



Tłıchǫ Government

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May 11, 2023

Mason Mantla, Chair
Wek'èezhì Land and Water Board
#1-4905 48th Street
Yellowknife, NT
X1A 3S3

Re: Tłıchǫ Government's Intervention for the Ekati Mine Water Licence Renewal Public Hearing

Dear Mr. Mantla,

Please find Tłıchǫ Government's intervention on the Ekati Mine Water Licence Renewal application that is going to a public hearing led by the Wek'èezhì Land and Water Board (WLWB).

We have participated in the proceeding at every opportunity including Arctic's engagement meetings and all WLWB reviews and sessions. **Our recommendations are in bold italics throughout the document below.**

In Tłıchǫ Unity,

Tammy Steinwand-Deschambeault, Director
Department of Culture & Lands Protection
Tłıchǫ Government

1 INTRODUCTION

Arctic Canadian Diamond Company's ("Arctic") water licence authorizes water uses and waste deposit associated with mining and diamond processing at the Ekati Mine site. The licence expires in October 2023. In November 2022, Arctic applied to renew its water licence. Arctic proposed some changes to the licence related to freshwater use, waste rock storage area seepage, the monitoring program, dams and engineered structures, and more. Arctic also identified which of the Board's modern standard water licence conditions the company believes the Board should add to the water licence.

Various environmental and regulatory issues of interest to the Tłıchǫ Government (TG) have been discussed during this licence renewal proceeding. Arctic has adopted several reviewer recommendations along the way. While some important issues remain, we believe the Board can address them using licence conditions and regulatory approaches commonly used by the WLWB. Our recommendations on outstanding issues are below.

2 WASTE ROCK STORAGE AREA SEEPAGE

2.1 The context

The Ekati mine has many waste rock storage areas at the site. Snow melt and rain that passes over or through these piles can pick up metals, nutrients, and other chemicals. This seepage can then drain onto the land and may make its way to water bodies near the piles.

Some guiding principles for the Tłıchǫ Government related to this seepage are:

- As much as possible, water quality in lakes, rivers, and other water bodies should not be degraded.
- Uses of water by animals, fish, and people should always be protected.
- To protect water uses, permanent mixing zones for seepage should be avoided.
- Temporary operational mixing zones may be acceptable but should be considered carefully on a case-by-case basis.

2.2 Arctic's proposal for managing and regulating seepage

Seepage from some of the waste rock storage areas at the mine has chemical concentrations above the effluent quality criteria (the legal licence limits). Effluent quality criteria in the Ekati mine licence are set to protect aquatic life. Arctic believes some of the seepage cannot reach a water body and therefore should not have to meet effluent quality criteria. To resolve this, Arctic proposes a new requirement for a Waste Rock Storage Area (WRSA) Seepage Evaluation Framework. Under the framework, Arctic proposes that waste rock seepage that goes onto the land but is not expected to reach a water body should not have to meet effluent quality criteria. Instead, this seepage would have to meet terrestrial quality objectives to protect wildlife. Waste rock seepage that reaches or is likely to reach a water body would have to meet effluent quality criteria.

2.3 TG recommendations for managing and regulating seepage

In principle, we believe Arctic's proposed approach is reasonable:

- Seepage that enters a water body clearly needs to meet effluent quality criteria to protect aquatic life.
- If Arctic can demonstrate that seepage will not reach a water body, even indirectly, in quantities and concentrations that would be detrimental to water uses, then we would agree that the seepage should not have to meet the same effluent quality criteria.

In any case, **we believe all seepage needs to be regulated by the Board**, for the reasons below.

1. If seepage 'may' directly or indirectly enter a water body then it needs to be regulated.

"deposit of waste means a deposit of waste in any waters in the Mackenzie Valley or in any other place under conditions in which the waste, or any other waste that results from the deposit of that waste, *may enter any waters* in the Mackenzie Valley." (emphasis added)

Our view is that seepage from waste rock storage areas at Ekati Mine certainly may interact with ground or surface water in ways that result in some or all of the waste eventually making its way into other waters in the area, and, therefore, Arctic needs to manage it and the Board needs to regulate it. The way seepage is managed/regulated can depend on the specific context. It is reasonable for water quality requirements to vary based on whether or how likely it is that seepage will enter a water body. This is consistent with Board policy on protecting 'uses' of water and with the TG principles above.

2. Even if Arctic could demonstrate that seepage will never reach a water body, or will never reach a water body in quantities or concentrations that would be detrimental to water uses, the Board should still regulate the seepage to protect the environment - including wildlife. It would be inconsistent with the Tłı̄ch̄ Agreement, the MVRMA, and general regulatory best practices to allow unregulated seepage ponds or streams in the area surrounding the mine.

