel

Joe Rabesca, *Tłı̨chǫ Government*

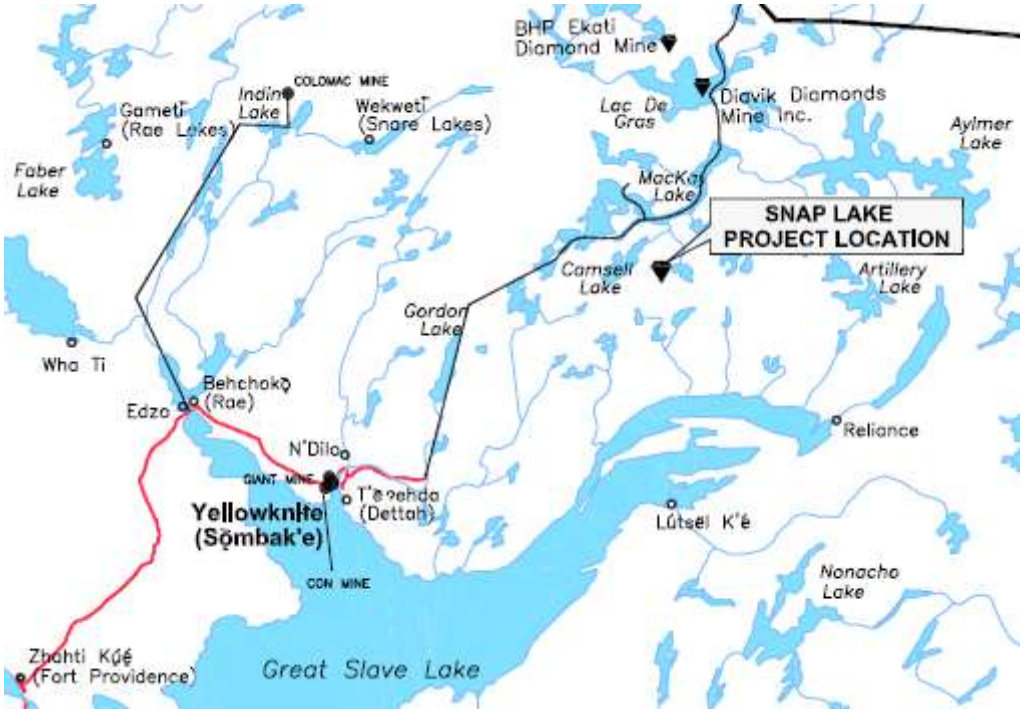
Adrian D'Hont and **Wayne Langenham**, North Slave Metis Alliance

Albert Boucher and **Madeline Drybones**, Łutselk'e Dene First Nation

Mike Francis and **Napolean Mackenzie**, Yellowknives Dene First Nation

Snap Lake Diamond Mine

The Snap Lake Mine (Mine) is a diamond mine owned and operated by De Beers Canada Inc. (De Beers), and is located about 220 kilometers northeast of Yellowknife, Northwest Territories (NWT). De Beers received regulatory approval for the Mine in 2004, which included a Water Licence, a Land Use Permit, Land Lease, and a Fisheries Authorization, as well as specific obligations under an Environmental Agreement. Mining began in 2007 and was expected to continue for 22 years.



Map 1. Location of Snap Lake Diamond Mine

De Beers has committed to maintaining the highest environmental management standards. The Snap Lake Mine is the only diamond mine in the NWT that has certified its environmental management systems to the international standard ISO 14001, throughout advanced exploration, construction and operation.

De Beers announced on December 4, 2015 that Snap Lake Mine was being placed under **care and maintenance**. Since then Snap Lake Mine has been temporarily shut down. No kimberlite was mined and processed in 2017, and the underground mine workings was allowed to flood in February 2017.

De Beers announced on December 14, 2017 that "As a result of the on-going evaluation of Snap Lake Mine since 2015, De Beers will now begin preparation for the Final Closure of the Snap Lake Mine". De Beers intends to file a Final Closure and Reclamation Plan in 2019 after conducting additional engagement with our community partners and finalization of engineering studies".

Within 2017, no processed kimberlite (PK) was deposited into the North Pile. 30,268 m^3 of fresh water were withdrawn from Snap Lake, and 1,124,228 m^3 of mine water, collected runoff and seepage water were treated in the Water Treatment Plant and discharged into Snap Lake. In addition, 15,674 m^3 of water were recycled in the Mine.

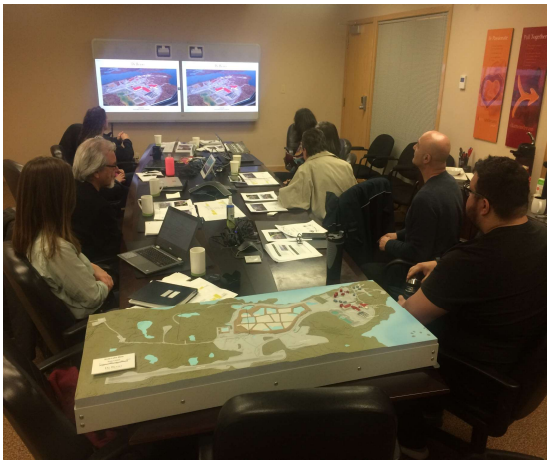
Photo 1. Aerial View of the Mine Site

There were twelve Water Licence inspections and two Land Use Permit inspections conducted by the Inspector of the Department of Lands in 2017.

Agency Activities 2017-2018

- The SLEMA Board met in Yellowknife on July 12 and December 8, 2017.
- SLEMA's Executive Committee met on September 22, 2017.
- SLEMA provided funding to the four signatories of the Environmental Agreement for supporting community efforts to incorporate Traditional Knowledge into De Beers' Interim Closure and Reclamation Plan Update.
- SLEMA staff participated in the 7th Snap Lake Mine Working Group Meeting on May 30, 2017.
- SLEMA Board visited the mine site on July 11, 2017. As approved by the GNWT in consultation with SLEMA, no fish tasting event took place in 2017, but one is scheduled for 2018.
- SLEMA staff attended the Traditional Knowledge (TK) Workshops for closure criteria by NSMA in Yellowknife on November 14 and December 3, 2017.
- The 2016 Annual General Meeting was held in Yellowknife on December 8, 2017.
- TK Workshop was held in Yellowknife on December 14, 2017.
- SLEMA staff conducted mine site visit along with First Nation leaderships on February 6, 2018.
- SLEMA conducted the review of De Beers' annual environmental reports, monitoring programs and management plans, and study reports and made numerous comments and recommendations throughout the year, which are described in the following sections.
- Monthly Environmental Updates are prepared and published on the SLEMA's website (www.slema.ca) and distributed to all signatories of the Environmental Agreement.

Photos 2 to 5. Site Visit on July 11, 2017



Photos 6 to 7. NSMA TK Workshop on November 24, 2017

Photos 8. Core Group Meeting on December 8, 2017

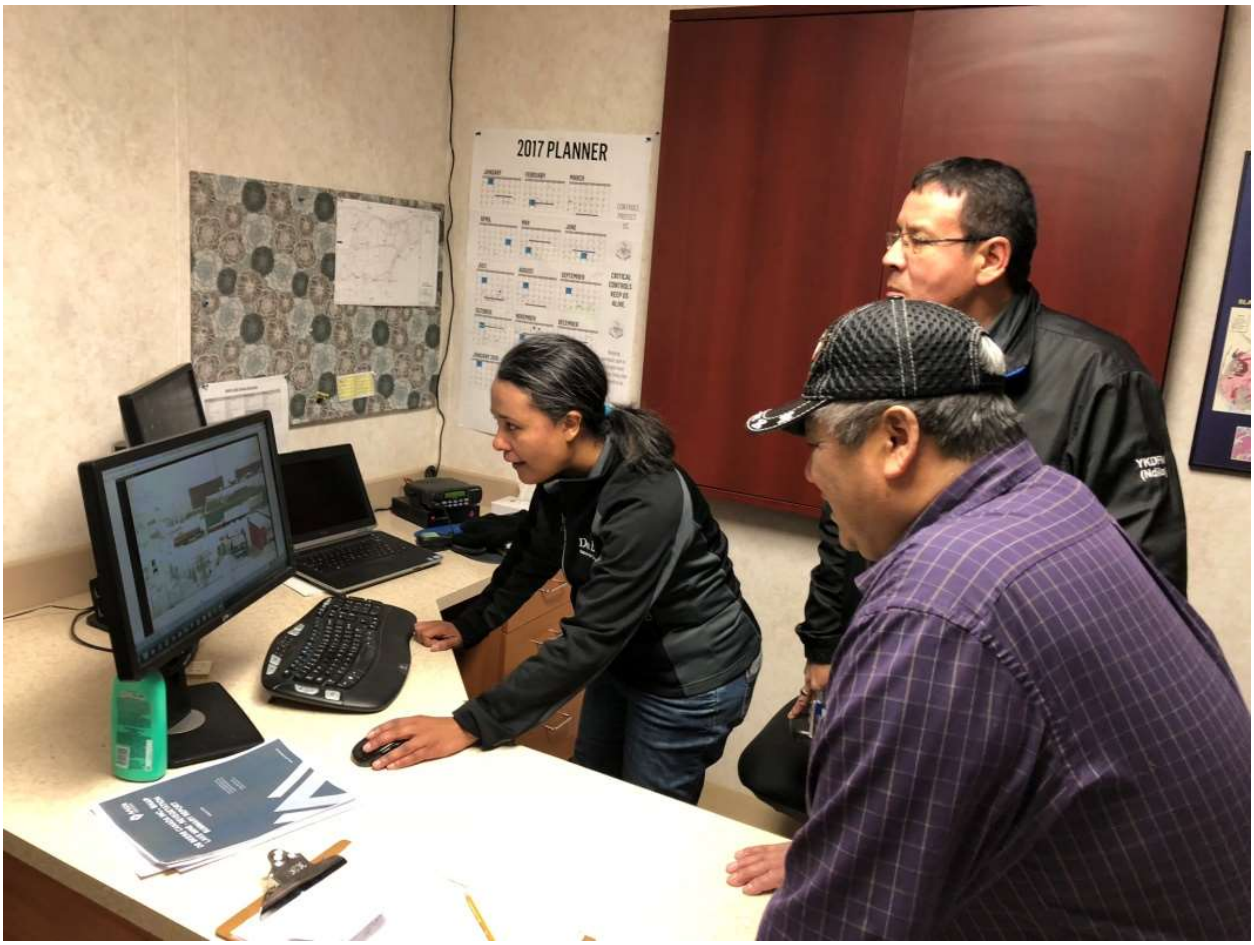


Photo 9. Chiefs from YKDFN Visited the Mine Site on February 6, 2018

Environmental Agreement

2016 Annual Wildlife Effects Monitoring Program Report

De Beers submitted the 2016 Annual Wildlife Effects Monitoring Program (WEMP) Report and the 2016 Annual Wildlife and Wildlife Habitat Protection Plan (WWHPP) Report on March 2, 2017.

The 2016 WEMP Report describes wildlife monitoring occurring **at spatial scales beyond the Mine footprint**.

Limited Regional wildlife studies were completed in the regional study area (RSA) in 2016. Through 2016, the effects of the Mine to wildlife have been within the range predicted in the Environmental Assessment Report.

- In 2016, the monitoring of caribou by means of collar data indicated low levels of interaction with the Mine by these species.

- The regional grizzly bear program was conducted in 2013 and 2014 but did not extend into 2015 or 2016.
- The use of snow-track surveys to monitor wolverines was discontinued after 2012, as the Mine has opted to participate in a regional and standardized wolverine hair snagging program.
- In 2016 a raptor nest survey was conducted in order to provide in kind raptor nest use and productivity data to the North American Peregrine Falcon survey.

2016 Annual Wildlife and Wildlife Habitat Protection Report

The 2016 WWHPP Report describes wildlife monitoring occurring **at and immediately adjacent to the Mine**.

No caribou were reportedly seen in 2016, but some uncommon and infrequent species were observed on-site.

- Moose were reported three times in July.
- Multiple Muskox observations were made twice, once in February and once in July in 2016. Muskox were observed in groups ranging six to twelve at Portage 4 and near Lake 13.

Wildlife habitat loss due to the expanding Mine footprint has occurred as expected and the Mine as of 2013 was approximately 89 percent of the total predicted size. Next Mine footprint assessment was scheduled for 2017 and will be reported in 2018.

Mitigation designed to protect wildlife present at the Mine is effective as Mine-related wildlife mortality remains low. In 2016, three wildlife incidents occurred, consisting of three mortalities (one shrew and two sparrows) and one deterrent action. Worker education, effective deterrent actions and good waste management practices have been considered essential in limiting wildlife incidents and mortalities since the initiation of Mine operations.

2016 Vegetation Monitoring Annual Report

De Beers has implemented and maintains a Vegetation Monitoring Program (VMP) for the Mine, which includes annual and interval monitoring including Area of Impact, Ecological Land Classification (ELC) area, Passive Regeneration Monitoring, and Vegetation Dustfall Monitoring Programs. The VMP also includes triggered vegetation monitoring of ELC plots, and effects of dustfall on vegetation. De Beers submitted the 2016 Vegetation Monitoring Program Annual Report on March 6, 2017.

De Beers' VMP was first prepared for the Mine in 2005. A subsequent VMP was prepared in 2008 and again in 2013. Next one will be in 2018 and every five years thereafter.

Dustfall monitoring results in 2016 are presented in the Annual Report.

- The on-site total dustfall deposition rates were relatively low for all the months and none of them exceeded the Alberta Ambient Air Quality Guideline (AAAQG).
- In December/January, May/June, June/July, July/August and August/September 2016, the off-site total dustfall samples exceeded the AAAQG of 53 milligrams per square decimetre per 30 days (mg/dm2/30d) for residential and recreational areas.
    - These results cannot be used solely to assess whether dustfall is affecting vegetation communities.
    - AAAQG was developed in 1975 to address aesthetic concerns associated with elevated dustfall levels.

Annual / Interval Monitoring variables were assessed in 2013 and are scheduled to be assessed again in 2018. No extra vegetation monitoring programs were triggered in 2016.

SLEMA reviewed the document in May 2016 and requested data consistency within and between reports.

2016 Air Quality Meteorology Monitoring and Emissions Annual Report

De Beers submitted the 2016 Air Quality Meteorology Monitoring and Emissions Annual Report on March 7, 2017. This report provides the results of the air quality and meteorological monitoring programs that were active at Snap Lake during 2016.

Meteorological monitoring results in 2015 are summarized as follows.

- 2016 quarterly wind patterns were similar to 2015.
- Monthly air temperature averages and relative humidity measured at Snap Lake were consistent with patterns and ranges measured in Yellowknife.
- Annual peak solar radiation occurred in June, consistent with previous years.
- The total annual rainfall recorded at the Hill Station in 2016 was 185.2 millimetres (mm), which is higher than the Yellowknife total for 2016 (145.3 mm) and slightly higher than the Yellowknife long-term (1981 to 2010) annual rainfall average of 170.8 mm.

The passive monitoring of SO_2 and NO_2 in 2016 indicated concentrations well below the applicable criteria.

