



November 20, 2020

Yukon Water Board
Suite 106, 419 Range Road
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Submitted via email: ywb@yukonwaterboard.ca

Attn: Yukon Water Board

Re: Public Interest Hearing Regarding Placer Mining In Wetlands
Information Request (PM20-018-4.21)

To Whom It May Concern:

The Yukon Water Board has issued an Information Request (PM20-018-4.21) to Yukon Conservation Society (YCS) following up on its presentation to the Board on October 27th 2020.

Below please find the YCS responses, in *italics*.

1. What is the appropriate temporal and spatial scope for baseline wetland information required for an application for placer mining in wetlands?

ANS: Ideally, baseline information should be gathered prior to any disturbance, concurrent with initial staking. If this is not possible, for example where claims are bought instead of staked or where class 1 exploration has already taken place then baseline information should be gathered prior to advanced exploration.

Spatially, the entire claim block must be assessed. The baseline information should consider the hydrology of areas that might be feeding the wetland, and also include potential down stream effects. It is reasonable to assume that disturbing a wetland will affect contiguous wetlands, therefore they should be assessed.

2. Given the status of wetland mapping in Yukon:



a. What wetland mapping information should be required as part of an application for a water licence?

ANS: If detailed and peer reviewed mapping, such as that compiled in the Indian River watershed by McKenna is available, this should be sufficient. It is important that the maps make it clear to regulators, intervenors and assessors which wetlands will be directly and indirectly affected.

In watersheds that do not have this quality of wetlands mapping, such maps must be compiled by a qualified and independent person.

b. Who should provide that information and when?

ANS: The beneficiaries of disturbing the wetland, or their agent should be responsible for ensuring this information is provided, at the YESAB stage (should a YESAB application be required). While it is recognized by YCS that YESAB tends not to wade too deeply into water matters, by having this information available prior to the application being received by the YWB it permits all concerned parties advanced notice that wetland disturbance is part of a project. In the event of a water licence renewal, the information should be submitted as part of the renewal documentation.

3. What post-reclamation monitoring is required to verify that wetland reclamation techniques are effective?

ANS: Working under the assumption that the reclamation techniques are part of an approved wetlands reclamation plan, Yukon and First Nation Natural Resource Officers (NROs) should visit the site annually for at least 5 years until the wetland has been assessed as fully reclaimed. The NROs must have had training in assessing the effectiveness of wetlands reclamation techniques. The NROs must be familiar with the specific reclamation plan and should file a detailed annual report on progress of reclamation on Waterline.

The NROs must be enabled to require corrective action if reclamation progress is not consistent with the Plan.

Who is responsible for verification?

ANS: Verification should be the responsibility of the Regulator.

4. What requirements in a licence or mining land use authorization would improve effectiveness of wetland reclamation and that reclamation objectives are achieved post-mining?

ANS: A challenge in effective reclamation is in compliance; currently reclamation not completed prior to the end of the term of the licence does not get done. This challenge is greater with wetlands reclamation given the additional complexity of wetlands reclamation compared to upland reclamation. In addition, it takes considerably longer to be sure that wetlands are properly reclaimed. Reclamation plans, therefore, need to show how reclamation will be completed before



the end of the licence term. Wetlands that take longer than 10 years (the term of typical Water Licenses) to reclaim should not be disturbed.

Given the cost of effective reclamation and given the unknown success of regular reclamation in the Placer industry, it is reasonable and prudent to require security to ensure the proponent has adequate resources and incentive to perform the reclamation. Performance bonds are accepted practice in Quartz mining; Placer mining should operate under equivalent conditions.

5. Because techniques of placer mining reclamation of wetlands transform bog and fen wetland types to marsh and shallow water bodies: a. How does this transformation on a claim-by-claim basis affect the watershed-scale wetland ecosystem?