Recommendation #1: We recommend that all seepage be regulated by the Board, with seepage quality requirements based on whether or how likely seepage is to enter a water body.

Recommendation #2: The seepage evaluation framework should include early warnings to reduce the likelihood that seepage will exceed terrestrial and aquatic life thresholds. We are pleased that Arctic has agreed to this and we appreciate Arctic's proposal to have licence conditions that will require action levels to be set.¹

The TG's views on regulating seepage when the mine closes may be different than during operations. We will provide input on regulating seepage during closure through our review of the closure and reclamation plan or future water licence proceedings.

¹ See Arctic's response to information request #6.

2.4 Questions about the applicability of existing effluent quality criteria

During the technical session, the Tłjchq Government asked questions about effluent quality criteria for seepage, to better understand issues related to potential mixing zones. We anticipated that Arctic's response to the information request about whether there should be new effluent quality criteria for seepage (IR#7) would address these questions. Arctic responded that no new effluent quality criteria were needed, therefore we have no more information about this issue than we had during the technical session.

It is our understanding that effluent quality criteria for the Sable and Misery developments were calculated using a dilution factor. This means exceedances of water quality objectives are authorized, and in effect, there are authorized mixing zones for these EQC. It is not clear to us that these specific EQC and mixing zones were considered and authorized for waste rock storage area seepage. We hope to better understand this issue in the remainder of the proceeding.

3 WATER USE

Arctic has requested significant increases to water uses and proposed new source lakes (Upper Exeter Lake, Ursula Lake, Lac du Sauvage and Lac de Gras). Arctic explained there is a significant operational risk if they can't use more freshwater at the site. The water would be for back-flooding pits as part of progressive reclamation, and for operational uses. These operational uses include reclaim water for the diamond processing plant, keeping water levels high enough during the underwater remote mining trial, dust suppression on haul roads, and fisheries mitigations in Connor Lake.

It is our understanding that Arctic has not used freshwater for these operational uses to date, and we commend them for this. We note that the Sable, Pigeon, Beartooth Environmental Assessment Report (2000) says: "No fresh water is used in the Process Plant except for potable purposes. BHP's policy of continuous performance improvement at EKATI ensures that water issues are assessed and prioritized with regard to maintaining the quality of surface waters, maximizing water re-use and addressing other water-related matters."² Recycling wastewater (such as from the Long Lake Containment Facility or the open pits) instead of using freshwater avoids the potential impacts of withdrawing water from lakes. It can also reduce the volume of wastewater to manage at the site.

Arctic explained that changes at the mine mean there is not as much water in the Long Lake Containment Facility for operational uses. This is because processed kimberlite (which contains a lot of water) is now being disposed in pits instead of at the Long Lake Containment Facility. It's not clear whether other wastewater streams may be useable for operations, which would reduce the amount of freshwater needed.

Importantly, Arctic has combined the amount of water for pit flooding and the amount for operational uses into a single authorized volume for each lake. This means it may be very difficult to know whether Arctic is minimizing the use of freshwater for operational uses. We would like to be confident that Arctic takes advantage of all opportunities to recycle wastewater streams. The decision about what waste streams are viable for operational use can involve logistical, engineering, economic and other factors. The

² Page 1-11

Board should have some oversight over Arctic's efforts to minimize freshwater use for operational purposes.

Recommendation #3: We recommend that the Board have some oversight of Arctic's efforts to minimize operational uses of freshwater. For example, Arctic could submit water use minimization plans in the Drawdown Plan. This could include an evaluation of the logistical, engineering, economic, and other factors related to potential sources of reclaimed water.

4 WATER LICENCE TERM

Arctic has asked the Board to issue the licence for ten years, meaning the licence would expire in 2033. Mining is currently scheduled until 2029, so Arctic has asked for a licence that extends four years beyond mining. The licence that is active when mining ends will need to have conditions for both operations and closure and reclamation. Arctic has not proposed any specific conditions for closure and reclamation.

It is important to carefully consider what new conditions are needed related to closure and reclamation, and this has not happened during this proceeding. To properly consider what conditions may be necessary, the Ekati mine closure and reclamation plan should be in a final or near-final state.

For these reasons we do not support a licence term that will significantly overlap the closure period. On the other hand, there may be schedule delays at the mine that mean currently approved mining activities go beyond 2029. Arctic may need some "cushion" to prevent an unnecessary licence renewal process. We also note that Arctic recently extended the term of the existing licence through what from TG perspective was a straightforward WLWB regulatory process.

Recommendation #4: We recommend a licence term of seven or eight years.

5 DAMS

During the proceeding, there have been questions about whether some structures at the Ekati site meet the definition of dam and what the dam class is for each dam at the site. This information is necessary to determine the appropriate level of Board oversight. To resolve this, the Board requested "detailed technical rationale for the consequence classification" of these the structures at the Ekati Mine (Information Request #4). Arctic responded that there was insufficient time for this, and that they will submit the information in the 2023 Geotechnical Inspection Report. The main uncertainties are related to Dike D of the Long Lake Containment Facility and structures at the Old Camp.

