



**Mount Polley Mining Corporation**  
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## MOUNT POLLEY MINING CORPORATION (MPMC) PUBLIC LIAISON COMMITTEE (PLC) MEETING NOTES

### Meeting Details

Conference Call Meeting – General Meeting

July 14, 2021

9:00 am to 11:30 am

Meeting Called by: MPMC Designated Representation

Meeting Chaired by: MPMC Designated Representation

### PLC Members and Guests

Member	Present	Call-in	Organization
Aaron Higginbottom			Williams Lake First Nation
Abhirosh Chandran (AC)		x	Ministry of Environment
Alan Gibson			Ministry of Environment
Alicia Lalonde (AL)		x	DWB Consulting
Bee Hooker (BH)		x	Big Lake Community
Bill Carruthers			Williams Lake Community
Carla Grimson			Ministry of Environment
Christine McLean (CM)		x	Mitchell Bay Community
Claudine Kadonaga		x	Likely Business
Don Parsons (DP)		x	Imperial Metals
Doug Watt (DW)		x	Likely Citizen
Edna Boston			Xatsull - Soda Creek First Nation
Erin Rainey (ER)		x	BC ENV
Gabe Holmes (GH)		x	Mount Polley Mining Corporation
Jackie Sarginson		x	MLA Cariboo North Coralee Oaks Office
Kira Jackson			Ministry of Energy, Mines and Low Carbon Innovation

Linda Bartsch			Horsefly Business
Lisa Kraus			Likely Community
Lyn Anglin (LA)		x	Consultant to Imperial Metals
Lowell Constable			Ministry of Energy, Mines, and Low Carbon Innovation
Luc Lachance			Ministry of Environment and Climate Change Strategy
Mathieu O'Leary (MO)		x	Mount Polley Mining Corporation
Mark Doratti			Williams Lake Chamber of Commerce
Maureen LeBourdais			Cariboo Regional District
Micky McIntosh			Likely Resident
Richard Holmes			Morehead Community
Steve Hocquard			Horsefly Community
Tara Cadeau (TC)		x	Ministry of Energy, Mines and Low Carbon Innovation
Walt Cobb			City of Williams Lake
<b>Guests</b>	<b>Onsite</b>	<b>Call-in</b>	<b>Organization</b>
Lee Nikl (LN)		x	Golder Associates
Pierre Stecko		x	Minnow
Heidi Currier		x	Minnow
Aaron Zwiebel		x	DWB Consulting
Mike Stinson (MS)		x	Xatsull - Soda Creek First Nation

## Conference Call Meeting/Presentations: 9:00am to 11:30am

### Welcome and Roll Call on Phone

- Membership changes as follows:
  - Erin Rainey (ENV), senior environmental protection officer is a new PLC member, recently added to the MPMC file
    - Alan Gibson is no longer a member
  - Aaron Zwiebel is in the process of taking over for Alicia Lalonde at DWB, who is going on maternity leave
- Introductions of guests:
  - Lee Nikl (Golder)
  - Heidi Currier (Minnow)
  - Pierre Stecko (Minnow) will join late at approximately 9:30

### **Additions to Agenda**

- None

### **Approval of Agenda**

- Approved

### **MPMC Discussion Items** (see 2021-07-14 PLC Meeting Presentation)

- Care and Maintenance Update
- COVID-19 Update
- PLC Membership and Terms of Reference Review
- Environmental Monitoring Update
- Discharge/WTP Update
  - Amendment Application/Surplus Water Diversion
- Water Management Update
- Remediation Update
- Mine Re-start Update
- ENV/EMLI Discussion
- Community Meeting

### **Standing Agenda Items**

- Roundtable Discussion
- PLC Questions/Comments

### **Next Meeting**

#### **Care and Maintenance Update – Gabriel Holmes**

- Water Management
  - WTP operating 24/7, and mine staff are in the middle of the field season with lots of environmental monitoring activities.
  - Semi-annual ditch and sump inspections were completed this quarter.
    - Small outstanding item: blowdown trees in some ditches. No major issues.
- Water Treatment Plant (WTP)
  - WTP is operating as intended throughout freshet and has successfully operated this spring. The issues encountered in 2020, with systems being overwhelmed, are not repeated.
  - 24/7 operations and associated discharge are continuing.
- Environmental Monitoring
  - Some additional environmental monitoring is taking place above the standard works.
  - Summer field season means lots of monitoring is taking place (to be summarized in environmental monitoring update shortly).
- CanMag is not operating the magnetite plant however shipping Magnetite from an on-site stockpile.
  - This is a one-person operation.
- Reporting is ongoing

