KIA Technical Review of Agnico Eagle's

Application to Authorize the Release of Water from Containment Pond 1 (CP1) to Meliadine Lake

Technical Presentation

Teleconference

KivIA Role

- KivIA's mission is:
  - to represent, in a fair and democratic manner, Inuit of the Kivalliq in the development, protection, administration and advancement of their rights and benefits; and
  - to promote economic, social, political and cultural well-being.

- KivIA's goals include:
  - to manage Inuit Owned Land and provide information to and consult with beneficiaries on land use, and
  - to protect wildlife and the environment, preserving traditional uses.

- As a key stakeholder in the licensing process before the NWB, KivIA participates fully in the review process and identifies concerns and issues relevant to the Kivalliq Region.
- The principles of transparency and accountability are fundamental to Inuit as a unique people with strong connections to our culture, traditions and honor for our elders.

Overall Position

Public Concern

- KIA does not support discharge to Meliadine Lake of water from CP1 at an increased TDS limit, even on a temporary basis
- Rankinmiut are concerned about the state of Meliadine Lake. A change in the effluent quality criterion is likely to degrade the community's perception of water and fish in the lake
  - The lake and river system provides habitat for key sources of country food for the community, including arctic charr and lake trout
  - Rankinmiut rely on the lake for drinking water on the land, particularly Elders
- Agnico Eagle states that *"TDS specifically has not been identified by the community as an issue in past consultations or regulatory processes"*. Total dissolved solids is a technical concept and efforts must be made to ensure the community understands the impact on the water. For example, with reference to changes to taste, feel, and color of the water.
- We assert that it is the proponent's responsibility to adequately convey details of their application so the community may voice their concerns.
  - The community may not have been in a position to raise TDS during previous discussions with the proponent.

Emergency?

- KIA disagrees that Agnico Eagle's requested amendment should be processed on an emergency basis without a public hearing.
- Interveners and the public have a right to notice and a transparent public hearing process under the *Nunavut Act* (Article 13) and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (sections 52 & 53).
- Processing of applications on an emergency basis should be rare and reserved for serious environmental circumstances that outweigh the public's *right* to notice and a hearing.
  - NWB Guide 5 confirms that proponents must plan properly and submit applications with sufficient time for the NWB process – late filing is not an emergency basis. Also, any emergency amendment must be limited only to those actions necessary to address the emergency.
- Agnico Eagle was aware of the TDS issue as early as October 2019
- Agnico Eagle has not provided information to explain why it did not either implement management and mitigation measures or submit its application in sufficient time for the NWB process.
- KIA continues to have technical concerns with the application.

Public Engagement and COVID-19

- Given the potential for public concern, KivIA is worried that the timeline and emergency process requested by Agnico Eagle do not give the community a chance to engage on this issue.
- Agnico Eagle filed its application on March 24, 2020, at least 5 months after it became aware of the TDS issue, and is asking for an approval by May 1, 2020. This timeline does not provide an opportunity for Rankinmiut to give input.
- The COVID-19 crisis has both limited and stretched KivIA's resources, and has made it particularly difficult for KivIA and the public to consider Agnico Eagle's proposed emergency process, its proposal to release the saline water into Meliadine Lake, and alternatives.
- Note that we agree with Agnico Eagle's assessment that some dewatering of CP1 must occur in May to prevent impacts to the CP1 Dike.
- Agnico Eagle has not satisfied our technical consultants that it cannot manage the saline water in another way other than releasing it into Meliadine Lake, and has not explained why they need to remove all of the water from CP1 to avoid the risk the dike will fail.

Technical Comments

KIA Raised 7 Technical Comments

- KIA raised seven technical comments with the application.
- While we have provided technical comments, we reassert that KIA is not in support of the proposal to discharge water above the current TDS effluent quality criterion into Meliadine Lake
- If there is an emergency basis, KIA prefers an alternative to any discharge of contact water with elevated TDS to Meliadine Lake and requests Agnico Eagle provide alternative approaches
- KIA also recognizes the need to prevent damage to infrastructure
  - KIA may accept limited discharges to maintain water levels in CP1 below 66.6 masl, but not complete dewatering at elevated TDS concentrations due to public concern

Risk to CP1 Dike

- Agnico Eagle did not provide evidence to support their claim that, there would be a *"significant risk"* to the CP1 dike without discharging water from CP1 starting in May 2020
- Agnico Eagle has now provided a geotechnical report indicating that water levels above 66.6 masl would result in flow over the crest of the CP-1 dike and/or around the south end of the dike
- This evidence supports that infrastructure failure during freshet is possible unless water within CP1 is drawn down starting in May 2020
- Agnico Eagle's evidence does not however support full dewatering of CP1 as requested in the amendment application
- Further information required:

  Additional information is required to support Agnico Eagle's request to fully dewater CP1 while effluent is above the current TDS effluent quality criterion of 1,400 mg/L

Source of High TDS water in CP1

- Agnico Eagle had not provided acceptable rationale as to why TDS has become elevated in CP1
  - The application stated elevated TDS in CP1 was a result of excess precipitation in 2019
- Agnico Eagle's response package did clarify the source of the salinity
- We note that Agnico Eagle has indicated that discharge of saline water to Melvin Bay via pipeline may be a long term solution
- KIA is unable to evaluate if this is a viable solution without an understanding of the current source of TDS in CP1
- Further information required:

  Details of the current source of TDS in CP1

Alternative Management Strategies

- KIA requested a discussion and analysis of potential alternatives to the Meliadine Lake discharges
- Agnico Eagle summarized various actions and mitigations that were considered, but asserted that all options needed to be submitted to the NPC and NIRB and were therefore not viable
- The evidence provided does not support this conclusion
- KIA highlights:
  - upgrades to the Reverse Osmosis system to improve efficiency as a potential solution may be within the scope of the project certificate and water licence
  - Overflow capacity in the P2/P3 containment area and the channel and sump downstream of CP1 may be used to further reduce the volume requiring discharge
- Further information required:

  KIA requires additional justification as to why alternative management strategies are not viable

Characterization of High TDS Water in CP1

- A full chemical analysis of water quality in CP1 was not provided in the application. KIA was concerned that a layer of higher salinity may be present at the bottom of CP1
- KIA requested a full chemical analysis of CP1 including water column profiles to provide confidence that the water quality in CP1 is fully characterized
- Agnico Eagle provided data from MEL-12 and a single corresponding sample from CP1 in October 2019 suggesting that the datapoints are comparable and MEL-12 data is representative of conditions in CP1
  - This is an in sufficient data set to justify that conclusion
- Further information required:

  A full chemical analysis of water quality in CP1 is still required to support Agnico Eagle's claim that water can be discharged to Meliadine Lake at a MAEC of 3,500 mg/L TDS

Dilution and Interim TDS Target at Edge of Mixing Zone

- Agnico Eagle has asserted that water quality at the edge of the mixing zone will not result in chronic toxicity
- This relies on dilution of the effluent to meet a 1,000 mg/L TDS target at the edge of the mixing zone
- A 2018 plume delineation study was provided as evidence
  - This study used lower TDS effluent, which mixes more easily with the receiving water than the effluent associated with the application
- We are not convinced that effluent discharged at a 3,500 mg/L TDS MAEC will achieve the same dilution by the edge of the mixing zone
  - This increases the risk of deleterious effects in the receiving environment
- Further information required:

  We request hydrodynamic modelling to demonstrate the behavior of the plume using 3,500 mg/L and 4,000 mg/L TDS as an inputs to support the predicted dilution factor needed to prevent deleterious effects

  We also request a specified maximum discharge rate

Chronic Toxicity Concerns

- A relatively limited dataset was provided for tests using concentrations reflective of the 1,000 mg/L interim TDS target intended for application at the edge of the mixing zone
- In Agnico Eagle's dataset, sublethal effects were observed at around 1,000 mg/L TDS:
  - 50% of tests on *Ceriodaphnia dubia* (1/2) experienced reproductive effects
  - 20% of tests on *Lemna minor (*1/5) had reduced biomass
- Chronic toxicity tests were also not conducted on *Daphnia magna*, a particularly sensitive species to chloride
  - Chloride is the primary component of TDS in Meliadine effluent
  - Tests on sensitive species are needed to evaluate the potential for chronic effects in the receiving environment

Chronic Toxicity Concerns

- Further information required:

  We request chronic toxicity tests conducted on *Daphnia magna* using Meliadine effluent to evaluate potential environmental effects at the edge of the mixing zone

- To further mitigate the potential of chronic toxicity at the edge of the mixing zone, we also request:
  - A lower interim TDS target and/or a chloride based interim target for the edge of the mixing zone to prevent chronic toxicity in Meliadine Lake
  - A maximum grab sample effluent concentration associated with the currently proposed 3,500 mg/L TDS MAEC

Robust Effluent Monitoring for 2020

- KIA requested robust monitoring of the effluent and receiving environment
  - Plume delineation
  - Water quality monitoring
  - Toxicity testing
- We are now satisfied with the proposed plume delineation study
- We request a more robust water quality monitoring program
  - Monthly sampling in the mid and far field
- We request *Daphnia magna* be added to the suite of chronic toxicity test species to evaluate effects at the edge of the mixing zone
- We requested the formation of a technical working group to evaluate discharges from CP1 and participate in adaptive management as necessary
  - Participants should include KIA and other key stakeholders

Questions