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May 20, 2025

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

Re: Tłı̨chǫ Government Intervention for Diavik Water Licence Renewal

This is the Tłı̨chǫ Government's intervention for the Diavik Water Licence Renewal public hearing being held by the Wek'èezhìı Land and Water Board (WLWB). We have participated in the review of the Diavik Water Licence Renewal at every opportunity including all WLWB reviews and sessions. We will continue to do so for the remainder of this proceeding.

Diavik's Water Licence expires on December 31, 2025. We expect that the renewed Water Licence will cover up to the end of mining operations in March 2026, several years of active closure, and the first years of monitoring and maintenance after closure.

This Water Licence Renewal marks a major milestone in the history of mining in Wek'èezhìı. The Diavik Mine is the first to open and close in Wek'èezhìı under the co-management system established by the Mackenzie Valley Resource Management Act (MVRMA). The WLWB was created with the signing of the Tłı̨chǫ Agreement in 2005. The WLWB took responsibility for issuing and administering Water Licences for the Diavik Mine in 2006. The Tłı̨chǫ Government has consistently played an active role in the WLWB's licensing proceedings and public reviews of submissions required by the Water Licence. Regulation of the Diavik Mine has largely unfolded as envisioned in the Tłı̨chǫ Agreement, under a co-management system that integrates Traditional Knowledge and Indigenous values and perspectives into resource management decisions.

We hope that, under the renewed Water Licence, Diavik will successfully close and reclaim the mine in a way that leaves behind a positive legacy—one that helps to reverse the serious, long-standing, negative impacts of abandoned mines in Mǫwhì Gogha Dè Nı̨ı̨tłèè. And collectively, we need to continue improving and learning about how best to carry out reclamation and monitoring, to keep the environment as clean as possible.

In Tłı̨chǫ Unity,

Tammy Steinwand-Deschambeault
Director of Culture & Lands Protection
Tłı̨chǫ Government

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1 INTRODUCTION

The Diavik Mine is expected to start closing in early 2026, after more than 22 years of operations. Diavik's Water Licence, which authorizes water use and the deposit of waste at the mine, will expire on December 31, 2025. Diavik has applied to renew the Water Licence for ten more years, to cover the end of operations, active closure, and a few years after active closure. The purpose of this intervention is to make recommendations to the Wek'èezhìı Land and Water Board (WLWB) for the renewed Water Licence.

One of the main issues in this proceeding relates to post-closure water quality from seepage and runoff after closure. This topic has already been the topic of two Water Licence amendments. Our recommendations on this topic stem directly from our previous input to the Board, mainly our April 25, 2023 intervention for Diavik's Water Licence amendment. The evidence and argument in that intervention remain relevant in the current proceeding. Therefore, rather than repeat much of that content here, we have appended it to this intervention (Attachment 1).

A summary of our recommended approach to regulating seepage and runoff is as follows:

- Set effluent quality criteria in the renewed Licence and include Licence conditions that would allow the Board to authorize pond breaches in the future.
- Report on the monitoring of the two ponds that have already been breached and engage with parties.
- Use the results to update and refine mixing zone sizes, determine whether permanent mixing zones are acceptable, and set closure criteria.
- Before walking away, update mixing zone information again based on post-closure monitoring data.

More detail and our reasons for this recommended approach are described below.

2 POST-CLOSURE SEEPAGE AND RUNOFF

2.1 Authorizing Pond Breaches

During operations, surface runoff and seepage from the site is collected in 11 wastewater collection ponds, pumped to the north inlet, and treated before being discharged into Lac de Gras. Seepage and runoff come from waste rock piles, processed kimberlite (tailings), roads, laydown pads, and other disturbed areas.

After mining stops, Diavik would like to breach the wastewater collection ponds so that surface runoff and seepage can drain directly into Lac de Gras, and water treatment can stop. Diavik would first sample the water and drain it to the north inlet for treatment.

If ponds are breached, Diavik would like to have mixing zones at each discharge point. Mixing zones are areas in the lake, near the shore, where water quality benchmarks for chronic (non-lethal) effects and drinking water do not have to be met.

Diavik previously requested Water Licence amendments to allow this. After reviewing all of the information from those proceedings, the Board allowed Diavik to breach only 2 of the 11 ponds. The purpose of these first breaches is to allow Diavik to closely monitor runoff, seepage, and Lac de Gras water quality. The Board required Diavik to conduct this intensive monitoring as a Specific Effects Study. This will help to verify Diavik's predicted mixing conditions and water quality. In our closing argument for that proceeding, we said:

> "Once the initial, more intensive monitoring is done, we would like DDMI to report on the results and analyze the data. At that time, DDMI should explain its conclusions about how well DDMI's model predicts water quality and should estimate actual mixing zone sizes, especially for drinking water. Depending on the results of this analysis and associated engagement, we would then hope to be able to decide on whether post-closure mixing zones or a post-closure water treatment plant is preferred. This will lead to a TG recommendation on closure criteria."