### **COVID-19 Update – Gabriel Holmes**

- COVID precautions continue and include the following:
  - Site questionnaire
  - Social distancing
  - Mask recommendation
  - Hand washing/sanitizing
  - Not working while sick

### **PLC Membership and Terms of Reference Review – Gabriel Holmes**

- PLC Memberships are available
  - GH calls for nominations, but has not been able to draw up other nominees

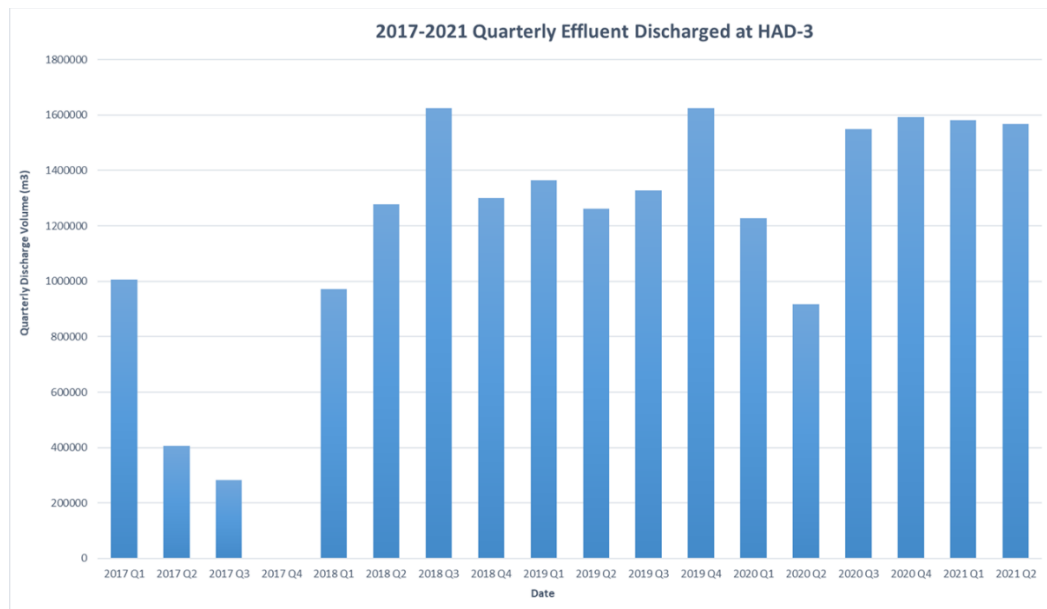
### **Environmental Monitoring Update – Gabriel Holmes**

- A Wildlife Monitoring Plan has been implemented in the Hazeltine Creek corridor, which utilizes wildlife cameras to put together an inventory of animals that are using the corridor. You will see images from the wildlife cameras throughout the presentation.
- Lots of water and other sampling is ongoing, with spring seep sampling, a vegetation inventory, bird surveys, and other sampling having taken place in the spring.
- The constructed wetland is being operated, with weekly monitoring reduced to monthly this spring.
- Seep Sampling
  - Twice annually the mine samples all the seeps coming out of the rock dumps, and the program this year went well with no unexpected results. The next seep survey will be in the fall.
- Water Sampling
  - WTP sampling is ongoing. These samples are taken routinely, and if anything, unusual comes up we go back for resampling, and report to regulators as required.
  - Flow monitoring is part of the CEMP and Permit 11678.
    - We have installed 3 doppler flow meters in site collection ditches to refine volumetric flows.
    - Mine continues to use Sontec Flowtracker for routine monitoring.
    - Russell Smith from WaterSmith was recently on site for staff gauge benchmarking, calibration and salt dilution manual measurements.
    - The H3 monitoring site in lower Hazeltine Creek was removed because of remedial construction, and the replacement station, H3a, was not able to be installed last fall, but was recently installed and benchmarked.
- Wildlife Monitoring
  - Wildlife cameras have been installed for mammal monitoring. The overall goal is to conduct an inventory of mammal species within the Hazeltine Creek corridor using remote cameras.
  - Everyone on site passes on their wildlife observations to staff, which are put into a wildlife tracking table.
- Bird Survey
  - Standardized point count surveys were completed in Q2.
  - This is part of monitoring within breach effected areas,

