SEPT – OCT 2022 Environmental Update for SLEMA Board

November, 2022

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

Outline

1. Mine Update
2. SNP Reports
3. Water Monitoring
4. Incidents at Site
5. Updates on the WL and LUP
6. Environmental Agreement Update
7. SLEMA's Activities

1. Mine Update

- Closure activities at site:
  - Closure activities at site are ongoing
  - The closure activities started on March 1, 2022, according to the Final Closure and Reclamation Plan (v.1.1) and as authorized by the corresponding Land Use Permit and Water Licence
  - MetNuna JV has the care and control of the Mine during Closure

2. SNP Reports

- The following Mine closure and reclamation activities were undertaken by MetNuna JV in this period:

  - Equipment maintenance
  - Utilities decommissioning
  - Ongoing demolition of the processing plant and powerhouse
  - Construction of the South and North ditches
  - Ongoing excavation and placement of materials in various cells on the North Pile

2. SNP Reports

- De Beers submitted the following 2022 SNP reports
  - July, August and September

The following issues are noticed in the reported data:

1) Missing lab data in SNP Reports

Since June 2022, the submitted Lab data have been incomplete for some of the SNP Monitoring Stations

De Beers's justification was that there are significant delays with certain lab data, and they were working on rectifying the issues and committing to resubmit complete reports for these and previous months (June)

2. SNP Reports

2) Exceedances:

A pH of 9.05 at SNP2-15 was reported in June 2022 along with the following high pH at SNP2-14 and SNP2-17

	June 07	June14
SNP2-14	8.20	9.85(June 20)
SNP2-15	**9.06**	
SNP2-17	8.3	8.8

pH in Snap Lake should not exceed 9.0

SNP14: Monitoring Station (MS) at Water Management Pond

SNP2-15: MS at Water Intake

SNP2-17:MS at Effluent Discharge

2. SNP Reports

2) Exceedances (Cont.):

De Beers responded to SLEMA's concerns on November 2, stating third party analysis by ALS demonstrated that pH was compliant

The Inspector commented on Nov Inspection Report that technically De Beers is compliant as additional field samples taken internally are not a requirement of

Water Licence

However, the internal analysis should not be overlooked if high pH is repetitive in future reports

2. SNP Reports

- Water Management at site:
  - Fresh water is routinely extracted from Snap Lake
  - The Sewage is collected and treated at the Sewage Treatment Plant
  - Following written authorization from the Inspector, annual active discharge from the Water Treatment Plant to Snap Lake began on May 31 and is ongoing

2. SNP Reports

- 2022 WATER MANAGEMENT AT THE SITE

Water/ Wastewater	Jan m3	Feb m3	Mar m3	Apr m3	May m3	Jun m3	Jul m3	Aug m3	Sept
Fresh water from SL	577	485	785	672	828	876	784	956	
Treated Sewage	165	315	333	190	385	417	411	463	
Effluent discharged to SL	-	-	-	-	42	61,321	76,333	29,206	

2. SNP Reports

- WASTE MANAGEMENT: Summary of Monthly Waste Quantities

Waste Type	Apr	May	Jun	Jul	Aug	Sept
Domestic (Incinerated)	1,669 Kg	2,014 Kg	2,220 Kg	1795 Kg	3,255 kg	
Domestic & Industrial (to landfill)	5,145 Kg	2,510 Kg	2,129 Kg	1,411 (t)	2,980 kg	

2. SNP Reports

- Hourly and daily meteorological data was collected at the Hill Meteorological Monitoring Station

  and the Lake Hydro-Meteorological Monitoring Station.

2. SNP Reports

- Summary of Spills at Site

Table: Summary of Reportable Spills

Date	Substance	Volume	Location	NWT Spill #
April 7	Diesel Exhaust Fluid	400 L	Laydown 1	2022121
April 16	Sewage	20 L	New STP	2022133
June 19	Hydraulic Fluid	250L	Quarry	2022291
August 2	Effluent (untreated)	tbd	SP3	2022400
August 3	Sewage	30 liters	SewageTP	2022405

3. Water Monitoring

Fig 1: SNP Sampling Stations

SNAP LAKE ENVIRONMENTAL MONITORING AGENCY

3. 2022 WATER MONITORING SCHEDULE

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
02-02 North Pile	N	N	N	N	N	✓	✓	✓				
02-05 Run off Rock Pad	N	N	N	N	✓	N	N	✓				
02-06 Runoff Quarry	N	N	N	N	✓	N	N	N				
02-11 WMP Dam	N	N	N	N	N	N	N	N				
02-14 WMP	N	N	N	N	N	✓	✓	✓				

N= None
✓= Sampled

3. 2022 WATER MONITORING SCHEDULE

Monitoring Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
02-15 Water Intake	✓	✓	✓	✓	✓	✓	✓	✓				
02-16i Sewage Effluent	✓	✓	✓	✓	✓	✓	✓	✓				
02-17b Treated Effluent	N	N	N	N	✓	✓	✓	✓				
02-20d 02-20e 02-20f Diffuser Stations	N	N	N	✓	N	✓	✓	✓				

N = None

✓ = sampled

3. WATER MONITORING

Results:

- 2022 Reported TDS at Snap Lake mixing zones:

	TDS mg/L					
MONTH/ STATION	Apr	May	Jun	Jul	Aug	Sep
SNP 02-20d	252	N	196	197		
SNP 02-20e	257	N	196	266		
SNP 02-20 f	252	N	197	215		