As we noted then "..it should not be assumed that mixing zones around the island forever are better than a perpetual treatment plant." Additional engagement will be necessary after the monitoring results are reported to allow Tłı̨chǫ Elders and the Tłı̨chǫ Government an opportunity to make a final decision on whether it is better to have 11 permanent mixing zones in Lac de Gras or a permanent water treatment plant.

Diavik breached the first two ponds in late 2024. Diavik will begin monitoring the new discharge areas in Lac de Gras this summer. Therefore, as expected, the Specific Effects Study results will not be available in time for this Water Licence renewal proceeding.

Despite this, Diavik now proposes to set licensed closure criteria to breach the remainder of the ponds without the results of the Specific Effects Study and additional engagement.

Recommendation 1: The Water Licence should not authorize permanent post-closure mixing zones or finalize closure criteria for Lac de Gras until Diavik reports the results of the Specific Effects Study and completes additional engagement with Tłı̨chǫ Government. The Licence should, however, include conditions to allow breaching in the future, if approved by the Board through the Final CRP.

2.2 Size of Mixing Zones

The *LWB/GNWT Guidelines for Effluent Mixing Zones* (2023) say mixing zones should have a maximum radius of 100 meters and "The size of the mixing zone should be minimized to the extent practical." The Guidelines appear to focus on operations and don't explicitly address closure. Minimizing mixing zones at Diavik is even more important during closure, to support restoration of cultural uses.

Minimizing the regulatory mixing zones involves two aspects. First, contamination in seepage and runoff must be minimized. This is achieved with a good closure and reclamation plan that is implemented and monitored as approved. If monitoring shows the closure plan is not performing as Diavik predicted, then Diavik can implement contingencies.

The second aspect is to accurately define and justify actual mixing zone boundaries. This way, potentially impacted areas in mixing zones are not described as larger (or smaller) than necessary. This information is

necessary to make an informed decision on permanent mixing zones versus a permanent water treatment plant. It is also necessary to set closure criteria for any approved mixing zones.

If mixing zone sizes are overstated, this could cause Tłı̨chǫ citizens to avoid the area and deter people from returning to the Lac de Gras area to hunt, fish, trap, camp, and gather berries as they did before the mine. This would not support one of Diavik's closure goals for "Land and water that allows for traditional use". It would not honour Tłı̨chǫ Elders' wishes to leave pristine, clean water for future generations, and for future Tłı̨chǫ citizens to enjoy the land in and around the closed mine site.[1] Overstating the size of mixing zones will not support good decision-making on the acceptability of permanent mixing zones. We do not know how Tłı̨chǫ citizens will perceive the area in the long-term after the mine is closed. But we do know that the return of cultural uses is best supported by accurate, reliable information.

Diavik does not yet have enough information to accurately describe mixing zone sizes without the risk of overstating them. The size of some regulatory mixing zones that Diavik proposes are dictated in part by limitations in Diavik's modeling or by their proposed sampling methods. Diavik's back-calculated Water Licence criteria are based on mixing zones that are 100 to 560 meters from the shore. In reality, some mixing zones could be much smaller than 100 meters, even at the worst times of the year.

Recommendation 2: In order to inform final decision-making about permanent mixing zones and setting closure criteria, Diavik should more precisely determine the size of the mixing zones.

This means sampling methods, calculations, and modeling approaches must not exaggerate mixing zone sizes. This will better meet regulatory expectations and allow Tłı̨chǫ citizens to make informed decisions about cultural use of the Lac de Gras area in the decades and centuries to come.

2.3 Post-Closure Reporting on Any Approved Mixing Zones

As described above, Tłı̨chǫ citizens need accurate information about any approved permanent mixing zones to support the return of cultural use to the area. In addition to more precisely estimating mixing zones after the Specific Effects Study is done (as described in Section 2.1), Diavik should again refine the mixing zone estimates before walking away. Diavik should use post-closure monitoring data to paint one final picture of the size and nature of any approved permanent mixing zones. This information will be needed to properly communicate risk and support decisions about how to use the land again in and around the Diavik Mine after closure.

Post-closure reporting on mixing zones should include all monitoring results (toxicity tests, SNP, AEMP, SES) and new modeling if necessary. Diavik should describe seasonal variation and year-to-year differences. Diavik should prepare maps showing the smallest outer boundary required to achieve aquatic effects and drinking water benchmarks under different conditions. The Board could require this as a stand-alone report or as part of another required submission.

[1] For example, see quotes from Joseph Judas (page 3) and Francis Simpson (page 4) on TG's April 25, 2023 intervention on Diavik's application for a Water Licence amendment for pond breaching.