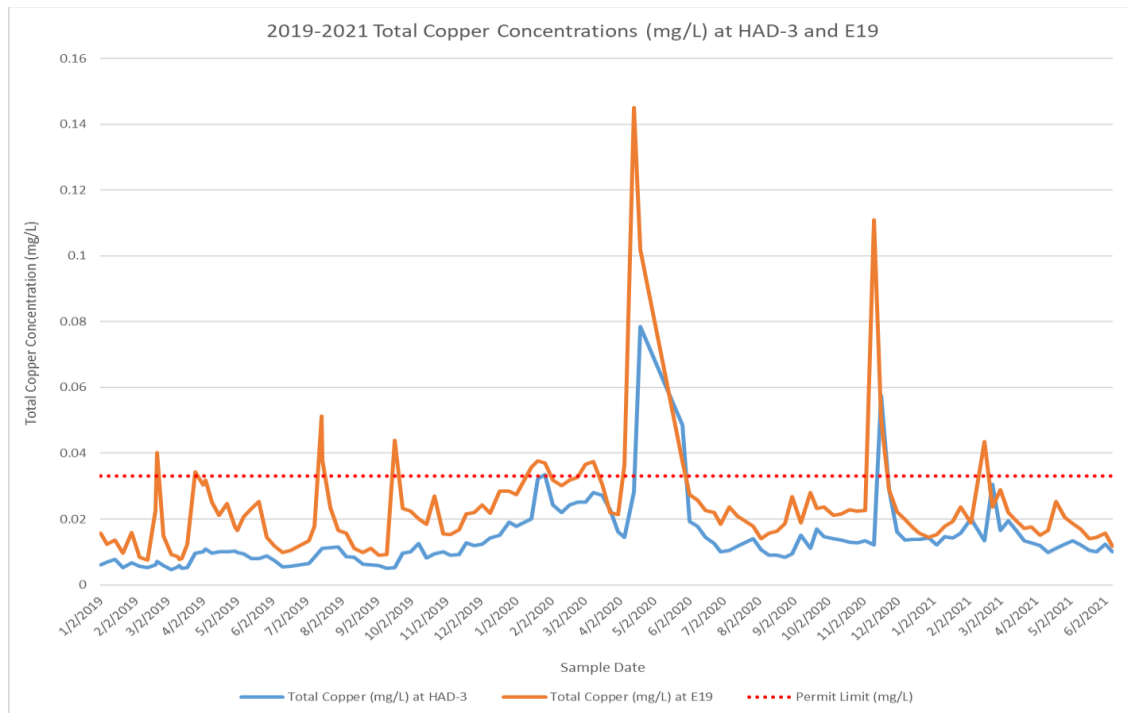
- These surveys are used to determine changes in species composition over time within the remediated areas of Hazeltine Creek.
- Vegetation Assessments
  - Reclamation vegetation surveys were completed in Q2.
  - This monitoring is designed to track ecological succession along the Hazeltine Creek corridor and determine trends in vegetation composition, structure, and function over time.
- Many of these monitoring activities have interpretive reports associated with them, and if anyone wants these reports on the PLC website, please ask.

### Discharge/WTP Update - Matt O'Leary

- WTP discharged nearly continuously throughout Q2. A total of 1.5 Mm<sup>3</sup> were discharged, with discharge below the authorized annual average rate.



- Since the start of using the WTP, there have been quarter-over-quarter increases in the use of the WTP, with big improvements to water management.
- High copper NEZ seeps are being diverted by gravity fed pipeline to the Wight Pit for future treatment. This diversion no longer relies on electricity, meaning power outages will not disrupt water management on site.
- Influent (E19) vs effluent (HAD3) copper levels show reduction in copper concentrations at the WTP, and effluent is well below permit limits.



- Effluent discharge through the plant has been extremely consistent through Q2 2021.
- The 2020 freshet was a difficult time, with several overages in copper concentrations, but these issues were not repeated this spring.
- The active water treatment reduces copper in the water by about one third, which in ordinary circumstances is acceptable for permit limits and WQGs.

