# November 2018 Environmental Update for SLEMA Board

November 30, 2018

# Outline

1. Mine Update
2. Reports
3. Regulators' Update
4. Aboriginal Update
5. Stakeholders' Update
6. Agency's Activities

# Acronyms

- AEMP – Aquatic Effects Monitoring Program
- ARD – Acid Rock Drainage
- DFO – Fisheries and Oceans Canada
- ECCC – Environment and Climate Change Canada
- ECM – Extended Care and Maintenance
- ENR – Department of Environment and Natural Resources, GNWT
- EQC – Effluent Quality Criterion
- GNWT – Government of the Northwest Territories
- INAC – Indigenous and Northern Affairs Canada (formerly Aboriginal Affairs and Northern Development Canada [AANDC])
- MVEIRB – Mackenzie Valley Environmental Impact Review Board
- MVLWB – Mackenzie Valley Land and Water Board
- PK – Processed Kimberlite
- SLEMA – Snap Lake Environmental Monitoring Agency
- SNP – Surveillance Network Program
- SSWQO – Site-Specific Water Quality Objective
- TDS – Total Dissolved Solids
- WEMP – Wildlife Effects Monitoring Program
- WTP – Water Treatment Plant
- WMP – Water Management Pond

pdp1

# 1. Mine Update – November 2018

- The Snap Lake Mine remains in suspended operations (Extended Care and Maintenance)

- The mine "Zero occupancy" period started in October 2018 and is scheduled to extend until March 2019

- 0 $m^3$ of water withdrawn from Snap Lake

**pdp1** to check ECM starting date

philippe di pizzo, 2018-11-28

pdp1

# 1. Mine Update – November 2018

- No treated water was discharged into Snap Lake
- No spill reported
- Water monitoring performed as per approved Surveillance Network Program (SNP) for Care and Maintenance

## Slide 5

**pdp1** to check ECM starting date

philippe di pizzo, 2018-11-28

# 2. Reports

## 2.1 2017 Environmental Agreement Annual Report by De Beers:

- Submitted on November 19, 2018
- On November 23, 2018 ENR distributed the Report to interested parties for review, with a comments deadline of January 3, 2019

# 2. Reports

## 2.2 September Surveillance Network Program Report by De Beers

- Submitted on November 1, 2018
- Four Monitoring Stations were sampled
- Analysis reports show most parameters (pH, metals, suspended solids and dissolved solids) below the Effluent Quality Criterion (EQC) as prescribed by MVLWB Water Licence MV2011-0004.

# 2. Reports

## 2.2 September Surveillance Network Program Report

- Nitrate reported values are exceeding the prescribed Water Licence EQC (17 mg/L) for two monitoring stations:

- ST02-02 North Pile Drainage Collection Ditch, and
- ST02-14 Water Management Pond

# 2.2 September Surveillance Network Program Report by De Beers:


Fig 1. Location of sampled SNP Monitoring Stations

# September Surveillance Network Program Report by De Beers:

| SNP STATION I.D. | DESCRIPTION |
|---|---|
| 02-02 | North Pile Drainage Collection Ditch |
| 02-14 | Water Management Pond |
| 02-15 | Water Intake from Snap Lake |
| 02-16 | Sewage Discharge from Sewage Treatment Plant, prior to mixing with Water Treatment Plant Effluent |