- The annual average SO_2 concentration is 0.14 micrograms per cubic metre ($\mu g/m^3$), which is a decrease of 0.29 $\mu g/m^3$ from 2015 and below the Northwest Territories (NWT) Ambient Air Quality Standards (AAQS) of 30 $\mu g/m^3$.
- The annual average NO_2 concentration is 0.52 $\mu g/m^3$, a decrease of 1.21 $\mu g/m^3$ from 2015 and is still below the NWT AAQS of 60 $\mu g/m^3$.

Exceedances of the NWT AAQS were recorded for $PM_{2.5}$ at the airstrip and the explosives emulsion plant stations. The annual average for $PM_{2.5}$ was lower than that recorded in 2015. Though multiple exceedances of the 24-hour PM2.5 standard were recorded at the airstrip and emulsion plant site from January to July, the time-weighted annual average PM2.5 concentration

was 5.3 µg/m³. Action Level I was triggered for PM2.5, as the annual average of 5.3 µg/m³ is below the NWT AAQS. Action Level I indicates that monitoring should continue, and no mitigation is necessary.

Fuel consumption in 2016 was lower than the amount used in 2015, and monthly tonnage of waste burned in 2016 was overall less than the tonnage burned in 2015. Emission rates in 2016 were lower than those reported in 2015 and also remained below the emission rates predicted in the 2007 Air Modelling Update.

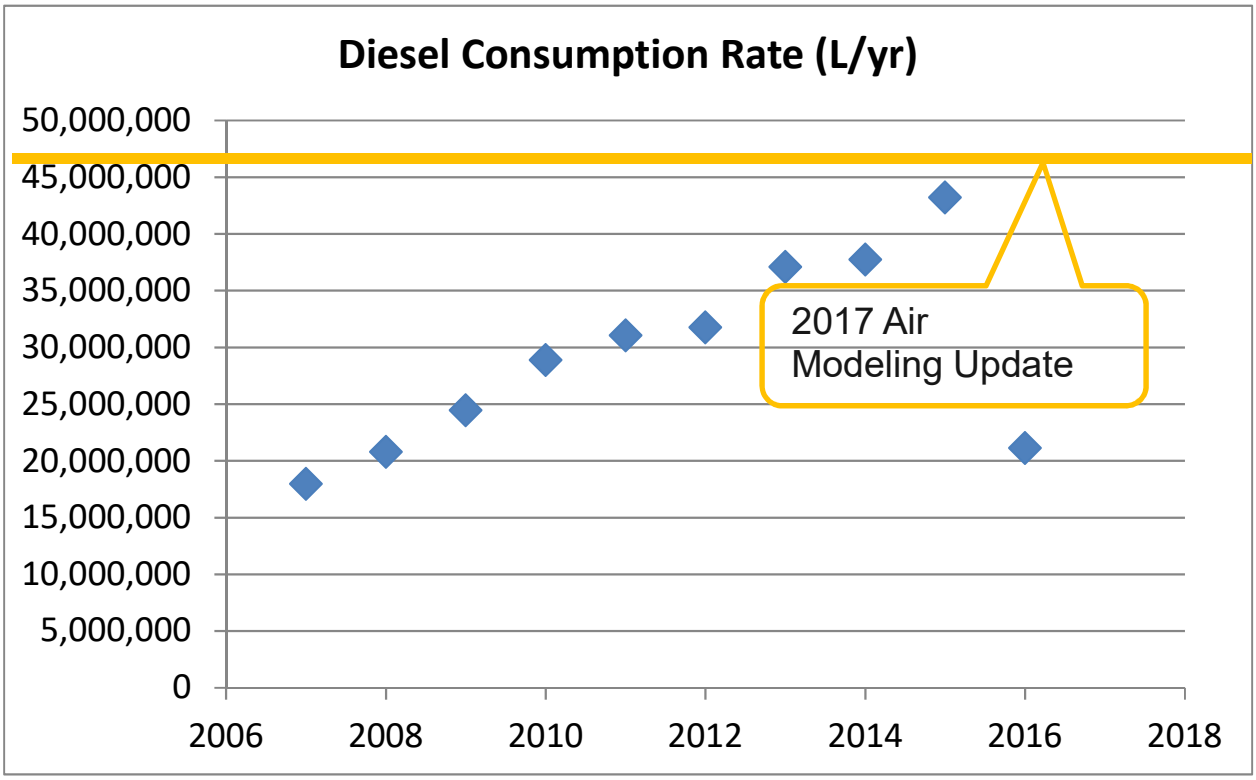


Figure 1. Diesel Fuel Consumption Comparisons

SLEMA reviewed the document in May 2016 and did not raise any concerns.

Air Quality Monitoring Update

During care and maintenance (C&M), site infrastructure will be managed to ensure environmental stability and minimize operating footprint, which involves, but not limited to: reduction in power and heating requirements; reduction of on-site personnel requirements; and reconfiguration of power requirements to maximize efficiency.

As a result of the changes of site infrastructure during C&M, power will no longer be supplied to the Thermo Scientific 5030 SHARP Monitors for $PM_{2.5}$ monitoring at their current locations between the months of October and April. Thus, De Beers proposed a request on the change of $PM_{2.5}$ monitoring on August 23, 2017.

- Option 1: SHARP Monitors will operate at their current locations for the months of May to September, but not between the months of October and April.
- Option 2: SHARP Monitor located near the airstrip will not operate between the months of October and April, but will operate for the months of May to September; SHARP Monitor located near the emulsion plant will be relocated to near the communications shack and operate year-round.
- No changes are proposed to the passive monitoring of SO2 and NO2 at the Mine.

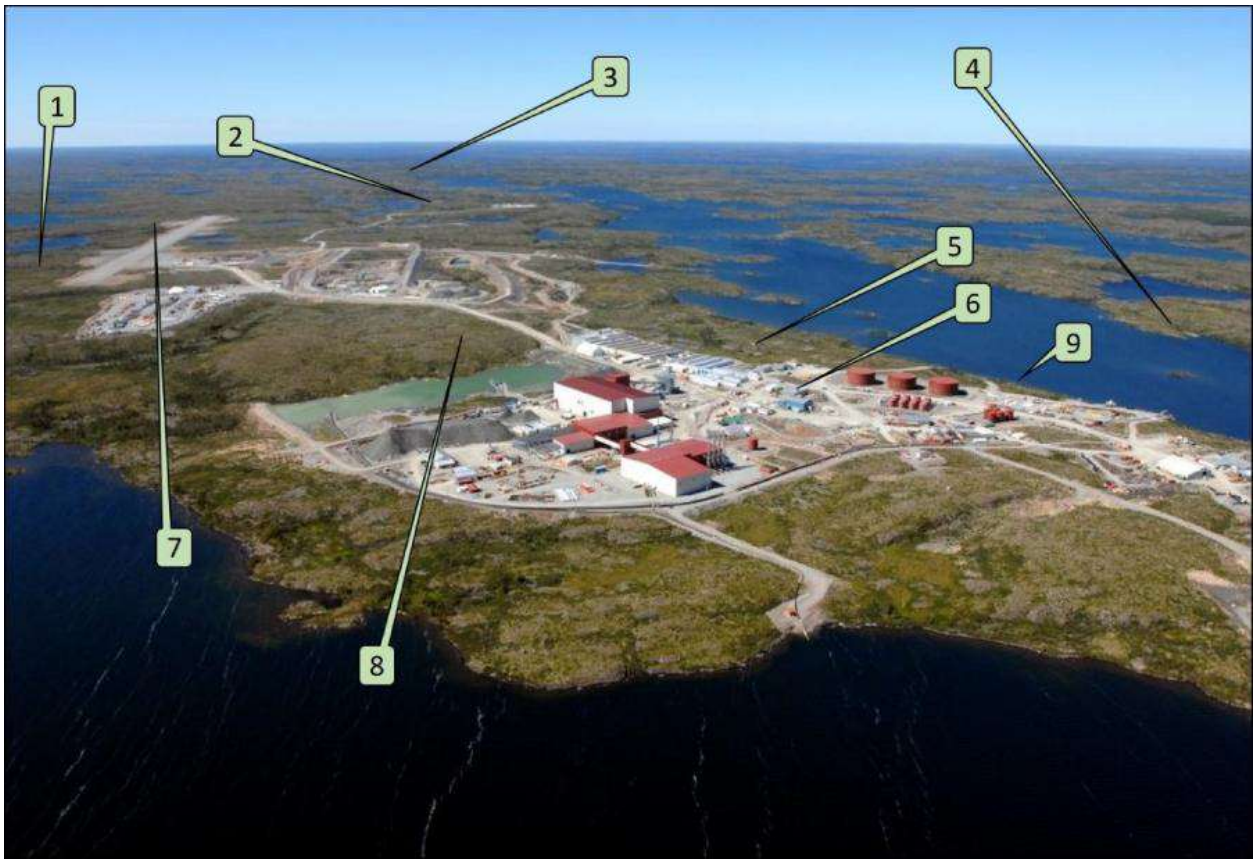


Photo 10. Current locations (#1 and #2) for the SHARP Monitors and the approximate proposed location of SHARP monitor

SLEMA reviewed the request and provided the following comments in August 2017.

- The Air Quality Meteorological Monitoring and Emissions Reporting 2016 Annual Report (2016 Air Quality Report) indicates that
    - Particulate matter concentrations (Total Suspended Particulate and $PM_{2.5}$) could be elevated in both summer and winter.
    - In total, five exceedances of the 24-hour $PM_{2.5}$ standard were recorded at the emulsion plant, and seven exceedances were also recorded at the airstrip, in 2016.
    - Action Level I was triggered for $PM_{2.5}$ in 2016. Action Level I indicates that monitoring should continue, and no mitigation is necessary.

- Option 1 is not consistent with the requirements of the Environmental Agreement, thus not acceptable.
    - Data loss of $PM_{2.5}$ will be seven months per year, and there will be not compliance record for the period of October to next April.
- Option 2 is barely acceptable, considering the limited capability during C&M.
    - Partially fulfill the continuity of particulate monitoring.
    - The memo provides some explanations but not enough for the justification of SHARP monitor relocation and compliance record.
- It is stated in Option 2 (page 3 of the Memo) that demonstration of compliance with ambient air quality benchmarks at the new location can reasonably be extrapolated to represent compliance at off-site locations. However, air dispersion modeling for the C&M period has not been completed. The previous modeling was done in 2007.
- It is requested that De Beers update the Air Modeling to
    - Reflect the current status of care and maintenance and provide guidance for the air quality trend in the future under various scenarios (reopen, extended care and maintenance, and permanent closure).
    - Analyze the impacts of the relocation of SHARP monitor at the emulsion plant and demonstrate the compliance at off-site locations through extrapolation.

De Beers provided the following update on Air Quality Monitoring after considering comments from GNWT and SLEMA, on September 25, 2017.

- "As the GNWT has approved option 1 (no monitoring during the period when no staff are on site) we will be proceeding with that option. The air quality equipment will recommence monitoring when the camp is reopened."
- "The air quality and emissions monitoring plan will be revised as such."
- The additional items SLEMA had requested "are currently underway and we will forward the technical memo upon completion."

De Beers updated its Air Quality and Emissions Monitoring and Management Plan on November 9, 2018. The Plan addresses the change in monitoring equipment, including the: location, species monitored and monitoring frequency to reflect current site operations and Extended Care and Maintenance (ECM) phase of the Mine. At the approval of the GNWT in 2017, during extended C&M phase, the following adjustments to the monitoring for $PM_{2.5}$ were implemented in October 2017.

- SHARP monitors located near the airstrip and emulsion plant will not operate when Mine Personnel are not at the site – approximately between the months of October and April.
- SHARP Monitors will operate at their current locations for the remaining months of the year – approximately between the months of May to September.

SLEMA reviewed the Update in November 2017 and believed the updated $PM_{2.5}$ Monitoring Program during ECM will result in data loss of seven months (winter).

- De Beers stopped the $PM_{2.5}$ Monitoring in October as planned even though a small crew has been kept onsite until approval for remote monitoring is granted by the MVLWB.
- It is requested that De Beers resume year-round monitoring of $PM_{2.5}$ when mine personnel are at the site year-round.

2016 Environmental Agreement Annual Report

De Beers submitted the 2016 Environmental Agreement Annual Report on November 13, 2017, as required under Article X, Section 10.1 of the Environmental Agreement. Both full version and shorter version of the Annual Report were included in the submission. Environmental monitoring and management of Snap Lake Mine in 2016 are summarized, which include Air quality, Aquatics, Archaeology, Hydrology, Hydrogeology and Geochemistry, Vegetation, and Wildlife; as well as Compliance, Mitigative Measures, Adaptive Measures.

SLEMA reviewed the Report and provided the following comments.

- In general, the new format (shorter version) addresses the required content, as specified in the Environmental Agreement, even though it is short and less-detailed, and it is acceptable. The new format could be utilized in future years until the mine status changes, then the requirement of EAAR reporting will be further reviewed.
- Some information required is missing in Section 6 and 8, and improvements are requested.

ENR issued a letter of Satisfactory Determination of the 2016 Snap Lake Environmental Agreement Annual Report, on February 13, 2018.

- The 2016 EAAR extended version will be satisfactory and in accordance with Article 10.1 once De Beers responds to the comments from the GNWT and SLEMA.
- The concise version is a welcome format that ENR hopes to receive in future years, pending improvements.

Wildlife and Wildlife Habitat Protection Plan 2017 Annual Report

De Beers submitted the Wildlife and Wildlife Habitat Protection Plan 2017 Annual Report on March 19, 2018. The report presents the wildlife monitoring occurring at and immediately adjacent to the Mine in 2017, and include a full analysis of monitoring data gathered from 1999 to 2017.