Recommendation 3: We recommend that Diavik be required to use post-closure monitoring data to report mixing zone sizes and characteristics as precisely as possible, in different precipitation conditions and times of year, before walking away.

Finally, we would like to address DDMI's statement in its renewal application cover letter that "DDMI understands that there remain unresolved concerns among Indigenous Governments and Organizations (IGOs) that traditional use may be impaired regardless of the weight of scientific evidence due to perceived risk and the cultural importance of the Waters of Lac de Gras." To be clear, the Tłı̨chǫ Government has not disregarded the scientific evidence. The scientific evidence demonstrates that there may be permanent mixing zones with chronic effects on aquatic life and water above drinking water benchmarks. The acceptability of this impairment – compared to the pros and cons of a water treatment plant – has not yet been decided.

2.4 Effluent Quality Criteria

Diavik has proposed that the Water Licence include new numeric discharge criteria for seepage and runoff for future pond breaches, if authorized. Diavik has called these "Closure Surface Runoff and Seepage Criteria".

As noted in our previous submissions on this topic, the Board can regulate discharge with or without numeric Water Licence criteria, based on the evidence before it.[2] If the Board wishes to set effluent quality criteria (EQC) for all 11 catchments in the renewed Water Licence, we would support this decision, provided they are not set as closure criteria. In order to set closure criteria that adequately reflect Tłı̨chǫ values and perspectives, we need the Ponds 2 and 7 Specific Effects Study data and further engagement from Diavik, as described above.

Once closure criteria are finalized, it is not clear what role EQC in the Water Licence would play. After the technical session, Diavik proposed a Water Licence Condition that says discharge criteria would cease to apply if the Board determines seepage and runoff is not a waste.[3] Diavik described potential evidence for the Board consider when deciding whether seepage and runoff is no longer waste. It is not clear whether a Licence condition is necessary or whether this may limit the Board's future discretion. Regardless, we believe the Board can set EQC now and closure criteria later once there is sufficient evidence to do so. We will continue to follow this issue closely during the remainder of the proceeding.

2.4.1 Method for Setting Effluent Quality Criteria

In this proceeding, Diavik has provided information about what concentrations will a) protect water uses and b) define the lowest concentrations Diavik can reasonably achieve.

[2] Tłı̨chǫ Government Intervention for Diavik's Water Licence amendment, April 25, 2023.

[3] Response to WLWB Information Request #3.

Recommendation 4: Consistent with the Boards' Standard Process for Setting Effluent Quality Criteria (2023), Water Licence criteria for each parameter should be set at the lower of the protective and achievable (technology-based) values.

According to the Board's Standard Process (Figure 1), technology-based EQC "minimize the amount of waste that needs to be deposited in the environment." Technology-based EQC will also help to minimize and better describe the mixing zone boundary.

When the Board set maximum average EQC for Ponds 2 and 7, it used the 95th percentile of historical SNP monitoring data to understand what is achievable. In contrast, DDMI now proposes to use the double the modeled prediction (when it is higher than the 95th percentile). In some cases, doubling the modeled prediction results in numbers higher than even the 99th percentile. Diavik has not provided sufficient rationale for this overly cautious approach.

Recommendation 5: The Board should not use double the modeled predictions to determine what water quality can be achieved, unless Diavik can provide a better rationale.

2.4.2 Which Chemicals Should Have Effluent Quality Criteria?

When screening which chemicals should have EQC, Diavik relied only on modeled predictions in seepage and runoff. Diavik did not use seepage and runoff SNP monitoring data to screen chemicals. In contrast, Diavik proposes to use both SNP and modeling data to determine what water quality can be achieved.

In its response to our comment on this issue, Diavik noted that the Surface Water Action Level Management Framework (SWALF) will help to address this issue. This is because the SWALF has triggers for all parameters, not just those with EQC. However, action level 1 in the SWALF is triggered when runoff chemistry is more than 80% of EQC. Therefore, if a chemical does not have an EQC, it cannot trigger action level 1. Regardless, Diavik did not provide a compelling rationale for ignoring SNP data for seepage and runoff when screening parameters.

Recommendation 6: If any chemicals have SNP concentrations (95th percentile) above benchmarks, they should have EQC in the Water Licence.

2.4.3 Uranium

Diavik's seepage and runoff quality predictions show possible exceedances of the proposed Water Licence criteria for uranium. For example, in catchment 5, the historical SNP monitoring data show that Diavik regularly (50th percentile) exceeded the acute toxicity threshold during operations. However, Diavik's historical toxicity tests on water treatment plant effluent had 100% survival of test species with uranium concentrations up to 3 times higher than the acute toxicity threshold.[4] This is promising because it means there was no acute toxicity even though the acute toxicity threshold was exceeded. However, it is not clear whether this will be true for runoff and seepage, because it has different water chemistry than water

[4] DDMI Response to Undertakings 18 and 19, September 19, 2023

treatment plant effluent. Also, even though a collection pond sample must pass an acute toxicity test before pond breaching (if approved), the sample may not reflect reasonable worst-case conditions.