#### Discharge Toxicity Testing - Heidi Currier of Minnow Environmental

- Minnow was asked to put together toxicity testing results from 2018-2020.
- Acute lethality test results were conducted monthly using Rainbow Trout and *Daphnia magna*.
  - The exception to monthly testing are January, April, and May 2020 when the WTP was shut down.
  - No failures of lethality testing have been observed.
- Sub-lethal testing results using effluent on 4 freshwater organisms: rainbow trout, *Ceriodaphnia dubia*, *Lemna minor*, *Pseudokirchneriella subcapitata*.
  - Sublethal testing indicates no response to *Ceriodaphnia dubia* or *Pseudokirchneriella subcapitata*.
  - Some response on growth of *Lemna minor* (an aquatic plant) were observed at high concentrations: 35% and 55% effluent; however, these concentrations are not ecologically relevant.
- In ecological terms, we don't expect these high concentrations to be observed in Quesnel Lake.
  - Highest edge of IDZ concentration observed was 3%
  - In most cases edge of IDZ concentrations is around 1%
  - Plants such as *L minor* are not found within the IDZ, as the IDZ is too deep
- Conclusions: no acute lethality event, with some sub-lethal responses on *L minor*, which were not ecologically relevant.

- Additional information can be found in the Environmental Effects Monitoring reports on the PLC SharePoint site.

### Water Management Infrastructure - Matt O'Leary

- We removed water which had collected in the Tailings Storage Facility (TSF) during spring 2021 freshet and moved it to the Cariboo Pit. The TSF Supernatant volume is 1.43 Mm<sup>3</sup> which meets Engineer of Record objectives. Springer Pit treatment has resulted in water that meets permit water quality objectives.
- The Wight Pit is being passively treated by Saturated Rock Fill processes, resulting in water that meets permit water quality objectives. Golder is investigating this phenomenon.
- Mine staff have upgraded pumps, motors and electrical components, and constructed a gravity line from the NEZ seeps to Wight Pit as mentioned previously.

### Surplus Water Management Plan - Don Parsons

- Summarizing the water on site:
  - TSF 1.43 Mm<sup>3</sup>
  - Cariboo Pit 4.94 Mm<sup>3</sup>
  - Springer Pit 2.12 Mm<sup>3</sup>
  - Wight Pit 0.01 Mm<sup>3</sup>
  - Total of 8.50 Mm<sup>3</sup>
- We had a slightly above normal snowpack this spring, which has now melted. This resulted in an increase of 0.64 Mm<sup>3</sup> of water on site.
- Summarizing water that is ready to discharge:
  - Wight Pit has water quality of 15.8 ppb total copper and 21.4 ppb total selenium.
  - Springer Pit water has 25 ppb total copper and 39.8 ppb total selenium.

#### Wight Pit and Springer Pit Water Quality

Location	TSS (mg/L)	pH	Cu Total (mg/L)	Cu Diss (mg/L)	Se Total (mg/L)	Date Sampled
Stored Water Quality						
Wight Pit SRF	1.0	8.10	0.0158	0.0164	0.0215	June 29 <sup>th</sup>
Springer Pit Lake Treatment	1.9	8.05	0.0251	0.0260	0.0398	June 29 <sup>th</sup>