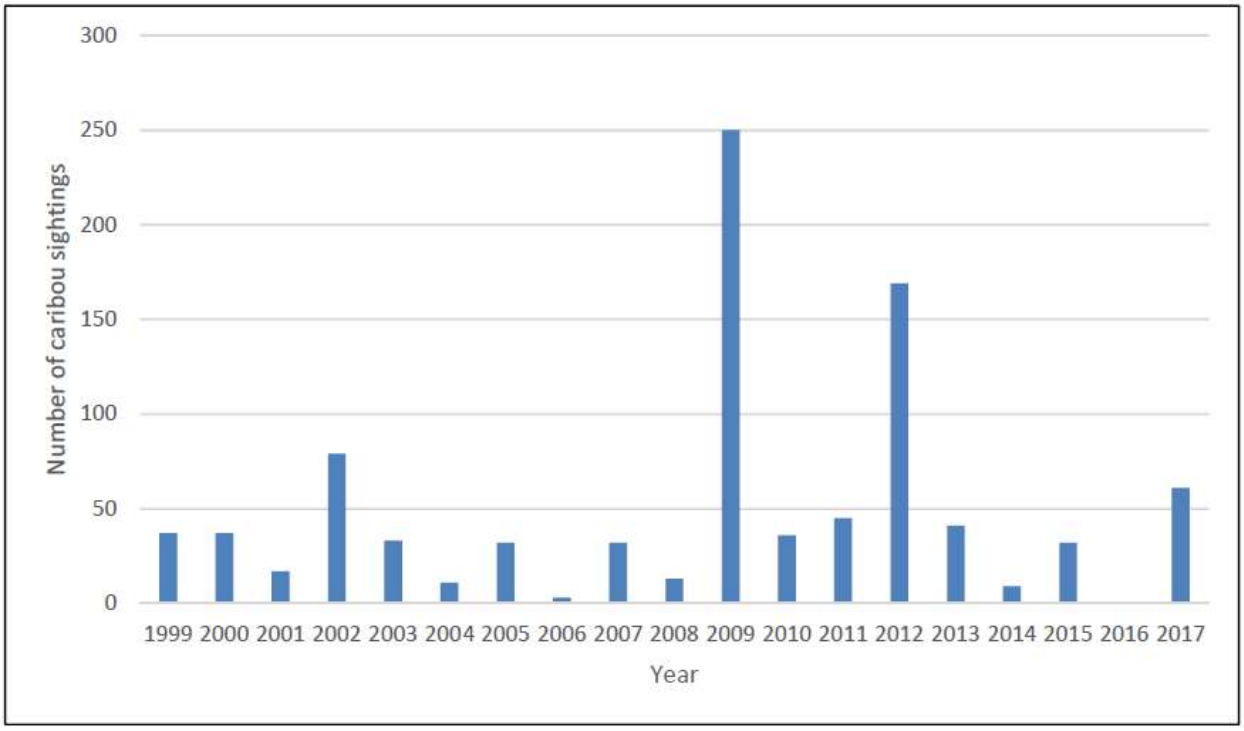


Figure 2. Number of caribou sightings at the Mine from 1999 to 2017

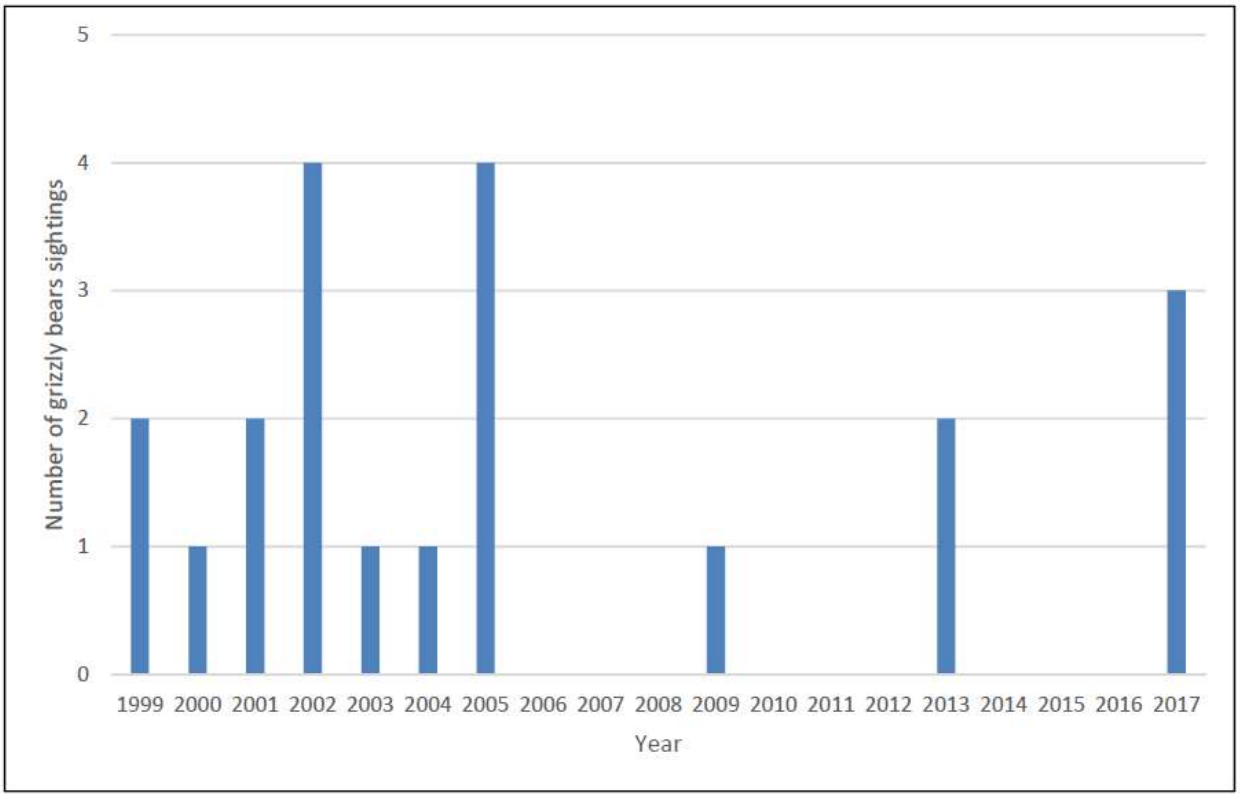


Figure 3. Number of grizzly bear sightings at the Mine from 1999 to 2017

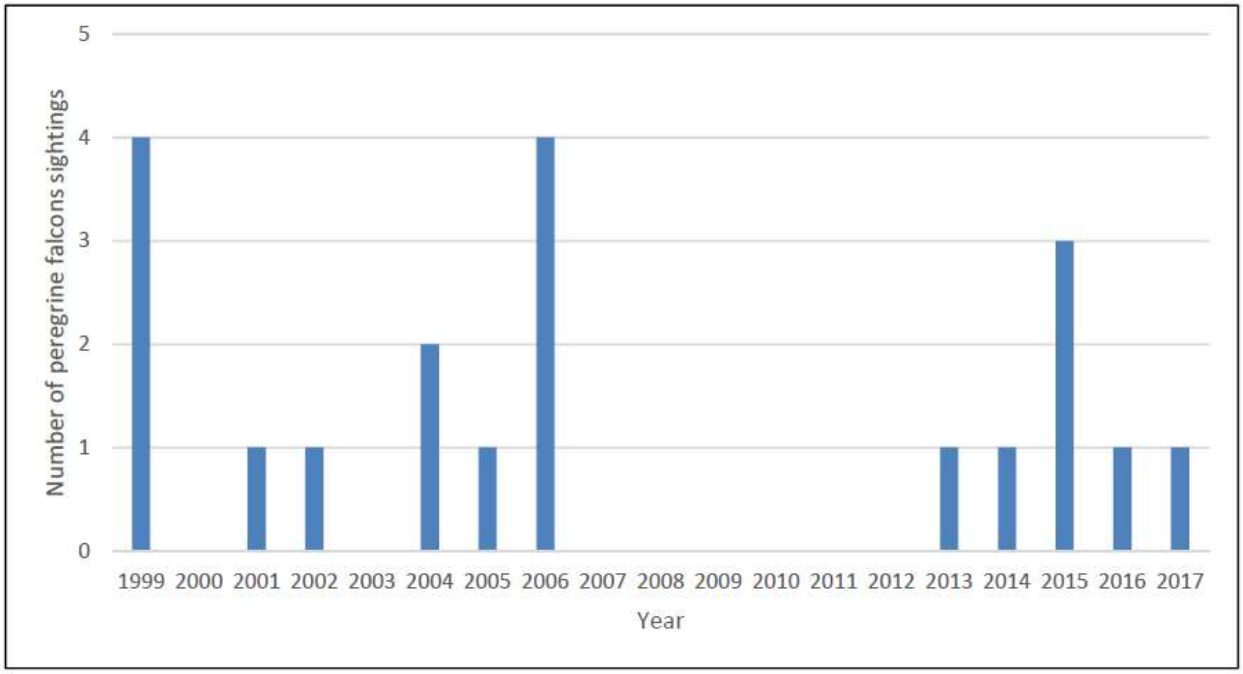


Figure 4. Number of peregrine falcon sightings at the Mine from 1999 to 2017

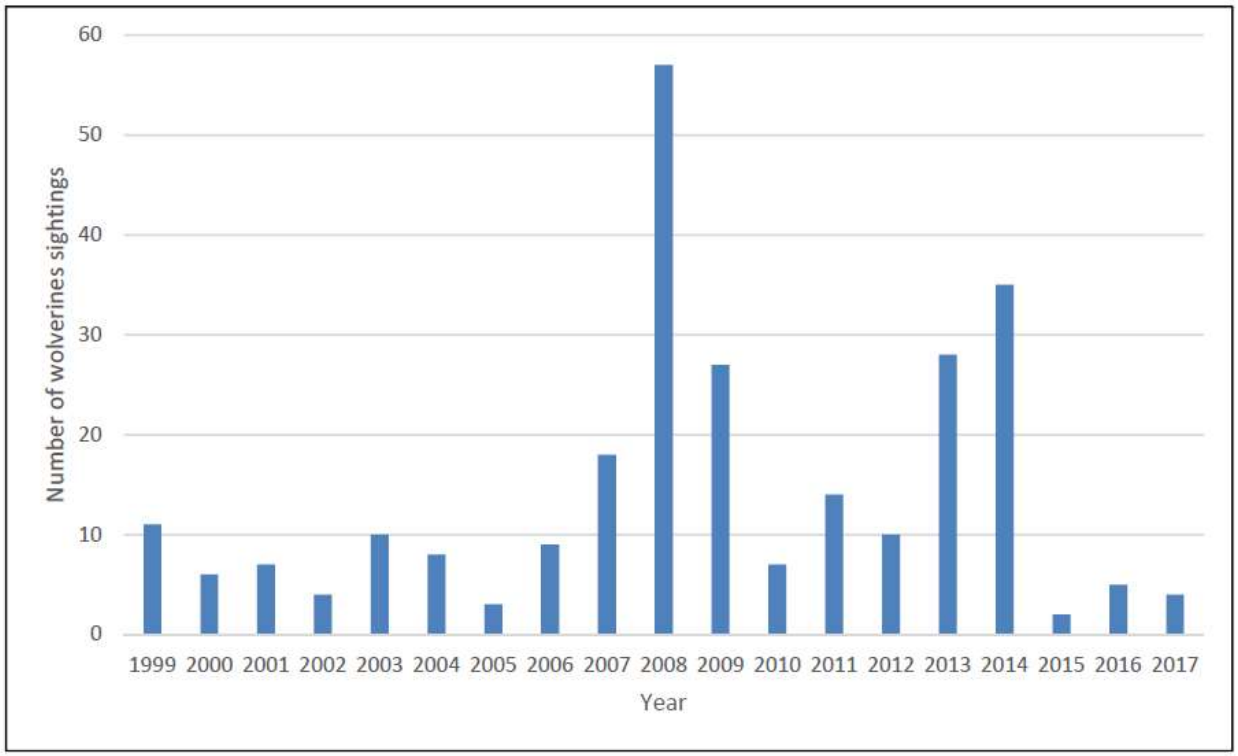
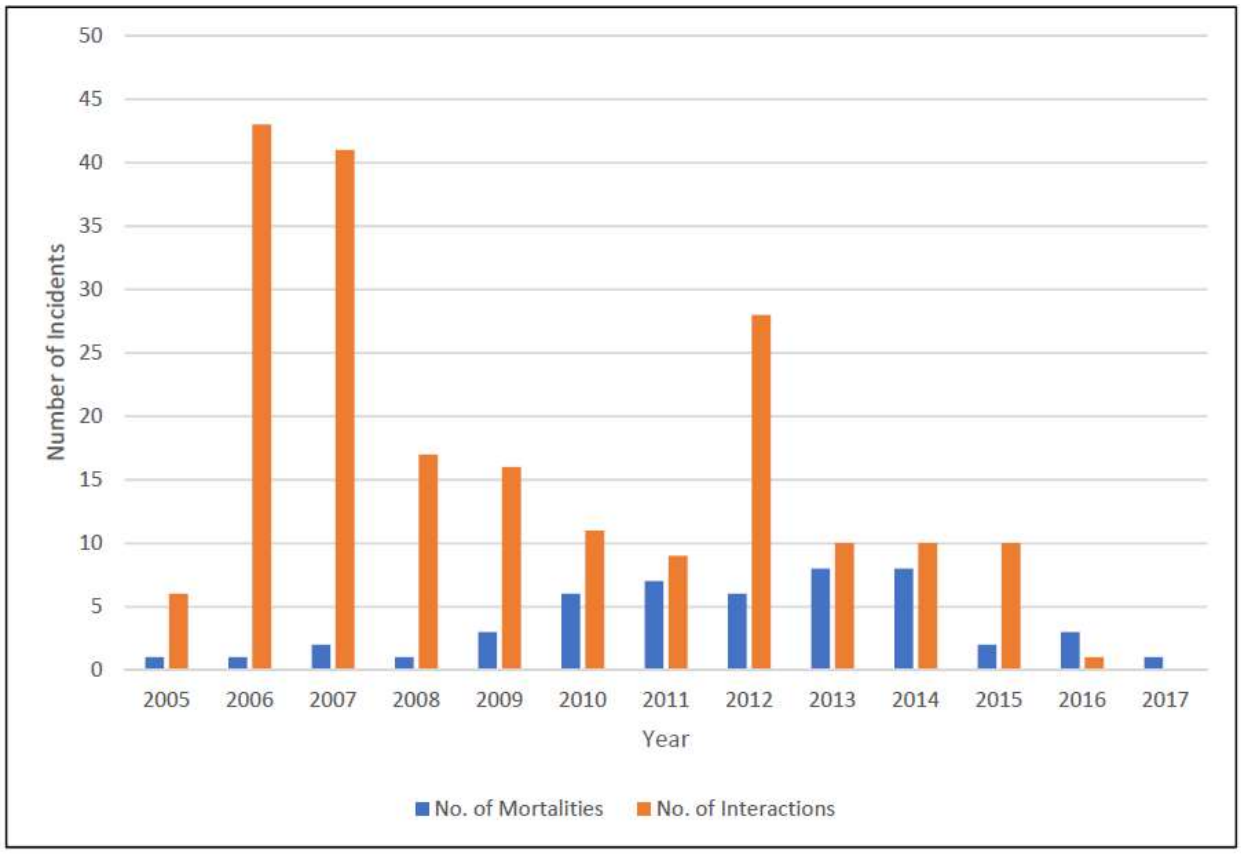


Figure 5. Number of wolverine sightings at the Mine from 1999 to 2017



Note: The Wildlife Effects Monitoring Program was developed in 2004. Reporting of incidents and mortalities was not recorded prior to 2005.

Figure 6. Number of mortalities and interactions at the Mine from 2005 to 2017

SLEMA reviewed the Annual Report and did not raise concerns on it.

Wildlife Effects Monitoring Program 2017 Annual Report

De Beers submitted the Wildlife Effects Monitoring Program 2017 Annual Report on March 19, 2018. The Report presents the wildlife monitoring occurring at spatial scales beyond the Mine footprint, and includes a full analysis of monitoring data gathered from 1999 to 2017.

Limited Regional wildlife studies were completed in the regional study area (RSA) in 2017. Through 2017, the effects of the Mine to wildlife have been within the range predicted in the Environmental Assessment Report.

- In 2017, the monitoring of caribou by means of collar data indicated low levels of interaction with the Mine by these species
- In 2017, aerial surveys of caribou were not completed due to an insufficient number of caribou observations needed to trigger the program
- There was no Grizzly bear Wolverine and North American Peregrine Falcon monitoring at the Mine in 2017.

SLEMA reviewed the Annual Report and did not raise concerns on it.

Water Licence

Snap Lake's Type "A" Water Licence MV2011L2-0004 was approved by the Minister of AANDC on May 23, 2012 following recommendation of the MVLWB. The licence is valid from June 14, 2012 to June 13, 2020.