ANS: Answering this question is not simple and will be different in different watersheds. When faced with a similar question around Aquatic Health, the Fish Habitat Management System for Placer Mining (FHMSFPM) adopted a protocol (the CABIN¹ protocol) that estimated the abundance and distribution of benthic invertebrates that SHOULD be present in a stream, based on a set of metrics such as watershed size, morphology, aspect etc. Developing a similar system for general watershed ecosystem health to be used to assess the effects of placer disturbance of wetlands seems to be a reasonable approach.

b. Are shallow water bodies and marsh wetland types over-represented because of reclamation and what is the cumulative effect?

ANS: Yes. Essentially the ONLY types of wetlands left in the wake of placer mining are ponds; this is illustrated very clearly in the Klondike valley near Dawson. Miners can create marshes relatively easily, and with a little encouragement, often do. Assessing the cumulative effect (CE) of this ecosystem transformation is complex, but in general terms the effect will be changes in the abundance and distribution of wetland dependent species. In the North Yukon Land Use Plan, CE of surface disturbance are measured by their impact on Caribou, and varying thresholds of disturbance are applied to different Land Management Units. While Caribou may not always be a good CE indicator species for wetlands, other animals, birds and plants will be. A robust CE system for wetlands will probably require thresholds of disturbance affecting a suite of plants, birds and animals.

c. How does the transformation affect wildlife?

¹The Canadian Aquatic Biomonitoring Network, CABIN, is an aquatic biomonitoring program for assessing the health of fresh water ecosystems in Canada. Benthic macroinvertebrates are collected at a site location and their counts are used as an indicator of the health of that water body. <https://open.canada.ca/data/en/dataset/13564ca4-e330-40a5-9521-bfb1be767147>



ANS: This depends on the species of wildlife. Caribou, for example, require undisturbed moss and lichen, while moose prefer early stage shrub growth, so caribou will be negatively affected by the transformation of bog fen complexes into ponds, marshes and uplands, while moose may do well- at least at first.

6. Can the utilization, development and conservation of wetlands be achieved using a management approach similar to the DFO watershed authorization model?

ANS: Yes, but only if carefully designed and adequately resourced and properly implemented. It must be appreciated that the FHMSFPM only works well if baseline conditions are well understood, that adaptive management requires increased monitoring and regular performance assessments. YCS is of the opinion that this will likely be the best approach both because operators and regulators are familiar with this system, and because it is scientifically defensible and adaptable.

7. How does the cost of reclamation for a placer operation in non-wetland areas compare to the cost of reclamation of wetlands? a. What is the economic impact of reducing mining in wetlands?

ANS: YCS is not an expert in the pricing of reclamation, however, given the complexity of reclaiming wetlands compared to uplands, it is reasonable to assume the cost will be higher. Similarly, it is reasonable to assume that the economic impact on placer mining will be negative. An assessment of ecosystem services of a wetland complex might demonstrate that the economic impact of mining will be net negative- i.e. that the negative effects of the changes to the environment outweigh the economic benefit to the miner.

b. If security is required for a placer undertaking, what information is required to calculate it for reclamation of wetlands?

ANS: The number of person and machine hours to design and implement the accepted reclamation plan and the cost of post reclamation monitoring.

8. Can the use of adaptive management plans mitigate adverse effects to wetlands from placer mining?

ANS: Not really. Adaptive management does not mitigate effects that have already taken place, but adequately resourced and applied adaptive management can prevent future damage.

9. Indigenous Knowledge (IK) was raised as a source of information to help understand landscape connectivity. Please provide information on how the Board could incorporate IK on an application-by-application basis and when IK should be provided.



ANS: Because IK belongs to the holder of the knowledge, or sometimes, their First Nation, using IK will have to be done by consulting and working with the First Nation or knowledge holder. IK should be sought at the start of the process, ideally when the claims are staked.

If clarification of, or expansion on any of these points is required, please do not hesitate to ask.

Regards,

A handwritten signature in black ink that reads "Sebastian Jones". The signature is written in a cursive, flowing style.

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