May-June 2021 Environmental Update for SLEMA Board

July 8, 2021

Outline

1. Mine Update
2. SNP Reports
3. Water Monitoring
4. Inspections
5. Regulatory News
6. Environmental Agreement News
7. SLEMA'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
- MVEIRB – Mackenzie Valley Environmental Impact Review Board
- MVLWB – Mackenzie Valley Land and Water Board
- PK – Processed Kimberlite
- SNP – Surveillance Network Program
- TDS – Total Dissolved Solids
- WEMP – Wildlife Effects Monitoring Program
- WTP – Water Treatment Plant

1. Mine Update

- The Snap Lake Mine is currently in Extended Care and Maintenance (ECM);
- Activities at the mine site finalized on August 25, 2020;
- The site was reopened on April 20, 2021

2. SNP Reports

- DeBeers submitted the following SNP Reports:

  - April 2021 SNP Report; and
  - May 2021 SNP Report.

- SNP Reports describe activities at the mine site
- Remote monitoring during zero occupancy in April
- On-site monitoring in April and May.

2. SNP Reports

- Remote Monitoring by cameras in April included:
  - Perimeter Sumps, Water Management Pond and Fuel Tank Farm;
  - North Pile, ditch and perimeter sump monitoring.

- Activities also included:
  - Compilation of site-specific weather data;
  - North Pile thermistor and piezometer monitoring & data collection;

2. SNP Reports

- Activities also included:
  - Inspections on the North Pile, Perimeter Sumps and Dam 1 & 2.
  - Landfill inspections to ensure no wildlife inhabiting the area.
  - The discharging of mine water commenced on June 6th, 2021.

- No incidents were reported during these months.

3. Water Monitoring

Fig 1: SNP Sampling Stations

3. WATER MONITORING

STATION SAMPLED	DATE OF SAMPLING
SNP 02-20 d (Diffusor sample)	11-Apr-21
SNP 02-20 e (Diffusor sample)	11-Apr-21
SNP 02-20 f (Diffusor sample)	11-Apr-21

APRIL 21 SNP SAMPLING

3. WATER MONITORING

STATION SAMPLED	DATE OF SAMPLING
SNP 02-02, North Pile drainage collection ditch	28-May-21
SNP 02-06, Uncontrolled surface Runoff at Quarry Site	23-May-21
SNP 02-15, Water Intake from Snap Lake	11-May-21
SNP 02-16i, Sewage Effluent from Sewage treatment plant	21-May-21

MAY 21 SNP MONITORING

4. Site Inspection

- Regulatory site inspection was conducted on May 26, 2021, by Inspector Joe Heron.

The following areas were inspected:

- Water Management Pond
- North Pile Perimeter Sumps
- Water Treatment Plant
- Fuel Facilities
- Waste Transfer Area
- Incinerators

4. Site Inspection

- Conclusions:

No major concerns were noted during the inspection.

The following pictures were taken by the Inspector during his inspection.

4. Site Inspection

Photo 1: Looking north at the Snap Lake Mine WMP

4. Site Inspection

Photo 2: Looking west at the south dyke of the WMP. The remote camera, ground thermistors and piezometers can be seen

4. Site Inspection

Photo 3: Looking north at the regraded north dyke on the WMPs

4. Site Inspection

Photo 4: Looking at the North Pile East Cell - Cell 4. Water is present on the east of the cell

4. Site Inspection

Photo 5: Looking north at a diesel water pump staged on the east of the cell in Photo #4 and a covered thermistor that was installed in 2020

4. Site Inspection

Photo 6: Secondary containment structures under the pumps must be maintained and hydrocarbon impacted soils cleaned up and disposed of.

4. Site Inspection

Photo 7: This generator is used to power an electrical pump tha
is being used to pump water out of cells on the North Pile.

4. Site Inspection

Photo 8: The pumps were recirculating water at PS #2. It appeared the staff gauge required surveying.

4. Site Inspection

Photo 9: The pump station at PS #3. On the centre-left of the photo, a dewatering line can be seen running from the top of the North Pile down into the sump.

4. Site Inspection

Photo 10: Water was being recirculated in PS #3. Water that is pumped from the east of the North Pile reports to the sump

4. Site Inspection

Photo 11: Looking east at PS #4. The pumps are recirculating water here to keep the water lines from freezing

4. Site Inspection

Photo 12: Pumphouse at PS #5

4. Site Inspection

Photo 13: Water recirculation at PS #5

4. Site Inspection

Photo 14: This totalizer at PS #5 will help track water volumes and flows once pumping commences.

4. Site Inspection

Photo 15: Diesel pump located at PS #1.

4. Site Inspection

Photo 16: The secondary containment under this pump was saturated and required changing.

4. Site Inspection

Photo 17: The pump was not recirculating water at PS #1 and the staff gauge will be re-established and shot in by a surveyor.