2016 Water License Annual Report

The 2016 Water License Annual Report was submitted on March 31, 2017. It addresses the annual reporting requirements under Water License MV2011L2-0004. Data for mining activities, water management, SNP, spills, etc. are summarized, and four reports are attached.

- Appendix I 2016 Snap Lake Mine Surveillance Network Program Water Quality Data
- Appendix II Geochemical Field Inspection Report, 2016
- Appendix III Acid/Alkaline Rock Drainage and Geochemical Characterization Report, 2016
- Appendix IV Geotechnical Instrumentation Monitoring Program Summary, 2016

SLEMA reviewed the above documents in April 2017 and provided the following comments.

- It is evident that the submission did not follow the Schedule 1, Part B of the Water Licence MV201L2-0004 (pages 23 to 25 of 66, current to: September 8, 2016)
    - Part of the Table of Contents is out of date.
    - The following requirements are not fulfilled: Schedule 1, Part B 1q, 1t (geotechnical inspection report), dd, ee, ff, gg, hh.
    - Information and data related to the aforementioned conditions should be added into the Annual Report. Re-submission is requested.
- Editing problems in the Table of Contents were identified in the 2016 Water License Annual Report.
- No concerns were raised on the four Appendices, and all report recommendations were supported.

2016 AEMP Annual Report

The Annual Report was submitted on May 1, 2017. The goal of the AEMP is to address potential Mine-related effects to the aquatic ecosystem of Snap Lake in a scientifically defensible manner. The Annual Report summarizes the monitoring results in 2016.

Hydrological monitoring results in 2016 are incorporated in the AEMP annual report. Streamflows and water elevations for Snap Lake, 1999 Reference Lake, and Northeast Lake

during 2016 were within historical values recorded between 1999 and 2015, and are considered within normal ranges.

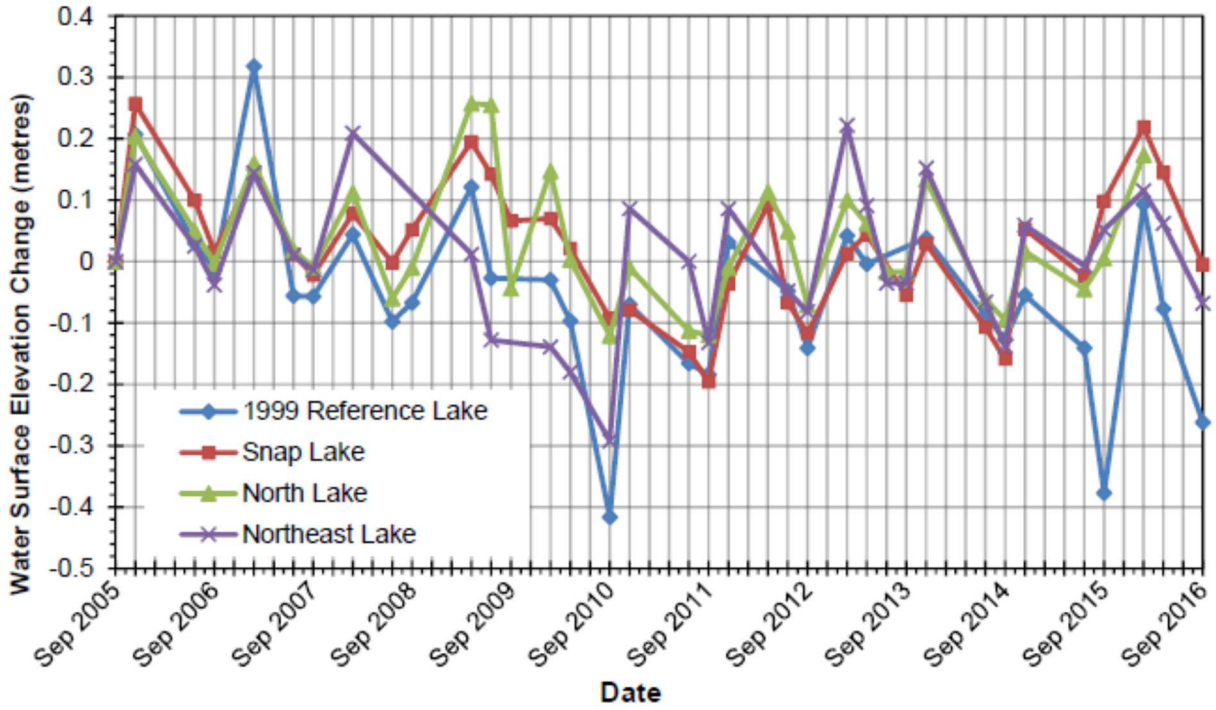


Figure 7. Water Surface Elevations of Snap Lake, 1999 Reference Lake, North Lake, and Northeast Lake, 2005 to 2016

The core programs of the AEMP, completed every year, are: monitoring of water quality, toxicity, sediment quality, plankton (the small plants and animals that live in the water), fish tissue chemistry, and fish community. Downstream Lakes Special Study was completed in 2016. AEMP monitoring results are briefly summarized as follow.

Water Quality

- Concentrations of total dissolved solids (dissolved salts in the water), nutrients (specifically nitrogen related primarily to explosives use), and some metals have increased in Snap Lake due to the discharge of treated effluent. However, in 2016 concentrations of most nitrogen parameters decreased compared to 2015, due to reduced mining activity.
- Concentrations of water quality parameters in 2016 were below AEMP benchmarks.
    - AEMP benchmarks are water quality guidelines and site-specific water quality objectives, which provide conservative protection to fish in Snap Lake and the food chain upon which they depend.
- Concentrations of most water quality parameters in Snap Lake were below health-based drinking water guidelines, with the exception of total coliforms at the Mine's drinking water intake.

    - Total coliforms, commonly found naturally in lakes and streams, were also detected near the drinking water intake prior to the Mine beginning operations in 2004.
- Drinking water at the Mine is filtered and chlorinated prior to consumption (as required by Health Canada of any surface waters in Canada).
    - Treated drinking water at the Mine remains safe to drink.
- Concentrations of some water quality parameters that have increased in Snap Lake have also increased downstream of Snap Lake.
- Concentrations of total dissolved solids at the outlets of Lac Capot Blanc and upstream of King Lake have increased from baseline concentrations, but downstream water quality concentrations remain low and below AEMP benchmarks.
- Based on the 2016 water chemistry data, the changes to water quality in Snap Lake and downstream are not expected to cause adverse effects to resident aquatic life, do not pose a human health risk, and have not adversely affected the drinkability of the water.

SLEMA reviewed the Water Quality section in June 2017, and did not raise any concerns.

Sediment Quality

- Concentrations of measured parameters in sediments near the diffuser were not at levels indicating likely toxicity, although the concentrations of some metals and a nutrient had been enhanced compared to natural concentrations.
    - Some measured parameters in the sediment samples had lower concentrations than in previous years, some had higher. Such variability is not unexpected given that the sediments are diverse in character and content.

Toxicity

- The laboratory toxicity tests were performed by exposing algae, water fleas, and fish to treated effluent and lake water samples collected from the edge of the mixing zone.
    - The treated effluent samples were not toxic to Rainbow Trout, algae, or water fleas. The lake water samples were not toxic to algae or to sensitive Fathead Minnow or Rainbow Trout early life stages.
- There was no toxicity to water fleas from seven of the eight lake water samples; however, one sample collected in September 2016 reduced the reproduction and survival of a water flea species that does not live in Snap Lake.
    - Similar occasional toxicity to this water flea species has occurred since testing began, consistent with the original (2002) Environmental Assessment predictions, and without any evidence of adverse effects to the water fleas and other aquatic animals and plants that actually live in Snap Lake.

Plankton

- Changes are happening in the plankton community of Snap Lake. However, these changes have not adversely affected the function of this community as a key part of the food chain for fish.

    - There is natural variability associated with plankton communities, as demonstrated by variability in the reference lakes plankton over time, and between the two reference lakes.
    - Increases in chlorophyll concentrations, which allow plants to extract energy from sunlight, were observed in the three lakes between 2015 and 2016, indicating a regional rather than Mine-related effect.
- In 2016, there were more small plants in the main basin of Snap Lake than in Northeast Lake and in Lake 13.
    - This suggests that the Mine is enhancing the growth of small plants in Snap Lake, probably related to additional nutrients, and that toxicity from Mine effluent is not affecting the small plants in Snap Lake.
- In 2016, water fleas increased in the main basin of Snap Lake and in the two reference lakes, suggesting a regional rather than a Mine-related effect.
    - Water fleas were still within the normal range of natural variability in the main basin of Snap Lake and no major changes had occurred to other zooplankton compared to previous years, suggesting that toxicity from Mine effluent is not affecting the small animals in Snap Lake.

<u>Benthic Invertebrate Community</u>

- The benthic invertebrate community in Snap Lake showed changes in 2015, likely due to nutrient enrichment. However, these changes have not adversely affected the function of this community as a key component of the food chain for fish; potential fish food has increased, not decreased.
    - Mine-related changes were detected in 2015 in the benthic invertebrate community in the main basin of Snap Lake relative to previous years.
    - The changes seen in 2015 are beyond those previously predicted, and triggered a Low Action Level for nutrient enrichment.

<u>Fish Tissue Chemistry</u>

- Results showed that two metals were increasing in Snap Lake and <u>triggered Low Action Levels for further investigation: sodium and strontium.</u>
    - These metals were elevated relative to the baseline in Snap Lake, the reference lakes, and were also above the range of natural variability in the region, known as the "normal range."
        - Sodium concentrations were observed to be elevated in Round Whitefish muscle tissues,
        - while strontium concentrations were elevated in Lake Trout kidney and liver tissues.
- There were no fish tissue samples above the Canadian Food Inspection Agency commercial consumption guidelines for arsenic or lead in Lake Trout or Round Whitefish tissues in 2016.
    - Some Lake Trout from each of Snap Lake, Northeast Lake, and Lake 13 had kidney, liver, and muscle mercury concentrations above the commercial consumption guideline for mercury, which is consistent with the guidelines being exceeded before the Mine started operating. In other words, these metal concentrations are natural, not Mine-related.

- There were no Round Whitefish tissue concentrations above the mercury guideline.

Fish Community Monitoring

- The results from the current program indicate that the fish community composition in Snap Lake was similar to previous years. Relative abundance of Lake Trout and Round Whitefish in Snap Lake was not less than the reference lakes, and catch rates in Snap Lake were greater than reference lakes.
- Based on the 2016 results, fish were healthy and abundant in Snap Lake.

Fish Tasting

- Held on September 7 to 8, 2016.
  - Twenty Lake Trout were captured. Eighteen fish were discarded after being dissected by Elders during fish tasting and two were kept by the Elders. Three went sent for chemical analyses.
- Two Lake Trout were prepared for cooking and tasting.
  - An Action Level for fish tasting was triggered as some Elders thought the fish did not taste good.
  - **Further actions will not be taken in 2017 given that the Mine stopped discharging and is in Care and Maintenance.**

SLEMA provided the following comments on Fish Tasting in June 2017.

- The survey forms collected from the Fish Tasting Event show that three comments are negative, and one is positive, which triggered an action level. Unfortunately, De Beers will not take further actions due to the mine status of care and maintenance.
- This is a warning sign. It is recommended that De Beers do some research and provide explanations to the participants in the next fish tasting event in 2018.
- It is stated in lines 3 to 4 of the Plain Language Summary that the fish tasting program will be done again in two to three years, depending on the status of the Mine. The statement is not consistent with the ENR Minister decision with regards to Environmental Agreement Reporting, dated July 15, 2016. In page 2 of the decision letter, he stated that "I do accept s reduction in the frequency of the activity to a two-year cycle for the time being. Thus, the Fish Tasting event will occur in 2016 and 2018, and its feasibility will continue to be assessed in future years."

Weight of Evidence Integration

- For 2016, there was a link between nutrient concentrations in Snap Lake as a result of Mine activities, stimulation of small plant growth, and a resulting moderate-level shift in the phytoplankton community.
  - There was no evidence of this nutrient enrichment transferring through the food chain (i.e., as increased food supply); the biological response of the small animals

that eat the small plants (i.e., decreased biomass) was not consistent with nutrient enrichment and resulted in weak evidence for toxicological impairment of the plankton community. The biological responses observed in the fish community did not support either nutrient enrichment or toxicological impairment.

- The AEMP findings for Snap Lake for 2016 were more indicative of enrichment than toxicological impairment. There appear to be no adverse effects to the structure and function of the Snap Lake aquatic ecosystem.

Report Conclusions

- The functionality of the aquatic communities in Snap Lake has not been adversely affected by the Mine.
- The fish in the lake have sufficient food to eat and are safe to eat, and the water is safe to drink.

2016 Annual Closure and Reclamation Progress Report

The report was submitted on May 1, 2017. It summarizes the proposed changes to the closure and reclamation planning, engagement, progressive reclamation and research/studies completed in 2016, and total reclamation liability. Two appendices are attached: Closure Criteria and 2016 Closure Studies and Reports.

Temporary closure of the Snap Lake Mine in late 2015 represents a potential variation from the closure and reclamation planning and implementation schedule.

- Mine operations ceased, and the site entered in to care and maintenance.
- Construction of the West Cell stopped.
- Flooding of the mine workings in January 2017.
- Select non-essential buildings for mine operations are planned to be decommissioned, which may commence in 2017.

However, the changes to underground and surface infrastructure are not considered variances that warrant reconsideration of the closure and reclamation activities for the mine.

Due to the exclusively underground mining activities at Snap Lake and relatively small footprint compared to nearby diamond mines, the majority of the site infrastructure is required for mining operations until closure. Consequently, the number of prospective facilities that can be reclaimed before the end of the planned life of mine is limited.

- In 2016, an erosion protection layer of non-PAG rock was constructed on the outer perimeter embankments of the Starter and East Cell.
- To confirm if the landfarm area requires remediation, sampling and analysis of the soils was completed in 2015, and results reviewed in 2016 to support the development of an appropriate approach to decommissioning.
- Select non-essential buildings for mine operations were identified to be decommissioned during care and maintenance.

- Major structures, fixed and mobile equipment and hazardous materials were removed from underground as preparation for flooding. Select items prepared for removal from site.

Reclamation research made progress in 2016.

- In 2016, a local seed collection program for native species was completed, with seeds shipped off-site for propagation to support revegetation field.
- Construction of the proposed revegetation test plots at the former AN Storage Pad was completed in 2015. Seeding of native grasses and forbs was carried out in spring and fall 2016, with the addition of shrub seed during the latter event.
- In response to care and maintenance, updated groundwater flow simulations and predictions for water quality in the upper levels of the underground mine once flooded were completed in 2016.
- A sampling and geochemical investigation of sediments within the Water Management Pond (WMP) and North Pile sumps and ditches was conducted in 2016.

SELMA reviewed the document in June 2017 and provided the following comments.

- Clarification is requested for non-essential buildings reclamation.
- Closure criteria were reviewed, and recommendations for specific closure criteria were provided.
    - Slater Environmental Consulting (SEC) reviewed the closure criteria for the Diavik Diamond Mine on behalf of the Environmental Monitoring Advisory Board (EMAB). The review approach SEC adopted, and some specific comments SEC made, in SLEMA's opinion, may also apply to the review of the Snap Lake Mine's closure criteria.