#### EMA Permit Limits

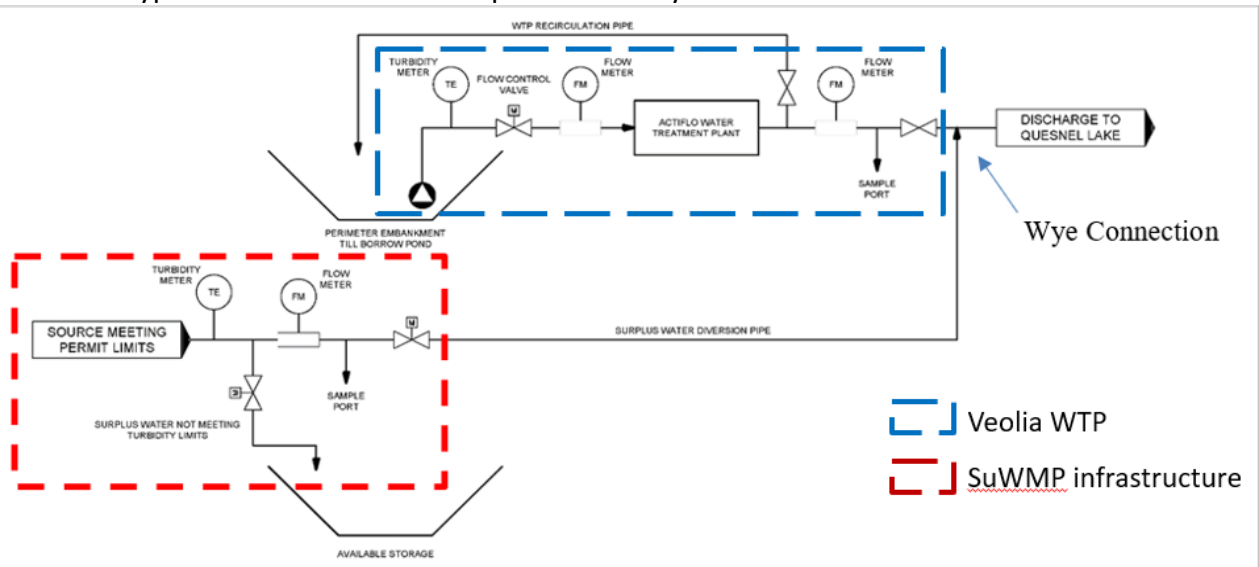
Discharge Permit Limit				
Location	TSS (mg/L)	pH	Cu Total (mg/L)	Se Total (mg/L)
End-of-Pipe	15 avg 30 max	6.0>pH>9.5	0.033	0.075
Quesnel Lake IDZ	-	-	0.0022 (30-day avg)	0.002

- All water in the Springer and Wight pits meet water quality objectives.

- We submitted a permit application to discharge water that meets the permit limits and are looking to change clause 2.1 in the permit to allow for a bypass of the WTP when water quality meets the limits of the permit, without additional approval.

Existing Permit – Before Amendment	Amended Permit – After Amendment
<p><b>2.1 Bypasses</b></p> <p>Any bypass of the authorized works is prohibited unless prior approval of the Director is obtained and confirmed in writing.</p>	<p><b>2.1 Bypasses</b></p> <p>Bypass of part of the authorized works, specifically the Water Treatment Plant (WTP), is authorized when water quality meets the limits of Clause 1.2.5 Table 1 and does not require additional approval from the Director.</p> <p>Any other bypass of the authorized works is prohibited unless prior approval of the Director is obtained and confirmed in writing.</p>

- A Surplus Water Management Plan will be established using the following guiding principles, specifying conditions to use surplus diversion.
  - Specify conditions for surplus division
  - Veolia system is a first preference
  - Only water meeting the limits in 1.2.4 of the 11678 permits will be discharged through surplus diversion
  - Stored water cannot be diluted to meet diversion limits
  - Pit lake treatment and other technologies used for water treatment
  - Annual discharge plan to include surplus diversion and trigger response plans
- DP: This slide shows the wye that has been installed at the WTP. Given approval, there are two possibilities to bypass the water treatment plant Actiflo system.



- One option is that water flows through the Actiflo system without treatment, with the treatment system turned off.
- The other is to build new infrastructure with a new monitoring station, with all the same instrumentation as the WTP, with the water flowing into the TSF instead if monitoring shows



the water does not meet permit limits. If we use the red block system, we can really increase the flow rate, while also running the Actiflo system simultaneously.

- The “red box” monitoring station could be used to discharge to Polley Lake or somewhere else, and we might just go ahead and build this, as I could see use for it either way.