4. Site Inspection

Photo 18: A self-contained heater was thawing out the bottom of the FAR monitoring station where the UG water levels are measured.

4. Site Inspection

Photo 19: A meter was installed to help in the monitoring of the UG water levels

4. Site Inspection

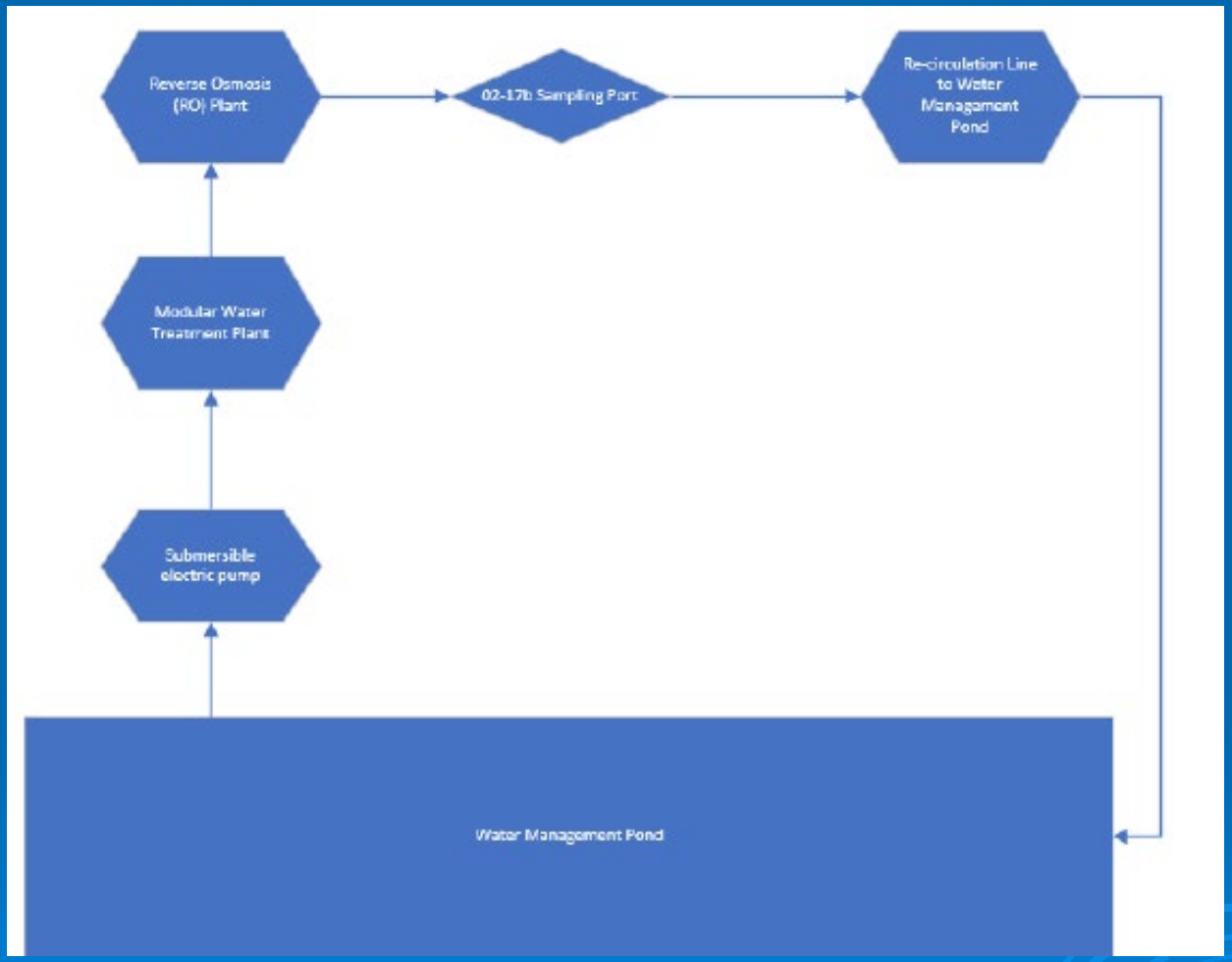

Photo 20: A diagram of the closed-circuit water system used in the WTP commissioning (Photo courtesy De Beers Canada).

4. Site Inspection

Photo 21: Looking north at the submersible electric pumps at the mine WMP.

4. Site Inspection

Photo 22: Looking at the RO filtration units of the mine Reverse Osmosis filtration unit.

4. Site Inspection

Photo 23: The disc filter unit at the modular WTP.

4. Site Inspection

Photo 24: A look at the filter discs within the unit in Photo #23.

4. Site Inspection

Photo 24: A look at the filter discs within the unit in Photo #23.

4. Site Inspection

Photo 25: The Snap Lake Mine discharge diffuser location

4. Site Inspection

Photo 26: The heat-traced discharge line from the mine WTP to the discharge location in Photo #25.