Spill #2017-166

The Snap Lake Mine underground workings flooded at a rate faster than predictions made in the Extended Care and Maintenance Plan. The minewater reached surface on May 16, 2017. 400,000 L of underground minewater spilled affecting 900 square meters of land around the Fresh Air Raise. De Beers took actions right after the spill was identified.

- Water being pumped underground was suspended and flow slowed and stopped after 2 hours. The level of the Fresh Air Raise water decreased hourly.
- Water on surface was contained with a snow berm constructed with an excavator and the remaining water was removed via vacuum truck.
- Modular Water Treatment Plant was re-commissioned to treat the surface water (freshet) prior to discharging into Snap Lake.
- Emergence discharge requested for Inspector's approval, as a result of the on-going freshet conditions at site and pressure on surface waste storage facilities.

De Beers' request for emergency discharge of freshet water was granted by the Inspector on May 21, 2017.

- "Water will be discharged after treatment by way of the diffuser and in a manner that meets all water license requirements (except for the Nitrate EQC)."

SLEMA reviewed the information related to the spill and provided the following comments in June 2017.

- The spill and emergency discharge appeared to be inevitable.
    - There appeared no underground water level monitoring while water was pumped underground.
    - The Water Treatment Plant was decommissioned in February 2017, and the back-up plan for freshet management, to some degree, relied upon pumping freshet water underground and the storage capacity of the Water Management Pond.
- Better planning and management would have been done for freshet management.
- It is recommended that pumping operations be directed by water level monitoring as De Beers has been doing with the surface water management in the sumps.

Snap Lake Water Management Strategy

Due to unforeseen concentrations of zinc, the underground water could not be used as a water source for blended discharge to Snap Lake. The GNWT Inspector was consulted and emergency authorization was requested and granted to discharge surface water into Snap Lake that was elevated in excess of water licence effluent quality criteria in May 2017. De Beers commenced discharge under this authorization on May 25, 2017 and ended on June 30, 2017.

On August 11, 2017, GNWT Inspector Mr. Andrew Howton requested a water management plan from De Beers that will ensure that there is not a repeat of the situation that occurred in 2017.

De Beers submitted, on September 4, 2017, the Technical Memorandum to provide supplemental information in support of the Water Management Plan for Extended Care and Maintenance (ECM).

De Beers listed four approached to water management as follows.

- Water Diversion: To route surface water that has not interacted with mine workings away from Permanent Sump (PS) 5.
- North Pile Perimeter Water Control (Sump) Management: By targeting sumps with elevated constituents of concern allows for targeted return underground (Step 3) or Treatment (Step 4) of water to maintain compliance as per the design criteria of the system.
- Underground Water Return: To store treatment residuals or high concentration surface water.
- Water Treatment: Contracted a design firm that will propose a solution for Metalloids +TDS+ Nitrogen, that will be procured in the winter of 2017/18.

SELMA reviewed the Technical Memorandum in September 2017 and did not raise concerns but the underground storage capability, because underground water return is still a step for the Water Management Strategy.

An Information Request was sent to De Beers on September 7, 2017.

- What the storage capability could be provided from the underground when the mine water reaches the surface elevation?

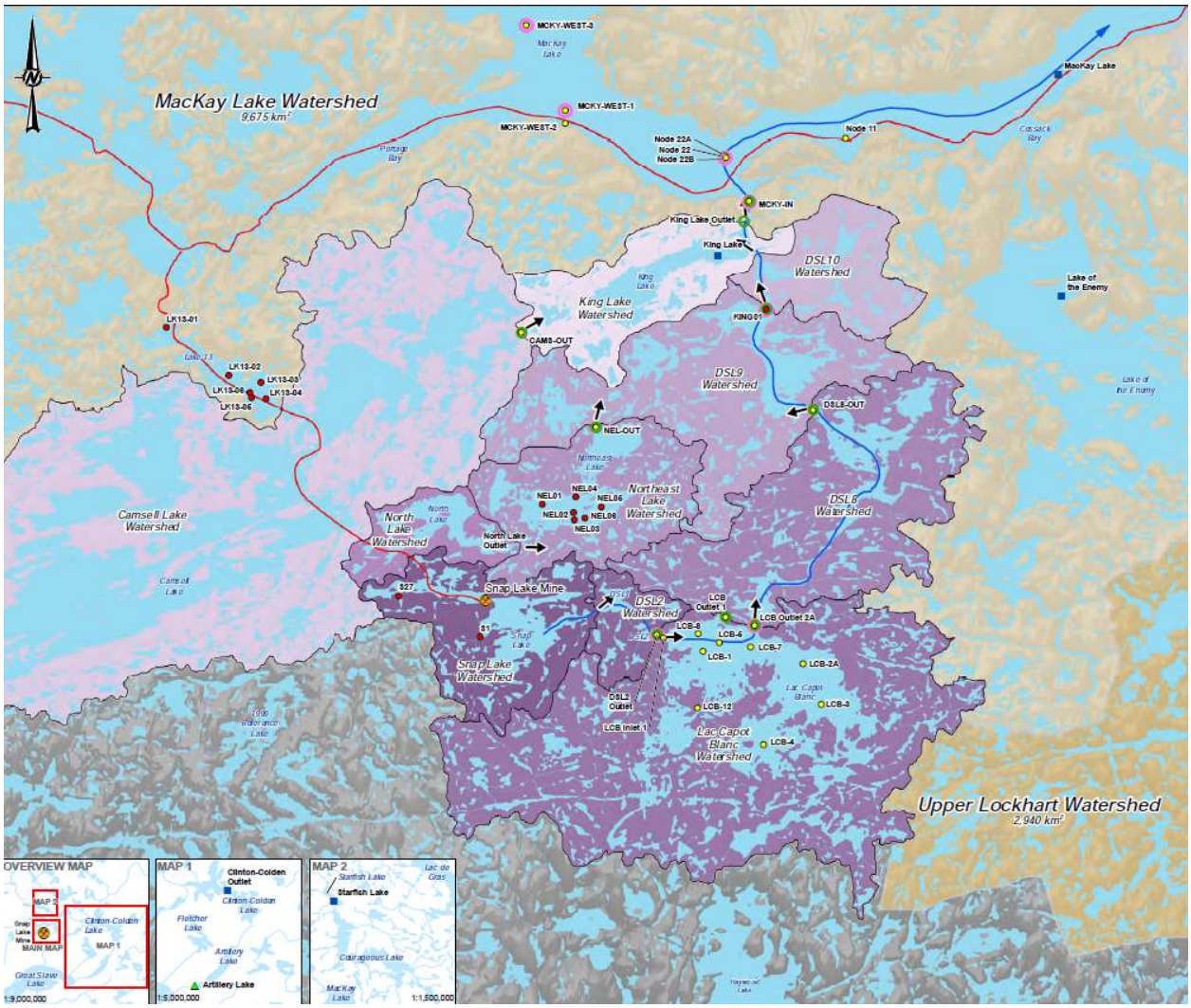
De Beers replied on the same day.

- "We do not have much certainty with regard to this question- for now we are doing a very slow discharge to underground, at a rate of 120m³ a day with frequent visual observations by the on-site team. This is necessary to ensure that we maintain our surface water infrastructure (sumps and water management pond) at the lowest possible level. We also continue to monitor the water quality in Snap Lake, and along the downstream watercourses as part of the AEMP."

2017 Downstream Watercourses Special Study Report

During the Environmental Assessment EA1314-02 regulatory process, traditional users of MacKay Lake expressed concerns that increasing the allowable treated effluent discharge concentration of TDS would result in treated effluent from Snap Lake affecting culturally important areas. Accordingly, as part of its decision to allow the increased Water Licence limit for TDS, the MVEIRB recommended that the MVLWB set numerical end-of-pipe limits such that, per Measure 1(d) *"No Total Dissolved Solids or its constituent ions from Snap Lake Mine effluent will be detectable, relative to the range of natural variability, at the inlet to MacKay Lake, 44 km downstream of Snap Lake."*

De Beers have conducted a series of downstream Special Studies since 2015. The report was submitted in July 2017. The purpose of the Special Study is to collect water quality and hydrological data to provide a basis for defining natural variability downstream of Snap Lake including MacKay Lake and regionally, and for updating the water quality model downstream of Snap Lake up to and including MacKay Lake.



Map 2. Mackay Lake and Lockhart River Watersheds as well as Conformity Station Node 22

Based on the spatial downstream gradients of TDS, calcium, chloride and sodium concentrations, treated effluent from Snap Lake can be detected downstream of Snap Lake from the immediate Lac Capot Blanc to the inlet of Mackay Lake, but not within MacKay Lake. During the Care and Maintenance period, concentrations of parameters related to treated effluent are predicted to decrease in Snap Lake.

Conductivity measurements were used as a tracer for the treated effluent downstream of Snap Lake. Conductivity values decreased with distance downstream of Snap Lake, from Downstream Lake 2 Outlet to Mackay Lake. Conductivity measurements at the outlets of Lac Capot Blanc have increased over time as predicted. The treated effluent plume from Snap Lake is evident at Downstream Lake 2, after which substantial dilution of the treated effluent occurs within a short distance of entering Lac Capot Blanc.

The natural variability ranges for TDS concentrations were calculated for year-round, ice-covered, and open-water conditions using the off the flow path data.

- The natural variability range for TDS without accounting for seasonality (i.e., using data from year-round) was 5.0 to 15.8 mg/L.
- The natural variability range for TDS concentrations for ice-covered conditions (4.4 to 16.4 mg/L) and open-water conditions (i.e., 6.0 to 14.3 mg/L) were similar to the range estimated for data from both seasons combined.

The report concludes that a mean TDS concentration of five samples collected annually at Node 22 (within Mackay Lake) during ice-covered conditions less than or equal to 19.1 mg/L would be in conformity with Measure 1(d).

SLEMA reviewed the report and provided the following comments in August 2017.

- The study is well designed, and the results and conclusions are reasonably made. It is recommended that the MVLWB approve the submission.
- No concerns are raised but one mistake about water surface elevations of downstream lakes was identified.

De Beers responded to the request for clarification as follows.

- "Elevations presented are incorrectly reported as "geodetic" and should be reported as

"local" as these were tied to local benchmarks near each lake outlet with arbitrary datums.

Hence, elevations presented should be interpreted as relative elevations for each lake

as opposed to absolute elevations. This does not change any conclusions of the report."

2017 Geotechnical Inspection of North Pile and WMP Dams

The geotechnical site inspection was performed by an engineer of Golder Associates Ltd. from June 5 to 8, 2017. The North Pile facility and Water Management Pond (WMP) dams were inspected, and related documents, data and records were also reviewed.

Photo 11. The North Pile and the Water Management Pond on June 3, 2017

The Annual Field Inspection Report was submitted on August 15, 2017. The report concludes that

- No major items of concern were observed for the North Pile (Starter Cell, East Cell, West Cell and associated Perimeter Water Control Structures, such as sumps and ditches) and WMP, and the facilities are being maintained and monitored and are in keeping with the design.
- Ten key recommendations were provided.

SLEMA reviewed the report and provided the following comments in September 2017.

- No major concerns are raised, and all of the recommendations are supported.
- It is stated in page 4 that the North Pile Operation, Maintenance, Surveillance (OMS) Manual will be updated with support from Norwest in 2017, Golder provided two comments and recommended to review the updated OMS manual when completed by De Beers.
    - It is recommended that De Beers describe how to conduct remote monitoring and maintenance during the period of no personnel at the mine site, and submit the OMS manual for review.

Clarification of Extended Care and Maintenance Plan Requirements on Shifts towards Remote Monitoring

The Inspector sent out the clarification letter on October 20, 2017, which was followed by De Beers response letter dated October 24, 2017. The MVLWB clarified the June 22, 2016 approval letter and the June 30, 2016 confirmation letter, on October 25, 2017, and then staff meeting

between De Beers and the MVLWB was held on October 26, 2017. De Beers followed up in a letter on October 30, 2017.

The Inspector stated in his letter that

- "Discussion with De Beers staff for several months has indicated an intention to enter some sort of zero-occupancy version of Extended Care and Maintenance sometime in the fall of 2017. No official notice has been submitted to date, and no update to the existing (approved) Extended Care and Maintenance Plan (ECMP, v.1.1) authorizing any proposed changes has been submitted to the MVLWB."
- "To be clear, should De Beers wish to change from a camp with a continuous staff presence towards one where the minesite is vacant, it cannot do so without an approved (updated) ECMP in place. Specific requirements of that updated ECMP should be discussed with the MVLWB through the usual approval process."

De Beers responded to the Inspector's request for clarification that

- "The ECMP was developed in April 2016 (Version 1), and the MVLWB approved it as an interim plan on June 22, 2016. Then the ECMP was updated by De Beers (Version 1.1) and provided to the MVLWB on June 29, 2016 and the ECMP was subsequently approved by the MVLWB on June 30, 2016.
    - This letter hereby confirms that the changes requested in the June 22, 2016 letter have all been addressed, and the Extended Care and Maintenance Plan is therefore considered approved.
- The June 30, 2016 MVLWB approval letter does not place any stipulations on remote monitoring. De Beers is not proposing any changes to the currently approved ECMP . De Beers intends on vacating the site on Monday, October 30, 2017, and **will be relying on the remote monitoring program to achieve compliance** beyond that date, with a minimum of monthly inspections."

With regards to the Board decision letter dated June 22, 2016 and the Board staff letter dated June 30, 2016, the MVLWB clarified that

- "The first part of the June 22, 2016 letter from the Board required De Beers to update the ECM Plan to include additional information that was provided by De Beers in their responses to reviewer comments. The June 30, 2016 letter from Board staff is simply a confirmation that those requested information items had been added to the ECM Plan. It does not remove or replace the Board's direction to De Beers from the second part of the June 22, 2016 letter issued by the Board.
- The second part of the June 22, 2016 letter from the Board stated the following:
    - *The Board reminds De Beers that any changes or updates to the Plan must be resubmitted to the Board for approval.*
    - *The Board reminds De Beers that alternate treatment methods, such as the proposed passive treatment being investigated, along with a shift towards remote-monitoring would require an update to the Extended Care and Maintenance Plan and approval by the Board*

- As there were many reviewer concerns related to remote monitoring during the review of the ECM Plan (April to June 2016), the Board decided to require an update to the ECM Plan with more specific information prior to the implementation of remote monitoring at Snap Lake. The direction given by the Board in the June 22, 2016 letter was intended to address these concerns identified throughout the review process by requiring an updated ECM Plan that would be **publicly reviewed** and considered by the Board."

De Beers responded to the MVLWB that

- "De Beers will update the Extended Care and Maintenance Plan to address stakeholders' concerns on remote monitoring, including the Emergency Response Plan.
- De Beers would no longer vacate staff from the site on October 30 and instead, keep a small crew on site initially demonstrate the effectiveness of the remote monitoring plan until approval for remote monitoring is granted by the MVLWB.
- De Beers just announced the finalization of a Det'on Cho three-year partnership to maintain and operate Snap Lake Mine, along with a dedicated De Beers owners' team."