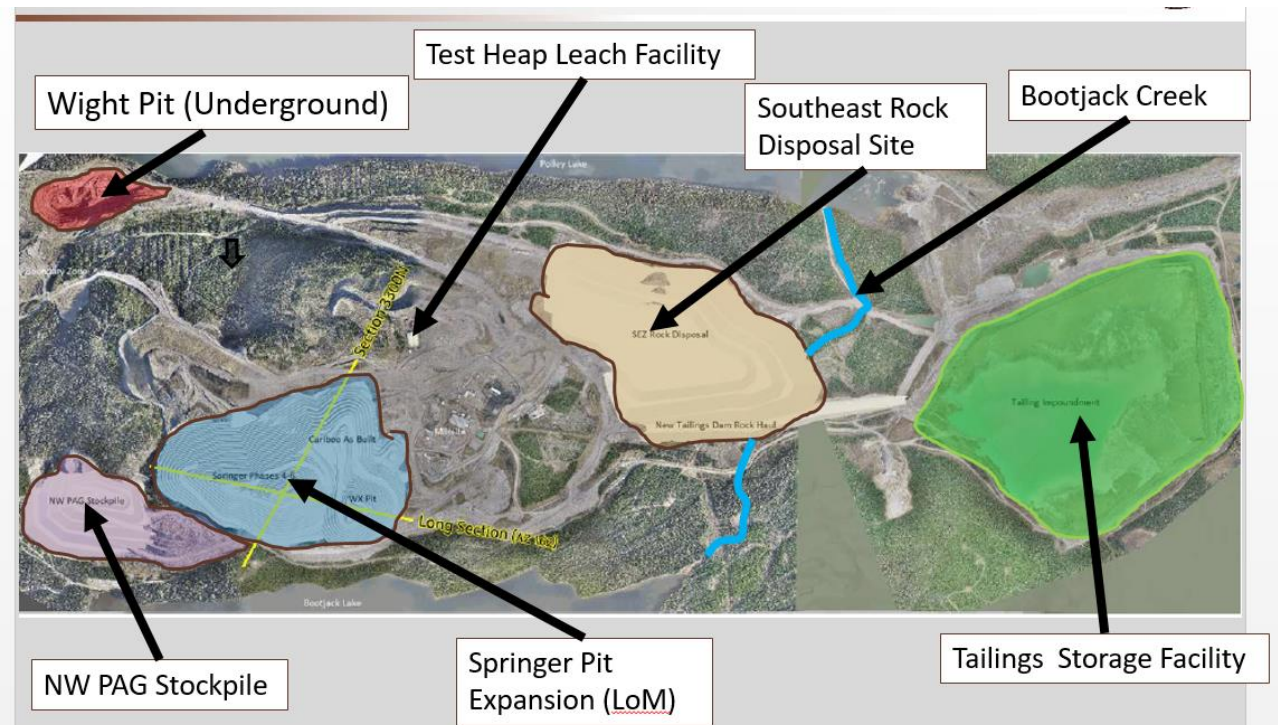
#### **Remediation Update – Gabriel Holmes**

- Last fall we did groundcover seeding in the Hazeltine Creek corridor, with emergence this spring around June.
  - In spite of the heatwave, we saw emergence of the groundcover seedlings.
- This spring we planted around 60,000 native ground plug shrubs.
  - The intent is that riparian areas alongside creeks grow a thicker canopy of woody shrubs in addition to seeded groundcover and natural recruitment.
  - More planting is planned for next spring, with around 60,000 conifers planned for 2022 and 50,000 additional sitka alder to finish off the planting next year.
  - Conditions were very difficult in lower Hazeltine for planting this spring, with hot and dry conditions.
- Construction planning is ongoing, with a fish salvage program currently occurring. However, high temperatures are causing problems for the fish salvage.
  - No instream work has been done except for installation of fish exclusion fences.
  - Salvage should be completed sometime this week.
  - Once the fish salvage is complete, a pipe bypass will be installed for dewatering of the channel, allowing in-stream construction.
  - 700 m of instream work downstream of the ditch road bridge will be built, with the pool/riffle/run template to be field fitted.

#### **Mine Re-start Update – Don Parsons**

- We have put together a life of mine plan, which is 11 years total, working in the Springer/Cariboo Pits.
  - There is 1 year backhaul PAG planned for the Springer Pit for subaqueous disposal.
  - We have approval of building up the TSF to 970 m, with further plans to build up to 984 for further disposal.
  - We require refurbishing the mill, re-stripping the mine, and replacing components in the mobile equipment.
- No time has been lost this year due to safety incidents.
  - RL7 Mechanical has looked at our safety, fire suppression, and other facilities which are looking good.
- We have a system that we are looking at to get the plant ready for refurbishing.
  - We have hired an electrical superintendent, Randy Cunningham who is looking through the power distribution and for upgrades to the process logic controllers.
  - We have also hired a mill maintenance superintendent, Darcy Hannas who we hope will be able to work on the mill, conveyors, and crushers this fall.
- We are also looking into mobile equipment upgrades.
  - All trucks were brake tested.
  - Excavator inspections upcoming.
  - The large Excavator PC 4000 requires major upgrades costing over 1 million dollars.