4. Incidents at Site

- The following spills at site were reported in September 2022

  - Spill on August 2: untreated effluent from the North Pile's Perimeter Sump 3 (PS3); volume tbd
  - Spill on August 8: sewage from the Sewage Treatment Plant (STP), 30 liters of sewage

4. Incidents at Site

- GNWT Spill # 2022400 – August 2

- Incident Summary

  On August 2, 2022, an Excavator caused a tear in the liner inside the northwest corner cofferdam in perimeter sump 3 (SP3)

  The level of water in this area had risen sometime between August 3rd and 4th. It is speculated that there is/was potential seepage that occurred within this timeframe to the surrounding area

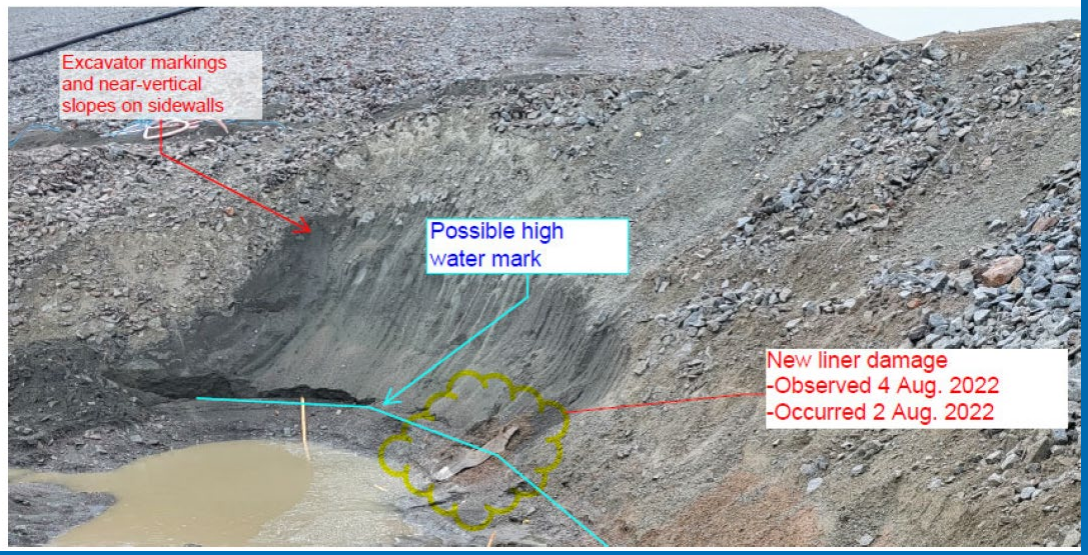
- Immediate Action

  A submersible pump was commissioned in SP3 to pump out remaining water, ensuring no further s[illegible] loss

4. Incidents at Site

- GNWT Spill # 2022400 – August 2 (Cont.)

Water Levels:



4. Incidents at Site

- GNWT Spill # 2022400 – August 2 (Cont.)

Close up of liner tear:

4. Incidents at Site

- GNWT Spill # 2022405 – August 8, 2022
- Incident Summary

On August 8, 2022, a spill of approximately 30 liters of sewage water was released at the Sewage Treatment Plant, as a result of the tank overflowing

The spill was released directly onto the ground

- Immediate Action

The sewage water was cleaned up using a hydro-vac truck and the ground material was bagged and disposed off safely

4. Incidents at Site

- GNWT Spill # 2022405 – August 8(Cont.)

Spill Area

4. Incidents at Site

- GNWT Spill # 2022405 – August 8(Cont.)

Clean up and bag

5. Updates on the Water Licence & LUP

- On October 13, 2022 the Mackenzie Valley Land and Water Board approved De Beers' request to extend Land Use Permit for the Snap Lake Mine with no changes to the scope of the Permit

6. Environmental Agreement Update

Submission and Review of

- The Vegetation Monitoring Plan for Closure and Post-Closure

  and

- The Air Quality and Emissions Management and Monitoring Plan for Closure and Post-Closure

SLEMA provided comments on the Plans on October 17, 2022.

6. Environmental Agreement Update

- Submission and Review of the Environmental Agreement Annual Report

On October 11, 2022, De Beers submitted the 2021 Environmental Agreement Annual Report required under Article 10.1 (a) of the Snap Lake Environmental Agreement

Next, the GNWT - Department of Environment and Natural Resources (ENR) requested the parties to the Agreement and SLEMA to provide comments on the Report by November 25, 2022.

7. SLEMA ACTIVITIES

SLEMA CORE GROUP MEETING

A Core Group Meeting was held via zoom on September 6, 2022

Topics:

- TK Panel discussion about the AEMP Fish Tasting
- Final Closure and Reclamation Plan update
- Site Visit
- TK Panel Scientific Review and FCRP

7. SLEMA ACTIVITIES

- OCTOBER SITE VISIT

TK Panel and the SLEMA Board members visited the site on October 6th to specifically monitor the closure activities

7. SLEMA ACTIVITIES

- FISH TASTING RECOMMENDATIONS SUBMMITED

On September 15, SLEMA submitted to De Beers the August 30 SLEMA TK Panel workshop recommendations on Fish Tasting

7. SLEMA ACTIVITIES

- SLEMA reviews in September and October 2022:

  - Review of the Surveillance Network Program - SNP monthly reports
  - Review of the Vegetation and Air Quality Monitoring Plans for Closure and Post Closure
  - Review of the Environmental Agreement Annual Report