Water Quality Modeling for Sulphate

Sulphate concentrations at SNP 02-02(North Pile runoff) fluctuate seasonally, and 600 mg/L has been the peak concentration for the past few years. ENR raised a concern on the elevated sulphate concentrations at SNP 02-02 in the comment letter for the 2016 Water Licence Annual Report, dated May 3, 2017. This increase was not predicted by the 2013 model. Model predictions suggested that sulphate should decrease to about 75 mg/L in 2012, and then remain steady at this concentration.

SLEMA conducted a data analysis and updated the water quality model for sulphate so as to assess the related impacts.

- The runoff amount ranges from 2 to 6% of the total discharge to Snap Lake, and the impacts of the North Pile runoff on the overall water quality of the WTP effluent appear to be limited.
- Sulphate levels in the WTP effluent had been below 75 mg/L (Effluent Quality Criterion for Sulphate of the previous Water Licence) from 2011 to 2016.
- The high concentrations in May and June 2017 occurred during freshet period with limited flows.
- Part of the North Pile runoff flows to the Permanent Sumps 3 to 5. If the water levels in these sumps are not well managed, there may be risk of spill to the Northwest Arm of Snap Lake.
    - Peak sulphate concentration in runoff is 600 mg/L, whereas Sulphate levels range from 17 to 29 mg/L in the Northwest Arm.
    - AEMP benchmark is around 90 mg/L (Site Specific Water Quality Objective for Sulphate).
- Appropriate sump water level management should be warranted.

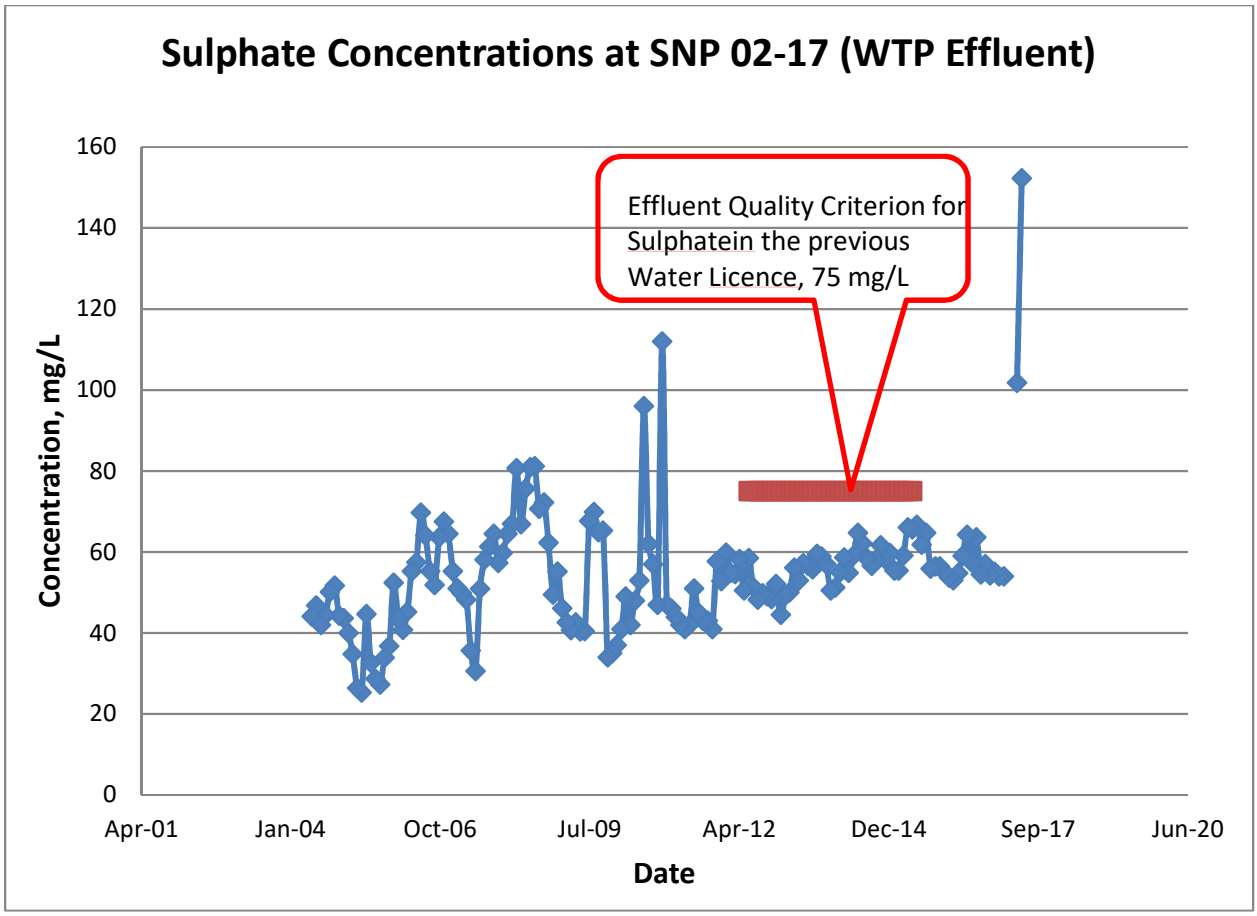


Figure 8. Sulphate Concentrations of Water Treatment Plant Effluent

SLEMA model was updated for Sulphate to reflect the flooding scenario during the period of Extended Care and Maintenance (ECM). The model was calibrated with data up to August 2017, with a correlation co-efficient of 0.979. The model is capable of predicting whole lake average concentrations of Sulphate in Snap Lake.

De Beers began flooding the underground workings in January 2017, then the discharge to Snap Lake will be minimal. As a result, zero discharge is assumed in the modeling efforts. Modeling results show that Sulphate concentrations in Snap Lake will reach the peak in 2017 and then decrease during the ECM period (11 years assumed).

Sulphate concentrations in Snap Lake will be a down trend due to the suspended operations and underground flooding, the impacts on aquatic life will be much less than normal operations. Sulphate concentrations in Snap Lake will remain below the AEMP benchmark (~90 mg/L, Site Specific Water Quality Objective for Sulphate) during the Extended Care and Maintenance Period.

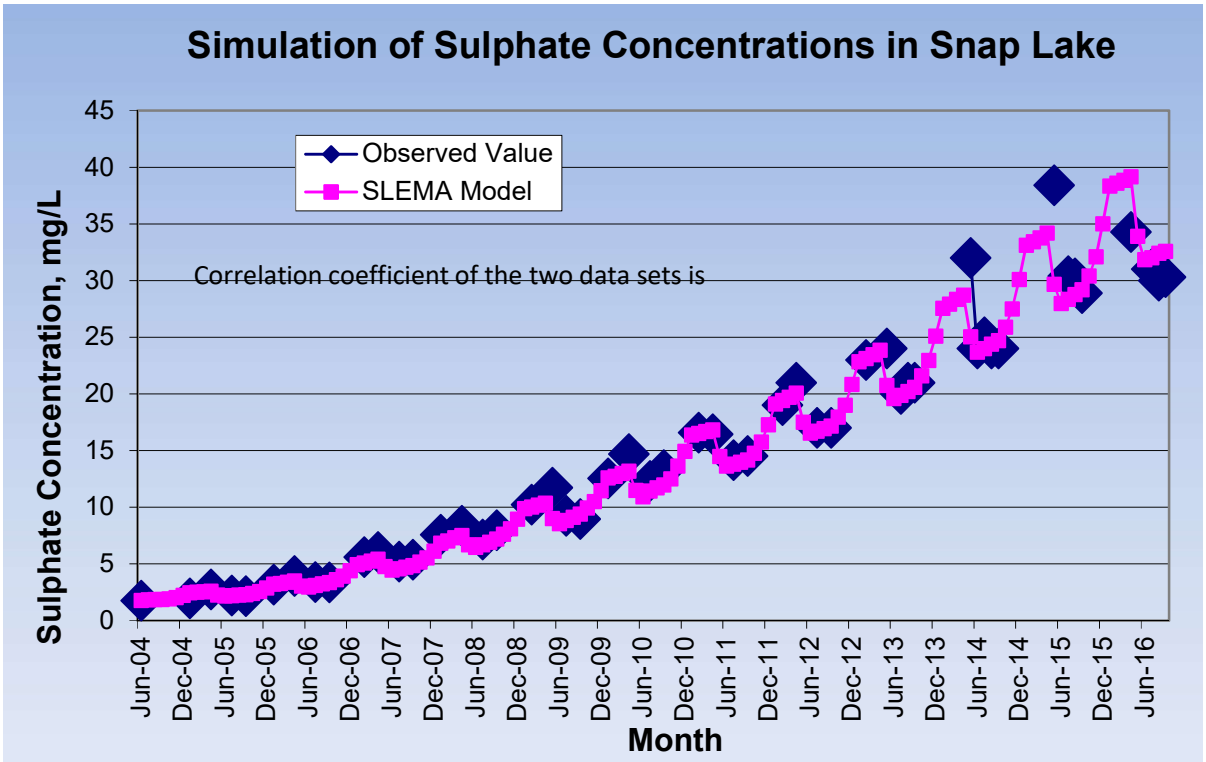


Figure 9. Calibration of Water Quality Model for Sulphate

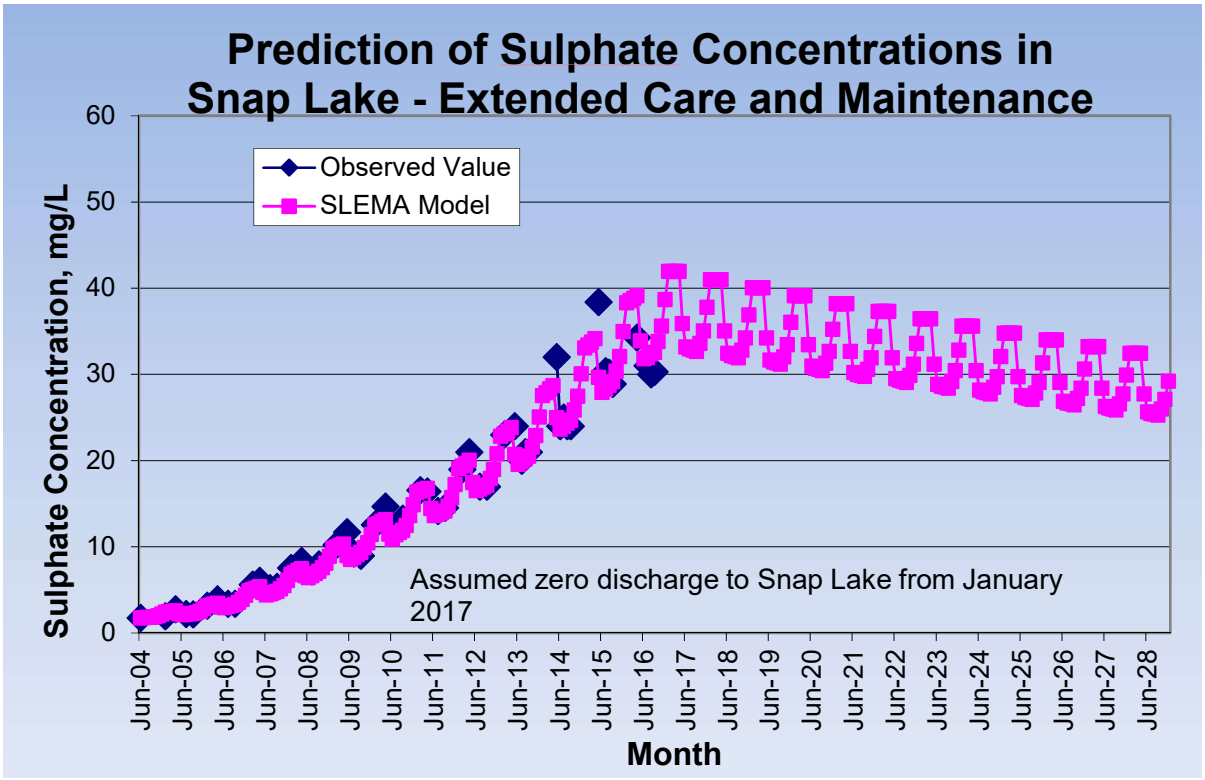


Figure 10. Prediction of Whole Lake Average Concentrations of Sulphate

Inspections in 2017

Three Inspectors were assigned to the Snap Lake file with different months in 2017.

- Jamie Steele from January to March,
- Andrew Howton from April to July, and
- Tracy Covey from August to November.

Inspection reports were received from Mr. Steele and Mr. Covey for their inspections. However, inspection reports were not received from Mr. Howton for his inspections dated May 25 and 31, as well as July 6, as indicated in De Beers SNP Monthly Reports.

Inquiry was sent to the Inspectors of the Lands Department via e-mail on November 3, 3017, and then, Mr. Marty Sanderson replied to the inquiry on November 10, 2017.

- "Jamie was on extended leave and did not conduct inspections during this absence. To cover this staff shortage, I had requested Andrew Howton cover for the file during this time frame. As you are aware the mine portal filled up unexpectedly and caused compliance issues that required emergency discharge. Andrew was focused on dealing with emergency discharge while still being responsible for actively inspecting DeBeers Gahcho Kue mine. Inspection reports are normally completed during all site visits but due to work load and other commitments with our department Andrew did not complete formal inspection reports for the three dates in question. The Inspector was fully focused on bringing the Snap Lake Mine back into compliance."

Mr. Steele further replied to the inquiry on November 14, 2017.

- "Andrew resigned 2 weeks ago and unfortunately there are no reports on the file for that time period. If you need an update you can contact Tracy Covey."

De Beers requested an authorization of emergency discharge to Snap Lake due to high nitrate runoff collected from the North Pile Water Control Structures (the Water Treatment Plant was designed to remove Total Suspended Solids, not Nitrate), after the Spill #2017-166 on May 16, 2017. The Inspector Mr. Andrew Howton granted the Authorization on May 21, and later inspected the mine site May 25 and 31, as well as July 6. Though no inspection reports were received from Mr. Andrew Howton, there was communication via e-mail between the Inspector and SLEMA Environmental Analyst for the emergency discharge, dated May 30 and July 4.

SLEMA reviewed the inspections in 2017 and believed that

- The Inspector visited the mine site after the spill (#2017-166) and conducted two follow-up site inspections. The inspection frequency is appropriate. Timely responses to SLEMA's inquiry about the spill are appreciated. However, no official report submission after inspections and/or spill investigation is deficient.
- This is the second time of no official reporting after inspections during staff turnover. The first time occurred in December 2013 to March 2014.
- SLEMA relies on the Inspector's inspections at the mine site and submitted inspection reports to understand De Beers' performance of compliance and the mine's environmental status. Both appropriate inspection frequency and timely reporting are required.

- It is requested that should the Inspector not be able to submit a report because of exceptional circumstances, the Department should endeavor to meet with our staff for a verbal debriefing, since SLEMA rely to a considerable extent on reports from the Department to fulfill its mandate as an independent monitoring agency that has no inspection capability or mandate.

Request to Amend SNP 02-16j

On November 27, 2017 De Beers requested to reduce the frequency of external sampling at SNP 02-16j to every two weeks, because flights to site have been reduced to every two weeks in Extended Care and Maintenance (ECM). De Beers stated that in house sampling would still continue as per usual for fecal coliforms.