Table 1. List of Sampled Stations

# 2.2 September Surveillance Network Program Report

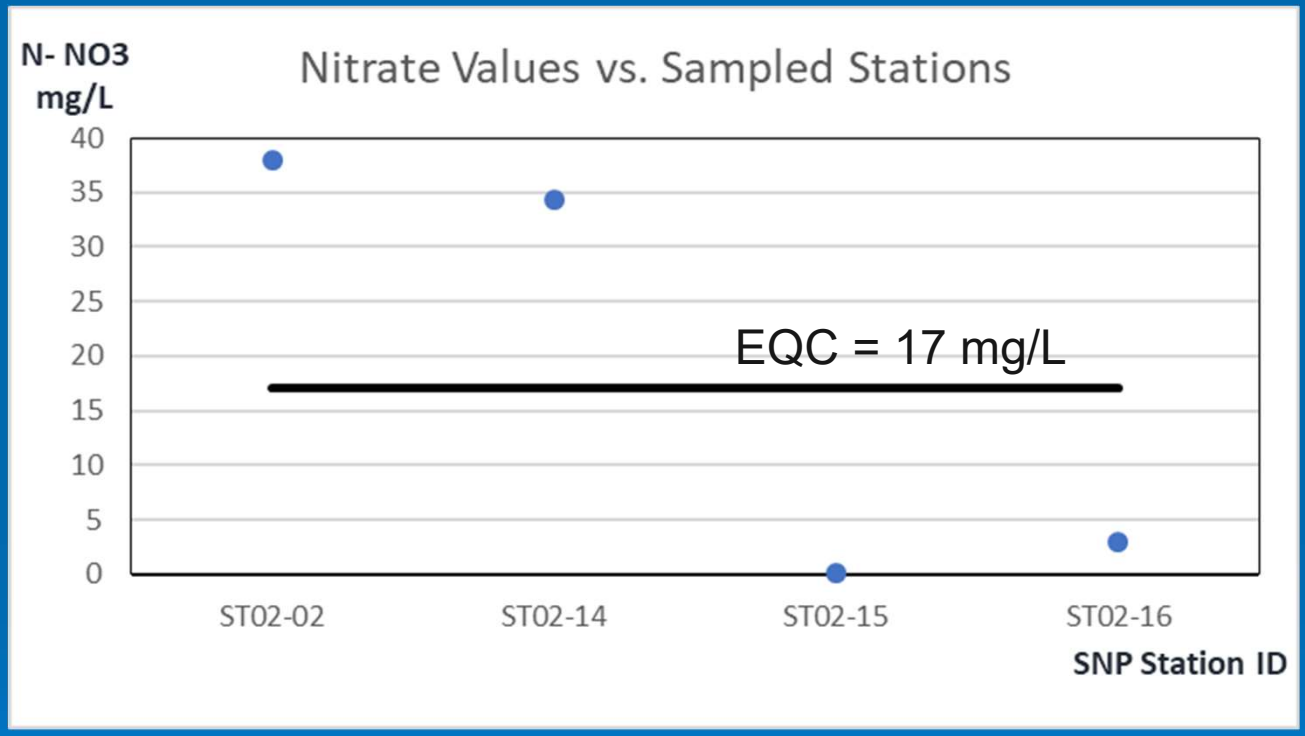


Fig. 2. Reported nitrate values for SNP stations

# 2.2 September Surveillance Network Program Report

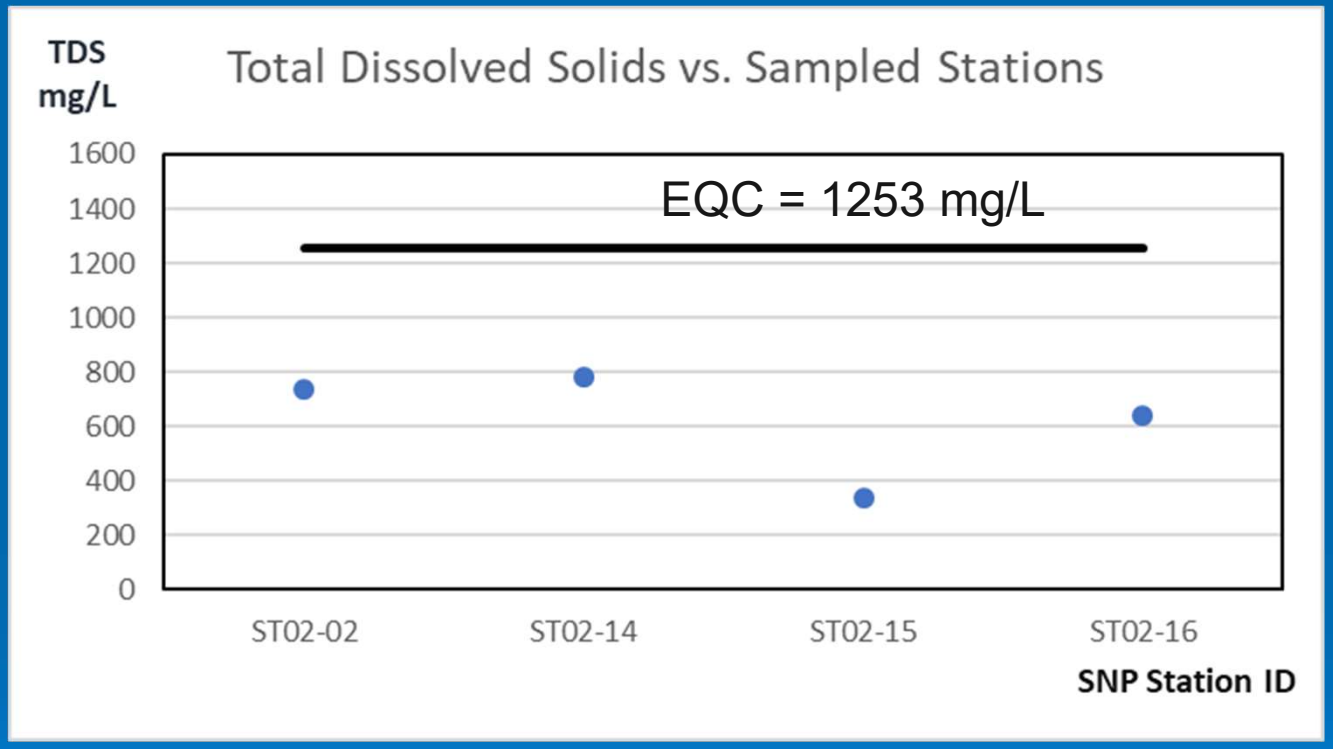


Fig. 3 Total Dissolved Solids for SNP Stations

# 2. Reports

- 2.3 October 19, 2018 Inspection Report

- Inspector: Tracy Covey
- Inspected Water Licence conditions and practices at site
- No environmental risk was noted during the field inspection

# 2. Reports

- 2.3 October 19, 2018 Inspection Report

- Inspection of Water Supply and Waste Disposal Facilities (i.e. Sewage Treatment Facility, North Pile, Water Management Pond, sumps, etc.)
- All inspected facilities were found in acceptable state

# 2. Reports

## 2.3 October 19, 2018 Inspection Report


Fig 4.Piezometer Measurement, East Cell Embankment, Cell 4. The snow free embankment should help cold air to permeate and freeze the embankment

# 2. Reports

## 2.3 October 19, 2018 Inspection Report


Fig.5 East Cell Cover Consolidation Test Pad, Cell 4. Note the prism, red marker in the middle of the test cell for exact measurement of settling of the cover over time

# 2. Reports

## 2.3 October 19, 2018 Inspection Report


Fig. 6 Stockpile of Slurry (Liquid Tailings) Deposition Piping. It was removed from the East Cell and is ready to be backhauled on the winter road