4. Site Inspection

Photo 27: The 12-million L fuel tank farm. Fuel is being kept in the tank on the far right of the photo.

4. Site Inspection

Photo 28: Fuel tank containment around site is being monitored and meltwater removed on an ongoing basis.

4. Site Inspection

Photo 29: Diesel fuel and gasoline staged within secondary containment in the mine warming shed parking area.

4. Site Inspection

Photo 30: The warming shed generators and diesel feed tank.

4. Site Inspection

Photo 31: Looking south at the light vehicle fuel transfer station.

4. Site Inspection

Photo 32: Capacities within secondary containment structures are being monitored and emptied on an ongoing basis.

4. Site Inspection

Photo 33: This sump at the light vehicle fueling station is also being monitored and emptied on an ongoing basis.

4. Site Inspection

Photo 34: A look at the entrance to the mine landfill located at the North Pile East Cell – Cell #1.

4. Site Inspection

Photo 35: The remainder of the landfill at the North Pile.

4. Site Inspection

Photo 36: Though no burning has occurred, the mine burn pit has been prepared for use.

4. Site Inspection

Photo 37: The mine incinerators, fuel tanks and labeled waste in drums.

4. Site Inspection

Photo 38: These fuel tanks are used to supply the mine incinerators. Capacity levels are also being monitored in the tank containment and are being emptied out on an ongoing basis.

4. Site Inspection

Photo 39: Waste ash and metals from the burn pit and incinerators is placed into this container prior to testing and disposal.

4. Site Inspection

Photo 40: Waste metals and ash within the holding bin.

4. Site Inspection

Photo 41: Properly labeled and staged waste within lined containment at the mine WTA.

4. Site Inspection

Photo 42: Additional containerized waste at the mine WTA.

5. MVLWB Regulatory Update

1) Snap Lake Final Closure and Reclamation (FC&R) Plan - Version 1.1 For Review Still Awaiting MVLWB Decision

The MVLWB invited reviewers to submit comments on Snap Lake FC&R Plan.

Reviewers submitted comments on Apr 08.

The Proponent responded on Apr 22.

<u>Current Situation:</u> Pending Board's Decision.

5. MVLWB Regulatory Update

2) Snap Lake Water Management Plan (WMP) Version 5.1 for Review

Review Deadlines:

Reviewers' comments on April 15;

The Proponent response on April 29.

Current Situation: The Board has approved the Plan V 5.1 and

requires that De Beers resubmit the WMP in accordance with comments made during this review by July 6, 2021.

5. MVLWB Regulatory Update

3) Snap Lake Annual Report Submitted for Review – The Board Requested Resubmission

Reviews Deadlines:

For reviewers to submit comments, May 10.

For the proponent to submit responses, May 17.

Current Situation:

The MVLWB requested De Beers resubmit the 2020 Annual Water Licence Report to reflect updates as agreed to during the review.

5. MVLWB Regulatory Update

4) 2020 Aquatic Effects Monitoring Program (AEMP) Annual Report Submitted for Review

Reviews Deadlines:

For reviewers to submit comments, June 16;

For the proponent to submit responses, June 23.

Current Situation: Pending MVLWB's Decision.

5. MVLWB Regulatory Update

5) Snap Lake - Erosion and Sedimentation Management Plan for Review

Reviews Deadlines:

For reviewers to submit comments, June 30;

For the proponent to submit responses, July 08.

Current Situation: Pending Board's Decision.

6. ENVIRONMENTAL AGREEMENT

- De Beers' Snap Lake Mine Wildlife Management and Monitoring Plan Tier 2

On May 26, 2021SLEMA received De Beers' Snap Lake Mine Wildlife Management and Monitoring Plan (Tier 2) from the Government of the Northwest Territories; this Plan is a requirement under the Section 95 of Wildlife Act.

SLEMA reviewed and commented the Plan on June 25.

6. SLEMA ACTIVITIES

- SLEMA reviews:

1) Review of the Surveillance Network Program - SNP monthly reports

SLEMA reviewed April 2021 and May 2021 SNP Reports submitted by DeBeers and found them sound and according to the regulatory requirements with no major issues.

6. SLEMA ACTIVITIES

- SLEMA reviews

The following documents were sent out by the MVLWB for public review and commented by SLEMA:

2) Snap Lake Annual Report Submitted for Review and commented by SLEMA on May 17.

3) 2020 Aquatic Effects Monitoring Program (AEMP) Annual Report Submitted for Review and commented by SLEMA on June 23.

6. SLEMA ACTIVITIES

- SLEMA reviews

The following documents were sent out by the MVLWB for public review and commented by SLEMA:

4) Snap Lake - Erosion and Sedimentation Management Plan submitted for Review and commented by SLEMA on June 30.

5) De Beers' Snap Lake Mine Wildlife Management and Monitoring Plan Tier 2 submitted for Review and commented by SLEMA on June 25.