SLEMA reviewed the SNP data and found that sample results for SNP 02-16j have remained consistent throughout ECM and there is no indication that this would change. As a result, SLEMA did not raise any concern on this request. However, SLEMA identified an inconsistency between the description and the rationale of SNP 02-16j in the Surveillance Network Program (Annex A, MV2011L2-000, page 51 of 66), and requested the MVLWB make changes to ensure the consistency between the Description and the Rationale of SNP 02-16j.

Notification of Closure at the Snap Lake

De Beers announced on December 14, 2017 that

- "As a result of the on-going evaluation of Snap Lake Mine since 2015, De Beers will now begin preparation for the Final Closure of the Snap Lake Mine. De Beers intends to file a Final Closure and Reclamation Plan in 2019 after conducting additional engagement with our community partners and finalization of engineering studies.
- De Beers requests to not file an ICRP in January of 2018 but will instead focus efforts on completion of FCRP and licence application for 2019."

SLEMA believed it was acceptable that De Beers requests to not file an ICRP in January of 2018 but will instead focus efforts on completion of FCRP and licence application for 2019.

Extended Care and Maintenance Plan (Final Phase)

De Beers submitted the Extended Care and Maintenance Plan (Final Phase) with the Notification of Closure at the Snap Lake on December 14, 2017.

- The scope of activities to be undertaken during this final phase of ECM will maintain compliance with Water Licence and Land Use Permit until such time as the final closure plan and licence application are filed and approved by the MVLWB.

- "De Beers intends to transition the site to zero permanent occupancy each year from near freeze-up to just prior to the following freshet during the Extended Care and Maintenance phase. To ensure compliance with De Beer's water licence and Land Use permits, a team will physically **visit the site at monthly intervals** during this period or as required to collect monitoring samples and conduct inspections. In addition, De Beers has installed **video surveillance equipment** to provide continuous surveillance from Gahcho Kue Mine during periods that the site is not occupied."

- Updated Spill Contingency Plan, Emergency Response Plan, Waste Management Plan and Water Management Plan attached as appendices.

SLEMA review the document in January 2018 and provided the following comments.

- Monthly site visits by De Beers staff, combined with remote monitoring arrangements (video surveillance, remote sensing, etc.), as well as the capability to mobilize a maintenance crew during the period of non-occupancy, may work for the period of Extended Care and Maintenance. It is requested that De Beers develop detailed check list for monthly site visits, and report results of site visit and remote monitoring in the SNP Monthly Report for stakeholders' review.
- No concerns are raised for Spill Contingency Plan and Emergency Response Plan.
- With regards to the Waste Management, detailed information on the Modular Water Treatment Plant and the new water treatment train as STP3 is requested.
- With regards to the Water Management, it is requested that De Beers provide information on what, when and how De Beers would trigger and stop pumping (returning high-concentration surface water to the underground workings via existing water management infrastructure).
    - It is noticed that if the water elevations at the fresh air raise and conveyor portal are above the water elevations of Snap Lake, there will be hydrological pressure to move water from underground to Snap Lake. That will be inappropriate and should be corrected.
    - The water levels at those locations should follow the management practice of those perimeter sumps, ensuring water levels lower than that in Snap Lake.

North Pile Management Plan

Based on Snap Lake's Extended Care and Maintenance phase and future plans for reclamation and closure of the North Pile, De Beers submitted the North Pile Management Plan on January 30, 2018.

The North Pile is being developed in three cells in the following order:

1. Starter Cell (construction in 2005, PK deposition from 2007 to 2014) with storage capacity of approximately 3.2M m^3,

2. East Cell (construction in 2010, PK deposition from 2014 to 2015) with storage capacity of approximately 2.6 M m^3, and
3. West Cell (construction in 2014, no slurry PK deposition).

Each of these cells is considered a separate phase of the North Pile development. Due to the discontinuation of operation at Snap Lake in December of 2015, the completion of both the East Cell and West Cell was never completed.

SLEMA reviewed the document and provided the following comments in February 2018.

- The Plan appears not to be proofread. There are lots of typo errors and editing issues, and resubmission is requested.
- The Plan does not provide specific description for planned "zero occupancy" remote monitoring. During the site visit on February 6, 2018, site security surveillance system was demonstrated. However, it might not help the environmental monitoring, especially water monitoring. More and consistent information about "zero occupancy" remote monitoring is requested.
- It is requested that De Beers provide justifications for collecting and pumping all brine (a byproduct of the water treatment process) through to the underground workings.

Financial Security Estimate / RECLAIM update (MV2011L2-0004 & MV2017D0032)

De Beers submitted the Final Security Estimate on January 30, 2018. This estimate was prepared using the RECLAIM V7 model as developed by the federal government.

This estimate update was based on the assumptions made prior to the decision to proceed with the closure of the Snap Lake Mine. However, De Beers promised to update the financial security estimate based on the details that would be provided in the Final Closure and Reclamation Plan in 2019.

Current security deposit held by the GNWT ($80,401,918) for Snap Lake Mine is as follows.

- Land Use Permit: $21,335,671,
- Water Licence: $39,066,247, and
- Environmental Agreement: $20,000,000.

The Security Estimate is $79,363,768, which is less than the amount held by the GNWT.

SLEMA did not raise concerns on the security estimate.

Land Use Permit

De Beers holds two Land Use Permits (LUPs), i.e. MV2010D0053 and MV2014D0010.

MV2010D0053 was approved by the MVLWB on February 16, 2011, for a period of 5 years commencing February 16, 2011 and expiring February 15, 2016. This Permit entitles De Beers to conduct the related activities associated with diamond mining and milling production as outlined

in the Land Use Application dated October 29, 2010 and the Consolidated Project Description, submitted by De Beers on November 24, 2003.

MV2014D0010 was approved by the MVLWB on June 19, 2014, for period commending June 19, 2014 and expiring February 15, 2016. This Permit entitles De Beers to conduct the two land-use operations at the Mine, i.e. the storage of fuel and construction of fuel storage facilities.

De Beers submitted a renewal request for Land Use Permits MV2010D0053 and MV2014D0010 on August 25, 2017.

SLEMA reviewed the Application and provided the following comments in September 2017.

- Remote monitoring was discussed in the Snap Lake Mine Working Group Meeting 6 on May 5, 2016, but no more details have been provided since then. It is recommended that De Beers provide a technical memorandum describing the remote monitoring to support the LUP renewal, including but not limited to environmental monitoring (air, water and wildlife), site water management, and site response plan under the scenarios of no personnel at the mine site during the months of October to April.
- No concerns are raised for the draft conditions for MV2017D0032.

After review, the MVLWB granted De Beers the Type A Land Use Permit MV2017D0032, which combines the two LUPs MV2010D0053 and MV2014D0010 on October 12, 2017. This Permit was approved for a period of five years commencing October 12, 2017 and expiring October 11, 2022. SLEMA's concern on remote monitoring was addressed by the MVLWB in the issuance letter as follows.

- *The Board reminds De Beers that as per the Board's June 22, 2016 Extended Care and Maintenance Plan (ECM Plan) - Interim Approval Letter, the Board requires the ECM Plan to be resubmitted, for approval, prior to any changes or updates; this includes shifts towards remote monitoring.*

Fisheries Authorization

DFO provided a single Authorization with multiple components/ conditions for the Snap Lake project. All components fall under the Fisheries Act Authorization SC-00-196-2012A. The Authorization is for "Zone of Turbulence at the site of the treated effluent discharge", and that remains valid until 2020. All the conditions within it have been fulfilled.

Assessment of the Mine

De Beers generally ran the Snap Lake Diamond Mine in a way that upheld its environmental commitments during the reporting period of 2017-2018.

However, there are a few issues to be improved. Both the Spill (#2017-166) and the request for emergency discharge in May 2017 demonstrate that the backup plan for flooding the underground workings and the coming freshet was insufficient. The argument on shifts towards remoting monitoring reflects the communication of De Beers with the Inspector and the MVLWB was also insufficient.

SLEMA encourages De Beers to take extra diligent efforts in planning the final closure.

Assessment of Regulators

SLEMA not only monitors the environmental performance of De Beers Snap Lake Diamond Mine, but also the government agencies that regulate the Mine. In general, the regulators remain effective in making sure that De Beers runs the Mine in a way that maintains its environmental commitments.

Mackenzie Valley Land and Water Board (MVLWB):

The MVLWB ran well managed processes for the review of updated management plans, annual reports, and De Beers' requests and applications during the period of April 2017 to March 2018.

The MVLWB worked closely with De Beers and interested parties on the Type A Land Use Permit renewal process**.**

SLEMA appreciated the MVLWB holding the Snap Lake Mine Working Group Meetings, which allowed for open discussion and clarification of current topics related to Snap Lake Mine.

Environment and Climate Change Canada (ECCC): ECCC has been actively involved in the review of related requests, study reports, annual reports and plans within its jurisdiction.

Department of Fisheries and Oceans (DFO): DFO contributed to the review of related requests, study reports, annual reports and plans within its jurisdiction.

Department of Lands: The Inspector, Andrew Howton and Tracy Covey, conducted eleven Water Licence inspections during the period of April 2017 to March 2018. Tracy Covey also made comments on related management plans, De Beers' requests and applications.

Due to staff turnover, inspection reports were missing for two inspections in May and July 2017.

SLEMA is generally satisfied with the Inspectors' performance, but request the Department streamline the inspection practice during staff turnover.

Department of Environment and Natural Resources (GNWT-ENR): ENR has been actively involved in the review of Environmental Agreement Annual Reports, wildlife issues, waste management issues, air quality issues, Water Licence and Land Use Permit related issues. SLEMA is disappointment with ENR's position on De Beers' request for $PM_{2.5}$ monitoring change. Even if De Beers offered two options for winter $PM_{2.5}$ monitoring (no monitoring at two

stations in the winter, or relocation of one station for year-round monitoring), ENR agreed with either plan. As a result, De Beers chose the easy option, and there will be no $PM_{2.5}$ data for seven months in a year during the Extended Care and Maintenance.

Overall SLEMA is pleased with the regulators' actions and responses in regard to their respective responsibilities for the Snap Lake Mine.

Table 1. Contributions to Documents Review, April 2017 to March 2018

Document Reviewed	Valuable Comments from	
	Regulators/Stakeholders	**Aboriginal Parties**
2016 Annual Water Licence Report	ENR, ECCC	
AEMP 2016 Annual Report	ECCC, ENR, DFO	
2016 Annual Closure and Reclamation Plan Progress Report	ECCC, ENR, DFO	
2017 Downstream Watercourses Special Study Report	ECCC, ENR	
Land Use Permit MV2017D0032	Lands Department, ECCC, ENR, the Inspector	
Air Quality Monitoring Update	ENR	
SNP Change Request	DFO, ENR	
Environmental Agreement 2016 Annual Report	ENR	
Notification of Final Closure and Request to not file an ICRP	ECCC, the Inspector, ENR, DFO	
Extended Care and Maintenance Plan V2.0		LKDFN
North Pile Management Plan	ECCC, the Inspector, ENR	
Financial Security Estimate – RECLAIM Update	ENR	

Summary of SLEMA Comments from April 2017 to March 2018

The comments and recommendations for those documents reviewed by SLEMA from April 2017 to March 2018 are summarized as follow.

Table 2. Summary Table of SLEMA Comments from April 2017 to March 2018

Date	Addressee	Concern	Subject	Comment	Recommendation	Feedback/Response
02/27/2018	MVLWB		North Pile Management Plan	The Plan appears not to be proofread, and there are lots of typos and editing issues. Some information such as "zero occupancy" and remote monitoring is not detailed.	Resubmission is requested. More and consistent is requested.	
01/15/2018	MVLWB		Notification of Final Closure and Request to not file an ICRP and Updated ECM Plan	No concerns are raised, and it is acceptable that De Beers requests to not file an ICRP in January of 2018 but will instead focus efforts on completion of FCRP and licence application for 2019. Monthly site visits by De Beers staff, combined with remote monitoring arrangements (video surveillance, remote sensing, etc.), as well as the capability to mobilize a maintenance crew during the period of non-occupancy, may work for the period of Extended Care and Maintenance. Information requests on waste management and water management are put forward.	It is requested that De Beers develop detailed check list for monthly site visits, and report results of site visit and remote monitoring in the SNP Monthly Report for stakeholders' review.	
12/14/2017	De Beers		Air Quality Plan	The updated $PM_{2.5}$ Monitoring Program during ECM will result in data loss of seven months (winter). De Beers stopped the $PM_{2.5}$ Monitoring in October as planned even though a small crew has been kept onsite until approval for remote monitoring is granted by the MVLWB.	It is requested that De Beers resume year-round monitoring of $PM_{2.5}$ when mine personnel are at the site year-round.	

Table 2. Summary Table of SLEMA Comments from April 2017 to March 2018 (continued)

Date	Addressee	Concern	Subject	Comment	Recommendation	Feedback/Response
12/14/ 2017	ENR		Environmental Agreement Annual Report	In general, the new format (shorter version) addresses the required content, as specified in the Environmental Agreement, even though it is short and less-detailed, and it is acceptable. The new format could be utilized in future years until the mine status changes, then the requirement of EAAR reporting will be further reviewed.	Some information required is missing in Section 6 and 8, and improvements are requested.	
12/14/ 2017	MVLWB		SNP Change	Sample results for SNP 02-16j have remained consistent throughout ECM and there is no indication that this would change. As a result, SLEMA did not raise any concern on this request.	SLEMA identified an inconsistency between the description and the rationale of SNP 02-16j in the Surveillance Network Program (Annex A, MV2011L2-000, page 51 of 66), and requested the MVLWB make changes to ensure the consistency between the Description and the Rationale of SNP 02-16j.	
11/29/ 2017	Lands		Inspection Reporting	The Inspector visited the mine site after the spill (#2017-166) and conducted two follow-up site inspections. The inspection frequency is appropriate. Timely responses to SLEMA's inquiry about the spill are appreciated. However, no official report submission after inspections and/or spill investigation is deficient.	It is requested that should the Inspector not be able to submit a report because of exceptional circumstances, the Department should endeavor to meet with our staff for a verbal debriefing, since SLEMA rely to a considerable extent on reports from the Department to fulfill its mandate as an independent monitoring agency that has no inspection capability or mandate.	