- Drills require some upgrades.
- Smaller mobile equipment is being worked on by third parties.
- Five inspectors from the ministries have visited the site as part of the reopening plan. There is a list of permits that will be needed for the following works:
  - Springer expansion.
  - NAG/PAG acid base accounting cutoff changes.
  - Springer tailings disposal which we intend to dry stack onto SERDS site.
  - TSF redesign will require work and permitting. There is a site investigation planned for this fall to look for areas where we can expand the buttress.
  - We want to backfill the SERDS dump over Bootjack Creek and install a rock drain and design a habitat compensation plan.
    - This has been in the works with the Habitat Remediation Working Group for several years and we plan to go ahead with it soon.
- DP: This slide shows the areas we plan on working over the next 11 or so years. The Springer Pit would have to be expanded, which is part of our permitting. The heap leach facility is where we run the sprinkler system, and we are looking at extraction of copper from oxide ores as a research program. The Southeast Rock Disposal Site would need expansion, and you can see Bootjack Creek in blue, which is displaced by SERDS with a rock drain planned. The TSF would be raised to 984-987 m.



## ENV/EMLI Discussion

- GH: Do any regulators in the call have anything to share about regulatory compliance with the mine?
- Erin: I do not have anything to report.
- TC: I have not done a compliance review of the site this year. I do want to review the Water Management Plan. I have started to look at the Heap Leach Decommissioning Plan and noted that there is no timeline

for the removal of the heap leach facility, which is a requirement. If you have any information on the timeline of this plan I would be interested.

- GH: I believe what we submitted was phase 1, and phase 2 will be following, which should have more details on the nuts and bolts of the decommissioning. We could have one of our consultants, SRK, follow up.
  - MO: The plan was to have a geochemical analysis take place, which required additional sampling which was done after snow melt in May 2021. Slow snowmelt and slow lab results have delayed this deliverable, and SRK is not able to make recommendations without the results. The plan is to release a second phase decommissioning plan in early Q3. We were hoping to submit it as one package, but this was not possible.
  - TC: This is helpful. I have heard that throughout the province, lab turnaround times are very long right now.
- DW: So what is the timeline for decommissioning of the heap leach facility?
    - MO: That is something that is awaiting the results of SRK's investigation. If there is benefit to the copper recovery, we will continue using it. If not, we'll decommission sooner than later.
    - DP: We are looking at disposing of heap leach material in the TSF underwater, which would be the best disposal option for the material.
  - GH: We had an ECCC representative do a tour earlier this month, with an inspection report pending. I expected to see that report by now. Some of that report will be public and will be released when available.
  - GH: Action items and comments from regulators:
    - Phase 2 EEM report and Phase 3 study design reviews resulted in action items.
      - Minnow is preparing a response on our behalf.
    - Recent EMLI inspections also resulted in several action items which have been addressed.

### **Community Meeting Planning**

- GH: As per Sec. 1. D. in the MPMC Communications Plan, we do a tour and meeting every year
  - We are thinking of combining these events into a single tour, as was done last year.
  - When do you think we should do a tour and/or meeting? I'd love to hear your thoughts.

No comments from attendees

- GH: Any objections to having both tour and meeting as the same event?

No comments

- GH: What I'll do is send out an email sometime in the next couple of weeks suggesting a date in September after kids go back to school and people are into their fall routines.

### **Roundtable Discussion**

GH: I'd like to open the meeting up for comments from anyone on the committee. Remember this is your meeting so feel free to ask questions or share your thoughts.

TC: Returning to the discussion of the Wight Pit SRF. I think selenium speciation as part of the routine monitoring would be a good idea. Relying on passive treatment requires a very good understanding of what is going on in the system. Selenium speciation is a requirement for any passive or semi-passive system in the province because we have seen more bioavailable species produced in the sub-oxic zone. This is something regulators are going to want to see.

GH: Thanks for the feedback. There are a few other water sources on site that could maybe benefit from selenium speciation.

### **Next Meeting**

GH: let's tentatively schedule the next PLC meeting for Nov 3, 2021, at 9:00 AM. Please reach out to me if there is additional information you might want to cover. Please also consider nominating PLC vacancies.

GH: I'd now like to close this meeting. Thanks to everyone for their attendance and well wishes to all participants.