If there is any question about the status of these structures, Arctic should conduct engagement before it determines whether they are dams and what the consequences of failure are. Engagement will be necessary because dams that would not normally meet the CDA definition of a dam can still be considered a dam if the consequences of failure would be unacceptable to the public. This determination may therefore need input from the public. Similarly, the dam class analysis must include an evaluation of environmental and cultural consequences, which requires an Indigenous perspective.

Recommendation #5: Arctic should engage Tłı̨ch̓ Government related to Dike D and the Old Camp dam.

Arctic has not proposed to adopt the Board's standard condition requiring an independent tailings review board for the Ekati tailings facility (also called the Long Lake Containment Facility or LLCF). In the last decade or so, independent tailings review boards have become more common for tailings facilities in Canada. A review board is a group of independent experts that provide input during the design, construction, and operation of a tailings facility. This can reduce the risk of a tailings dam failure. Tailings dam failures around the world have had very serious consequences on people, animals, the land, and the water.

Whether or not an independent review board is needed for the Ekati tailings facility should depend at least in part on the risks of failure. We had expected that Arctic's response to Information Request #4 would shed light on the likelihood and consequences of failures of the Ekati tailings dams and dikes. The information request was for a detailed technical rationale for the consequence classification for all containment structures/dykes within the tailings facility. Arctic did not provide this information, explaining that it was not feasible to provide this information in the time provided. Arctic said it will submit the information in the 2023 Geotechnical Inspection Report.

To confirm whether the Ekati mine should have an independent tailings review board, more information is needed.

Recommendation #6: We recommend that the Board obtain additional information to determine whether an independent review panel is needed for the Long Lake Containment Facility.

6 OTHER ISSUES

6.1 Underground Remote Mining

Ekati has proposed licence amendments to address the underground remote mining trial in the Lynx pit. The trial will help inform Arctic's future decisions about mining other pits using this technology, to increase the mine life. In general, we believe the existing conditions are a good foundation for regulating the trial, along with Arctic's proposed revisions and other improvements that may emerge during the remainder of this proceeding.

Ekati has proposed a water quality monitoring program before, during, and after the underground remote mining trial, and a summary monitoring report after the trial. Arctic has proposed analysis of many parameters but not petroleum hydrocarbons. Petroleum-based hydraulic oils will be used in submerged equipment in the pit and there could be leaks and spills. Although Arctic has selected a biodegradable oil, it should not be assumed that this oil will completely or quickly biodegrade. Understanding whether petroleum hydrocarbons present a water quality risk would help to evaluate future larger-scale underground remote mining.

Recommendation #7: Arctic should be required to monitor Lynx pit water for petroleum hydrocarbons.

6.2 Licence Conditions for Closure and Reclamation

Arctic has agreed to incorporate some but not all of the Board's standard conditions related to closure and reclamation. We support many of the changes proposed by Arctic and recommend two additional conditions.

- Arctic objected to the standard condition requiring a component-specific closure plan for parts of the mine that can be closed early (progressive reclamation).³ Arctic explained that they believe the condition may interfere with progressive reclamation. It's not clear that this is the case. We note that in the Board's rationale for this standard condition, the Board explains that component-specific reclamation plan would be interim in most cases, "because it may not be possible for all elements of a final overall CRP to be included (e.g., final Closure Criteria)." Therefore, we don't see how this requirement would interfere with progressive reclamation. A component-specific closure plan (for example for a waste rock storage area or pit that can be closed early) allows parties a formal means of input on the plan, ensures the Board has proper oversight, and prevents Arctic from carrying out progressive reclamation work that has not had enough engagement and Board review and approval.
- Arctic does not support the standard condition requiring a Reclamation Research Report every three years.⁴ The report would be to provide detailed research results, analysis, interpretation, conclusions, and recommendations. It's not clear that Arctic has been advancing its reclamation research at a pace that will support progressive reclamation and final closure in 2029. It is very important that scientific and traditional knowledge-based research stay on track. The every-three-year report would be a good tool for the Board and all parties to better understand and participate in reclamation research.

Recommendation #8: The Tłı̨chǫ Government recommends the Board include the standard licence conditions requiring a component-specific closure plan for progressive reclamation and a Reclamation Research Report.

We will provide additional input on licence conditions in our review of the draft licence.

³ Standard Condition Part 1.4 of MVLWB Standard Water Licence Conditions and Schedules Template Version 2.0

⁴ Standard Condition Part 1.2 of MVLWB Standard Water Licence Conditions and Schedules Template Version 2.0