Table 2. Summary Table of SLEMA Comments from April 2017 to March 2018 (continued)

Date	Addressee	Concern	Subject	Comment	Recommendation	Feedback/Response
09/21/ 2017	MVLWB	Remote monitoring	LUP Renewal	Remote monitoring was discussed in the Snap Lake Mine Working Group Meeting 6 on May 5, 2016, but no more details have been provided since then. No concerns are raised for the draft conditions for MV2017D0032.	It is recommended that De Beers provide a technical memorandum describing the remote monitoring to support the LUP renewal, including but not limited to environmental monitoring (air, water and wildlife), site water management, and site response plan under the scenarios of no personnel at the mine site during the months of October to April.	The MVLWB granted De Beers the Type A Land Use Permit MV2017D0032, for a period of five years commencing October 12, 2017 and expiring October 11, 2022. SLEMA's concern on remote monitoring was addressed by the MVLWB in the issuance letter dated October 12, 2017.
09/01/ 2017	De Beers		$PM_{2.5}$ Monitoring	It is not acceptable for not monitoring $PM_{2.5}$ between the months of October and April (Option 1). Option 2 (relocation of one $PM_{2.5}$ monitoring station for year-round operation is acceptable, due to the limited capability during care and maintenance.	It is requested that De Beers update the Air Modeling to reflect the current status of care and maintenance and analyze the impacts of $PM_{2.5}$ monitoring station relocation.	De Beers adopted Option 1 because ENR was OK to both options.
08/17/ 2017	MVLWB		2017 Downstream Study	The study is well designed, and the results and conclusions are reasonably made. One mistake about lake water elevations was identified.	It is recommended that the MVLWB approve the submission.	The MVLWB approved the report on September 28, 2017

Table 2. Summary Table of SLEMA Comments from November April 2017 to March 2018 (continued)

Date	Addressee	Concern	Subject	Comment	Recommendation	Feedback/Response
06/06/ 2017	MVLWB		2016 Annual Closure and Reclamation Plan Progress Report	Clarification was requested for non-essential buildings reclamation. Closure criteria were reviewed, and recommendations were provided	Slater Environmental Consulting (SEC) reviewed the closure criteria for the Diavik Diamond Mine on behalf of the Environmental Monitoring Advisory Board (EMAB). The review approach SEC adopted, and some specific comments SEC made, in SLEMA's opinion, may also apply to the review of the Snap Lake Mine's closure criteria	The MVLWB approved the report as submitted, on July 6, 2017.
06/01/ 2017	MVLWB		AEMP 2016	The survey forms collected from the Fish Tasting Event show that three comments are negative, and one is positive, which triggered an action level. Unfortunately, De Beers will not take further actions due to the mine status of care and maintenance.	This is a warning sign. It is recommended that De Beers do some research and provide explanations to the participants in the next fish tasting event in 2018.	The MVLWB approved the report on July 20, 2017.
05/19/ 2017	De Beers		Annual Reporting required by Environmental Agreement	Wildlife, vegetation and air quality annual reports for 2016 were reviewed. No concerns were raised but data consistency between reports.	SLEMA hopes De Beers could improve data consistency within a report and between reports in future submissions.	
05/03/ 2017	MVLWB		WLAR 2016	It is evident that the submission did not follow the Schedule 1, Part B of the Water Licence MV201L2-0004 (pages 23 to 25 of 66, current to: September 8, 2016).	Information and data related to the aforementioned conditions should be added into the Annual Report. Re-submission is requested.	The MVLWB required, on May 25, 2017, that De Beers update the report by June 14.

Acronyms

AANDC – Aboriginal Affairs and Northern Development Canada
AN – Ammonia Nitrate
ARD – Acid Rock Drainage
AEMP – Aquatic Effects Monitoring Program
CCME – Canadian Council of Ministers of the Environment
DFO – Department of Fisheries and Oceans
DKFN – Deninu Kue First Nation
EAR – Environmental Assessment Report
ECCC – Environment and Climate Change Canada
EQC – Effluent Quality Criterion
EMS – Environmental Management System
ENR – Environment and Natural Resources (GNWT)
GNWT – Government of the Northwest Territories
INAC – India and Northern Affairs Canada (before May 2011) or Indigenous and Northern Affairs Canada (after November 2015)
LKDFN – Łutselk'e Dene First Nations
MVEIRB – Mackenzie Valley Environmental Impact Review Board
MVLWB – Mackenzie Valley Land and Water Board
MVRMA – Mackenzie Valley Resource Management Act
NSMA – North Slave Metis Alliance
NWTMN – Northwest Territory Metis Nation
PK – Processed Kimberlite
SLEMA – Snap Lake Environmental Monitoring Agency
SNP – Surveillance Network Program

- SNP 02-17B – Final Combined Water Treatment Plant and Sewage Treatment Plant effluent that is discharged via a diffuser into Snap Lake. Under normal conditions 02-17B is used which measures the permanent water treatment plant. In conditions where greater capacity is needed, 02-17 can be used as it represents the effluent from the temporary water treatment plant.
- SNP 02-18 – 10 monitoring stations in the main basin of Snap Lake that are used to calculate a whole lake average concentration of Total Dissolved Solids.
- SNP 02-20 – Snap Lake on the edge of the mixing zone around the diffuser (4 stations, called SNP 02-20d, e, f and g, located in a radius of 120 degrees at 200 meters from the diffuser).

TDS – Total Dissolved Solids
TK – Traditional Knowledge
WMP – Water Management Pond
WQO – Water Quality Objective
WTP – Water Treatment Plant
YKDFN – Yellowknives Dene First Nations

Financial Statements

Snap Lake Environmental Monitoring Agency

Financial Statements

March 31, 2018

Snap Lake Environmental Monitoring Agency
Financial Statements

Year ended March 31, 2018

Snap Lake Environmental Monitoring Agency **Statement I**
STATEMENT OF FINANCIAL POSITION
As at March 31, 2018

	2018	2017
ASSETS		
Current assets		
Cash	$ 455,463	$ 110,967
Accounts receivable	-	1,223
Prepaid expenses	10,063	6,672
	465,526	118,862
Tangible capital assets ***(Note 4)***	2,654	3,362
TOTAL ASSETS	**468,180**	**122,224**
LIABILITIES		
Current liabilities		
Accounts payable and accrued liabilities ***(Note 5)***	20,745	8,448
Wages and benefit payable	25,015	24,829
Payroll taxes payable	8,357	10,663
Deferred revenue ***(Note 6)***	372,644	74,000
	426,761	**117,940**
NET ASSETS		
Investment in capital assets	2,654	3,362
Unrestricted net assets	38,765	922
TOTAL NET ASSETS	41,419	4,284
TOTAL LIABILITIES AND NET ASSETS	**$ 468,180**	**$ 122,224**

APPROVED BY:

_____ , Director _____ , Director

The accompanying notes and schedules form an integral part of the financial statements

Snap Lake Environmental Monitoring Agency **Statement II**
STATEMENT OF OPERATIONS
For the Year Ended March 31, 2018

	2018	2017
REVENUES		
De Beers Canada Mining Inc	380,076	439,423
Transferred To Deferred Revenue	-	(74,000)
Transferred from Prior Year Deferred Revenue	74,000	53,304
Interest Earned	398	-
TOTAL REVENUES	**454,474**	**418,727**
EXPENSES		
Accounting and legal	8,362	9,027
Amortization	1,244	1,984
Bookkeeping	10,800	10,800
Consulting	-	14,624
Honoraria	110,623	114,839
Insurance	2,067	2,573
Interest and bank charges	885	1,050
Meetings-catering, translation and rentals	6,374	7,656
Meetings-travel and accommodation	13,182	23,304
Office and administration	6,558	13,398
Program expenses	60,000	-
Rent	4,043	17,774
Wages and benefits	193,201	202,522
TOTAL EXPENSES	**417,339**	**419,551**
Excess of revenues over expenses from operations	**37,135**	**(824)**
Transfer to investment in capital assets	**1,244**	**1,984**
Purchase of Capital Assets	**(536)**	**(238)**
Excess of revenues over expenses for the year	**$ 37,843**	**$ 922**

The accompanying notes and schedules form an integral part of the financial statements.

Snap Lake Environmental Monitoring Agency **Statement III**
STATEMENT OF CHANGES IN NET ASSETS
For the Year Ended March 31, 2018

	Unrestricted net assets	Investment in capital assets	Total 2018	Total 2017
Balance, beginning of year	922	3,362	4,284	5,108
Excess of revenues over Expenditure	37,843	-	37,843	922
Amortization	-	(1,244)	(1,244)	(1,984)
Additions	-	536	536	238
Balance, end of year	**38,765**	**2,654**	**41,419**	**4,284**

The accompanying notes and schedules form an integral part of the financial statements.

Snap Lake Environmental Monitoring Agency **Statement IV**
STATEMENT OF CASH FLOWS
For the Year Ended March 31, 2018

	2018	2017
Cash provided by (used in)		
Operating activities		
Excess of revenue over expenses	$ 37,135	$ (824)
Amortization	1,244	1,984
	38,379	1,160
Changes in non-cash working capital balances		
Increase (Decrease) in accounts receivable	1,223	(1,223)
Increase in prepaid expenses	(3,391)	(2,715)
Increase (Decrease) in accounts payable and accrued liabilities	12,297	(8,038)
Increase (Decrease) in payroll tax payable	(2,306)	7,474
Increase (Decrease) in wages payable	186	(256)
Increase in deferred revenue	298,644	20,696
Net change in non-cash working capital balances	306,653	15,938
Net cash provided by (used in) operating activities	345,032	17,098
Investing activity		
Purchase of capital assets	(536)	(238)
Net cash provided by (used in) investing activities	(536)	(238)
NET INCREASE IN CASH POSITION	344,496	16,860
CASH, AT BEGINNING OF YEAR	110,967	94,107
CASH, AT END OF YEAR	**455,463**	**110,967**
Cash consists of :		
Cash	455,463	110,967
	$ 455,463	**$ 110,967**

The accompanying notes and schedules form an integral part of the financial statements

1. ORGANIZATION AND JURISDICTION

Snap Lake Environmental Monitoring Agency ("the Agency") is a not-for-profit organization incorporated under the Societies Act of the Northwest Territories. it is exempt from income tax under Section 149(1)(i) of the Income Tax Act.

The mission of the Agency is to oversee environmental management of the De Beers Snap Lake Diamond Project.

The Agency was incorporated and commenced operations on December 10, 2004

2. BASIS OF ACCOUNTING

These financial statements have been prepared in accordance with the significant accounting policies set out below. These financial statements are prepared in accordance with Canadian Accounting Standards for not-for-profit organizations.

3. SIGNIFICANT ACCOUNTING POLICIES

The following is the summary of the significant accounting policies used by management in the preparation of these financial statements.

a) Fund accounting

The accounts of the Agency are maintained in accordance with the principle of fund accounting. A fund is a set of accounts established to classify resources according to specific activities. The following funds are maintained and are internally restricted by the Agency.

Unrestricted Fund - to record the general activities of the Agency.

Investment in Equipment - to record the historical cost of equipment acquired less accumulated amortization and disposal.

b) Tangible capital assets

Capital Assets are recorded at cost. Contributed capital assets are recorded at fair value at the date of contribution. Amortization is applied as a reduction to both the asset and net assets invested in Equipment. Amortization is calculated by the declining balance method over their estimated useful lives at the following rates:

Furniture and Fixtures	20%
Computer Equipment	30%
Computer Equipment-New	55%
Computers Software	100%

3. SIGNIFICANT ACCOUNTING POLICIES (CONTD...)

c) Financial instruments - recognition and measurement

Snap Lake Environment Agency measures its financial assets and financial liabilities at fair value. The Agency subsequently measures all of its financial assets and financial liabilities at amortized cost, except for investment in equity instruments that are quoted in an active market, which are measured at fair value. Changes in fair value are recognized in the statement of operations.

Financial assets measured at cost include cash, trade and other receivables, grant receivables and other short term investments. Financial liabilities that are measured at cost include cash, trade accounts payable and accrued liabilities. The Agency's financial assets measured at fair value include investment in quoted shares.

d) Impairment

Financial assets measured at amortized cost are tested for impairment when there are indicators of possible impairment. When a significant adverse change has occurred during the period in the expected timing or amount of future cash flows from the financial asset or group of assets, a write-down is recognized in net income. The write down reflects the difference between the carrying amount and the higher of:

- the present value of the cash flows expected to be generated by the asset or group of assets;

- the amount that could be realized by selling the assets or group of assets;

-the net realizable value of any collateral held to secure repayment of the assets or group of assets.

When the events occurring after the impairment confirm that a reversal is necessary, the reversal is recognized in net income to a maximum of the accumulated impairment loss recorded in respect of the particular financial asset.

e) Deferred revenue

Deferred revenue is the unexpended contribution amounts received during the fiscal year that are transferred by agreement into the subsequent year. It is reported as a current liability as it is expected that the program will be completed or funds be repaid within the next fiscal year.

f) Revenue recognition

The Agency follows the deferred method of accounting for contributions. Restricted contributions are recognized as revenue in the year in which related expenses occur. Unrestricted contributions are recognized as revenue when they are received or receivable or If the amount can be reasonably estimated and its collection is reasonably assured. Management fees and other sources of revenue are recognized when the services have been provided.

g) Use of Estimates

The preparation of financial statements in conformity with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the balance sheet date and the reported amounts of revenues and expenses during the year. Actual results could differ from those estimates.

4. TANGIBLE CAPITAL ASSETS

	Cost	Accumulated Amortization	2018 Net Book Value	2017 Net Book Value
Furniture & Equipment	$ 11,822	$ 10,069	$ 1,753	$ 2,223
Computer Equipment	8,204	7,303	901	1,139
Computer Software	5,556	5,556	-	-
Year end Balance	**$ 25,582**	**$ 22,928**	**$ 2,654**	**$ 3,362**

5. ACCOUNTS PAYABLE

	2018	2017
Trade Payables	**$ 20,745**	**$ 8,448**

6. DEFERRED REVENUE

	2018	2017
De Beers Mining Inc.	**$ 372,644**	**$ 74,000**

7. ECONOMIC DEPENDENCE

The Agency receives all of its contribution funding from De Beers Canada Mining Inc.. Management is of the opinion that operations would be significantly affected if the funding was substantially curtailed or ceased. In December 2015, DeBeers announced that the mine ceased operations and entered care and maintenance.,

8. CAPITAL DISCLOSURE

The Agency's objectives when managing capital is:

(a) To safeguard the Agency's ability to continue as a going concern, so that it can continue to provide service for its members.

CAPITAL DISCLOSURE (CONTD...)

The Agency manages the capital structure in light of changes in economic conditions and the risk characteristics of the underlying assets. The Agency monitors capital on the basis of the working capital which is calculated as current assets minus liabilities as follows:

	2018	2017
Current Assets	$468,180	$122,224
Current Liabilities	426,761	117,940
	$ 41,419	$ 4,284

9. FINANCIAL INSTRUMENTS

Financial instruments consist of recorded amounts of cash, accounts receivable, contributions receivable, holdbacks receivable which will result in future cash receipts, as well as accounts payable and accrued liabilities, deferred revenue, and contributions repayable which will result in future cash outlays.

The Agency is exposed to the following risks in respect of certain of the financial instruments held:

(a) Credit risk

Credit risk arises from the potential that a counter party will fail to perform its obligations. The agency is exposed to credit risk from its cash and account receivables.

i) Cash

Cash is held in a Canadian Chartered Bank except for small amounts of cash that are held on a temporary basis at the office premises until such time as a deposit can be made, generally on a weekly basis. The Agency minimizes its credit risk by limiting the amount held at entities other than reputable and high quality financial institutions.

ii) Accounts Receivable

The Agency is exposed to credit risk from clients in the amount of $- in the normal course of business. The accounts receivable are established based on specific credit risk associated with individual clients and other relevant information. However, since the majority of its customers are territorial or federal governmental departments, the credit risk is minimized.

(b) Liquidity risk

Liquidity risk arises from the potential that an entity will have difficulty in meeting its obligation associated with the financial liabilities.The Agency manages liquidity risk by continually monitoring actual and forecasted cash flows from operations to ensure, as far as possible, that it will have sufficient liquidity to meet its liabilities when due, without incurring unacceptable losses or risking damage to the Agency's reputation. The Agency has determined that the risk is not significant.

As of March 31, 2018 , none of accounts payable and accrued liabilities were over 60 days due.