# 2. Reports

## 2.3 October 19, 2018 Inspection Report

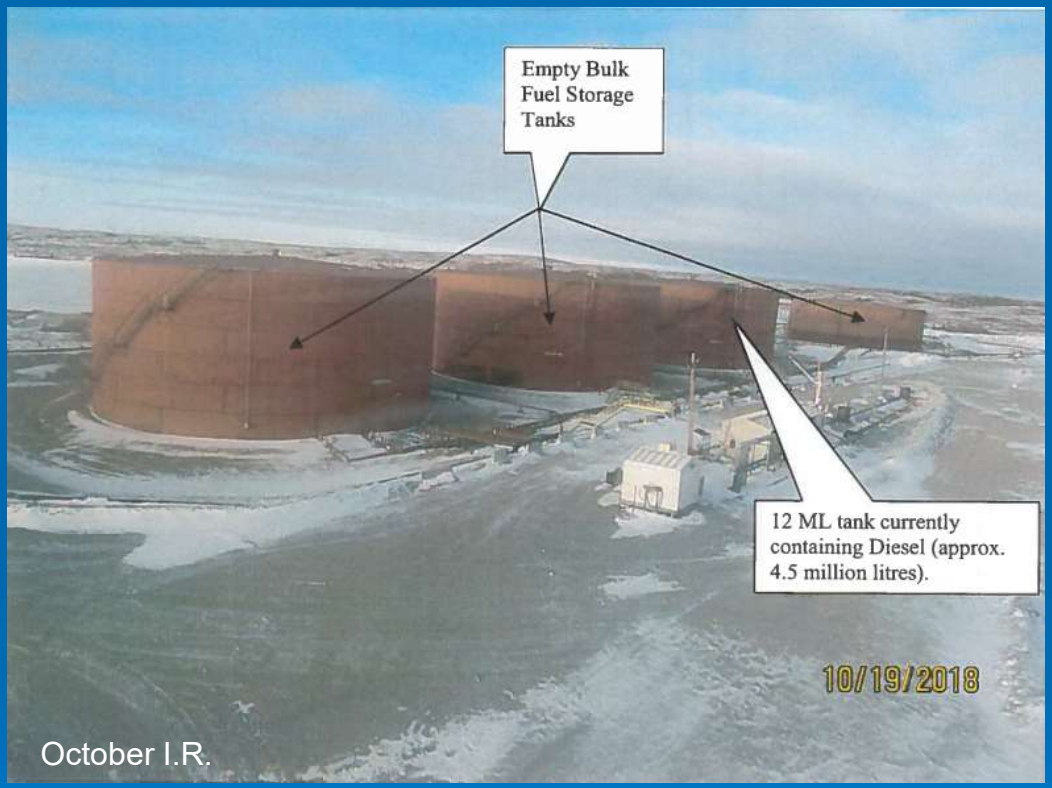


Fig. 7.Bulk Diesel Storage Tanks. Only one of the 12 Millions liter fuel tanks currently contains fuel. The other three are being decommissioned and are no longer available for fuel storage us

# 2. Reports

## 2.3 October 19, 2018 Inspection Report

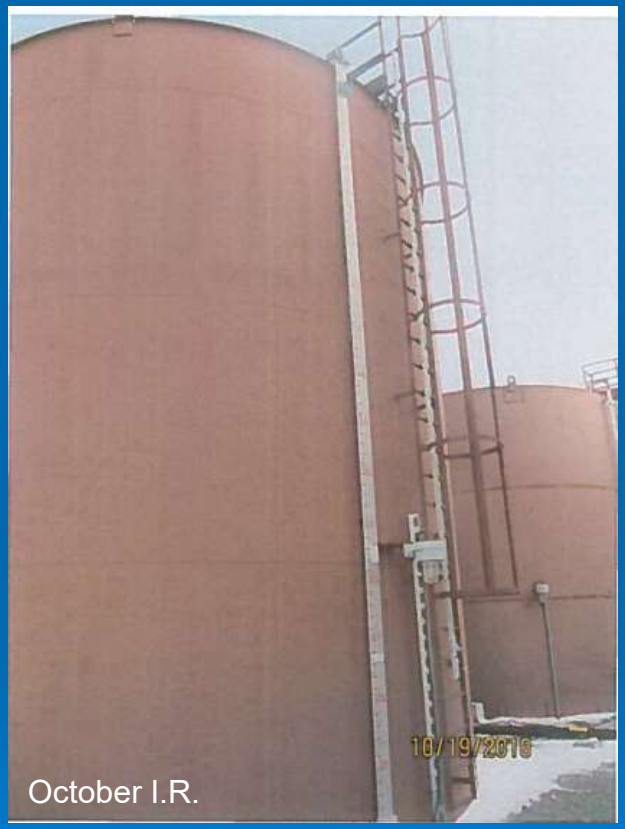


Fig 8. View of 333,000 L Tank (Empty). At least 4 of the 12 tanks in this landfarm contain significant volume of diesel

