From: Eric Denholm
To: Rhiana Bams
Cc: Harry O"Keefe; Dustin Chaffee; Ryan Fequet; Anneli Jokela
Subject: Re: Ekati - Point Lake Technical Workshop - Geochemical characterization/seepage questions
Date: September 8, 2021 7:03:53 PM

Thanks Rhiana. See our indications below.

Eric

On Sep 8, 2021, at 2:44 PM, Rhiana Bams <rbams@wlwb.ca> wrote:

Dzę tanı hǫizı, (Good afternoon) Harry and Eric,
Please see the compiled questions below with respect to geochemical characterization and seepage from the WRSAs and Overburden stockpile, as well as one question related to caribou. Please indicate which questions Arctic would like to respond to directly at the Technical Workshop tomrorow morning, and which questions Arctic would like to be taken away as Information Requests.

We will also be starting at 8:30 am tomorrow morning (and will be confirming that in an email to all Parties shortly).

1. Arctic has stated that whether or not humidity cells are completed on the Point Lake metasediment is dependent on the results of SFE/NAG tests. These tests have very different applications. What triggers or results would lead to a decision to complete the humidity cell testing? **IR**

2. Understanding that seepage will be captured, and the pile covered, it is important to know the lag time to acidity as requested by Lorax. Are there other reasons why Arctic is not currently planning to undertake the requested kinetic testing? **IR**

3. Can Arctic clarify if the assimilative

capacity analysis conducted for the KPSF includes as water quality predictions of seepage? If no, can Arctic clarify what data is included in the assimilative capacity analysis? **IR**

4. Will there be ground temperature cables installed in the Point Lake WRSAs as has been done for the other piles to monitor for freezing? Answer - yes.

5. Has any modelling been done to assess the potential for thermal heat generation in the WRSAs due to the oxidation of the PAG material, and the implications for freezing of the WR pile? Freezing of the pile could have implications on the seepage water quality as well. Has this been considered? **IR**

6. Without having seepage water quality predictions, how will Arctic be able to monitor whether or not seepage is meeting expectations and have the ability to implement mitigations as far as protecting the WQ of King Pond, etc? **IR**

7. In its response to IEMA comment 8, Arctic said that there is an extensive and relevant knowledge base on metasediment geochemistry at the Ekati mine and that it is appropriate to utilize this in development of plans for Point Lake. What Project-specific data does Arctic considered relevant here? Is this data available now or still to be obtained? **Answer - PL-specific geochem results have been provided and are being followed up**

with SFE/NAG tests.

8. Arctic committed to completing Shake Flask Extraction (SFE) tests. When will this data be available? Will it be in time to inform the WRSA Design? Can Arctic explain why kinetic testing is not being proposed? **Answer - SFE test results will be reported with Workshop IRs (Sept 17). That will include Arctic's determination of the need for further testing.**

9. What data is needed to predict the seepage water quality from the waste rock pile? Is kinetic testing needed? If so, when will this be conducted and can it be done in time to inform the WRSA Design Report? If it is needed for predicting post-closure WQ, why not plan to do it now, given the short anticipated mine life? If not, are there any limitations that may result in the prediction of the seepage water quality? What are these limitations? **IR**

10. What monitoring will be completed during operations to calibrate or validate this prediction for closure? For example, will there be any boreholes installed within the pile to collect water or measure ground temperatures? Will this monitoring program be presented in the WRSA design report? **IR**

11. What contingencies are available to Arctic should post-closure seepage quality persist beyond 10 years? **IR**

12. Can Arctic describe how the cover may influence the post-closure seepage water quality and quantity? What information/evidence does Arctic have to demonstrate that a thermal cover will be effective in this case? **IR**

13. Can Arctic provide more details on how seepage will be collected? Will the sumps be included in the WRSA Design Report? why or why not? Will the sumps be lined to contain seepage and prevent it from flowing out of the sumps? If not, how will Arctic mitigate seepage away from the sumps? What are the plans to ensure all drainage from the WRSA is captured in the sumps for management in the KPSF? Will the WRSA Design Report include the seepage monitoring collection system and monitoring protocols, including shallow groundwater monitoring or will these be provided in a separate report? **IR**

14. During these License proceedings will Arctic be providing predictions of runoff and seepage water quality (including post-closure) – similar to what would be required for an Environmental Assessment – that will replace the Jay Project predictions? What specific predictions will replace "Jay Project – Water License Water Quality Model Updates – Report# 1419751 – June 2016"? **IR**

15. Appendix D of the Project Description for the PLP applies the pre-underground Misery Pit sump WQ to represent PAG contact water from the

entire Point Lake site including PAG WRSA and pit walls. Given that the Misery deposit is composed of 42% metasediments, we do not feel that this data is representative of the contact water at Point Lake which consists of >92% PAG rock in the WRSA and the open pit. Will kinetic testwork be initiated so that applicable water quality estimates for the Point Lake Project can be generated? **IR**

16. The kinetic test work completed for metasediments indicates that the material can go acid in a short period of time (as little as 38 and 51 weeks). Given that the Point Lake metasediments have a greater PAG potential (Point Lake NP/AP as low as 0.3), why does Arctic believe that the PLP metasediments will not become acidic in the 4-5 years that the waste rock will be exposed to weathering? **IR**

17. What information will be used to assess whether the proposed 1 m thick granite layer for the base and for the cover system will be of sufficient thickness to promote permafrost aggradation given the potential for the material in the pile to become acidic and generate heat at higher rates than other rock at Ekati? **IR**

18. The Project Description does not provide an estimate of heavy haul and light traffic anticipated during the construction and operation of the Point Lake Project. Could Arctic Diamond provide their projection of traffic levels located on:

• The Point Lake to Lynx Laydown haul road; and

• The Misery haul road (including MUG ore traffic). **IR**

19. Issue: TG does not find the trail density blocks (map with red, yellow, green, blue) very informative - trail blocks need to be connected, as caribou need to migrate (either dispersed or concentrated) across the landscape as a fundamental part of being Ekwǫ̀.
Request: Can Arctic provide a map of connected trails across the tataa, in addition to cell density of trails? Can Arctic map that together with all available collar data for all years on the tata? Can Arctic provide a topographic map (detailed DEM) of the area? Please also provide as shape files if possible. **IR**

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