# 3. Regulators' Update – MVLWB

- Snap Lake Working Group 8th Meeting: Closure Workshop *

- To discuss the upcoming Final Closure and Reclamation Plan submission
- Held on November 6, 2018

According to DeBeers, at closure

- Buildings will be dismantled
- North Pile will be covered
- Soil will be regraded

* some points extracted from Meeting notes from MVWB

# 3. Regulators' Update – MVLWB

- Snap Lake Working Group 8th Meeting: Closure Workshop

- De Beers "will create a 3:1 slope wherever possible and grade to historical natural topography where possible"
- Site water to report to two passive water treatment system (wetlands)
- Proposed a 3 year duration monitoring following closure

# 3. Regulators' Update – MVLWB

- Snap Lake Working Group 8th Meeting: Closure Workshop

- Main Points of discussion
- What are the appropriate criteria for judging if the mine closure has been successful, and

- Parameters used to measure progress towards achieving the objective

# 3. Regulators' Update – MVLWB

- Snap Lake Working Group 8th Meeting: Closure Workshop

- Also discussed:
- How to measure that the North Pile has reached physical and chemical stability
- Proposed criteria to evaluate Snap Lake chemical stability is for "in lake" but does not include seepage and runoff
- Which parameters of the criteria will be site-specific or follow CCME guidelines

# 3. Regulators' Update – MVLWB

## ➢ Snap Lake Working Group 8th Meeting: Closure Workshop

- Reviewers commented that "there should still be criteria proposed, even though flooding of the underground has already occurred, to prove that no impacts to aquatic habitat and community in source lakes has or will occur"
- Long term objectives for air quality

# 3. Regulators' Update – ENR

## Snap Lake Environmental Agreement Requirements for Closure Planning

- ENR requested De Beers to align updates to requirements of Section 6.2 with the Final Closure Submission to the MVLWB
- The following reports must be updated:
  - 1. Air Quality and Emissions Management and Monitoring Plan
  - 2. Wildlife Management Plan

# 3. Regulators' Update – ENR

- Snap Lake Environmental Agreement Requirements for Closure Planning

- SLEMA will review these reports once they are filed after January 2019
- Internal capability and expertise in air quality and wildlife is limited, so SLEMA will request to use its accumulated surplus to obtain expert advice (approx. $20,000)

# 4. Aboriginal Update

- Tlicho (TK)Workshop Snap Lake

- Held on November 7, 2018

Tlicho Elders expressed their concerns, asked questions to De Beers and proposed, between others, to include the traditional knowledge to mine closure

# 4. Aboriginal Update

- Tlicho (TK) Workshop Snap Lake
- Tlicho Elders proposed further meetings, site visits and community meetings

- "It would be useful to talk to and have our own Tlicho gathering on how we would like to close the mine"

# 4. Aboriginal Update

- Tlicho (TK) Workshop Snap Lake
- Some of the points of discussion were*:

Security deposits for closure and reclamation

The North Pile and the site landscape

Underground water and impact on lake water level

Revegetation

Site visits

Closure timing

Fuel

* Extracted from Tlicho TK Workshop Snap Lake notes Alex Hood

# 4. Aboriginal Update

- Tlicho (TK) Workshop Snap Lake
- Some of the points of discussion were:

Tailings Facility

Wildlife

Airstrip

Seepage

Timeline

Monitoring post-closure

# 5. Stakeholders' Update

- No comments received in November 2018

# 6. Agency's Activities

- SLEMA staff attended the MVLWB Working Group meeting on November 6 and the Tlicho TK  Workshop on November 7.