In general, we trust the Board will consider these and other factors and set Water Licence conditions to prevent the death of fish or other aquatic life in the mixing zones.

2.5 Cultural Use Criteria for Lac de Gras

The closure criteria for Lac de Gras should include cultural use criteria. This will ensure that post-closure water quality is assessed with both ways of knowing (science and Traditional Knowledge).

In response to our comment on this issue (TG Comment #10), Diavik said it supports Traditional Knowledge monitoring, but that "the absence of any GNWT or WLWB standards, guidance, or policy on the use of Traditional Knowledge monitoring results, as well as uncertainty on how this type of monitoring information would be interpreted and enforced by the GNWT Inspector for regulatory compliance, DDMI does not recommend they be established as Licence Conditions during this Renewal."

The equal role of Traditional Knowledge is enshrined in the Mackenzie Valley Resource Management Act (MVRMA Section 60.1) and in Diavik's Water Licence. The Licence requires Diavik to "make every reasonable effort to consider and incorporate any scientific and Traditional Knowledge" that is made available to it (Part B, Condition 2). The Water Licence also has cultural use criteria for the pits (Part G, Conditions and 17). Further, the Inspector does not need to play a direct role in confirming cultural use criteria. Elders can evaluate the cultural use criteria, similar to how engineers will help to evaluate some technical closure criteria. The information from Elders can be provided to the Board, who, as with scientific criteria, will make the final decision.

In general, cultural use criteria should have the same regulatory framework as science-based criteria. Cultural use criteria should not have a lower status or less clout in measuring successful closure and influencing the return of the security deposit. Cultural use criteria could be set in the Water Licence or Final CRP, as long as they have the same status as scientific criteria.

Recommendation 7: The Board should set cultural use criteria for Lac de Gras and ensure they have regulatory status that is equivalent to scientific criteria.

3 OTHER ISSUES

3.1 North Inlet Breaching Criteria

Diavik's Final CRP says that Diavik will breach the north inlet dam after closure. However, during the technical session, Diavik said the upcoming Final CRP will instead propose to replace the dam with a permeable

barrier.[5] This would allow water to flow back and forth but prevent fish from entering the north inlet. The TG will consider this proposal during the upcoming review of the Final CRP.

Regardless, the Water Licence should include conditions that would allow breaching of the north inlet dam, in case that is the final decision. Diavik has proposed a condition that sediment must meet closure criteria before breaching. This is because there is known contamination in the sediment that must be remediated before breaching.

There should also be a similar condition to ensure water is safe and is not trending upwards towards benchmarks before breaching. The north inlet water quality may become worse over time from runoff, seepage, or north inlet sediment. A Water Licence requirement to meet water quality criteria before breaching is consistent with Diavik's Final CRP, which says that the north inlet dam will be breached "when NI water and sediment quality have been confirmed" (page 5-69).

Recommendation 8: The Water Licence should include a requirement that before breaching the north inlet dam, a) water quality criteria should be met and b) water quality should not be trending towards benchmarks.

Breaching the north inlet dam and reconnecting the north inlet to Lac de Gras would restore water flow to how it was before mining. However, Elders have concerns that big fish from the lake would enter the north inlet and eat smaller fish and then return to the larger part of the lake. If there is real or perceived contamination in the north inlet sediment, this could impact future cultural use. If the final approved plan is to breach the north inlet dam, Elders should have the opportunity to evaluate the sediment and water first. The same is true if the dam is to be replaced with a permeable structure.

Recommendation 9: The Water Licence should include a requirement to develop and meet applicable cultural use criteria before breaching or replacing the north inlet dam.

Recommendation 10: Finally, based on the information generated during this proceeding, we make the following additional recommendations:

a. **The SWALF should be updated once the results of the Specific Effects Study and additional engagement are known.** This could happen when closure criteria are finalized.

b. **Any reductions in post-closure monitoring frequency under the SNP should be approved by the Board and not predetermined in the Water Licence.** This is consistent with the Board's previous decision.[6]

c. **All reports submitted after operations stop should have plain language sections, with maps and visual representations**. This includes the annual WL report, Reclamation Completion Reports, Progress Reports, Performance Assessment Reports, etc. The Licence has requirements for plain language sections for some submissions but not all. Good communication is even more important in

[5] Day 3 Technical Session Transcript, April 17, 2025

[6] WLWB Reasons for Decision on Diavik WL Amendment – Decommissioning; March 19, 2024, pp 131-132

during closure, to inform Tłı̨chǫ citizens now and in the future. Ideally this would include pictures and short videos.

d. Annual reporting during active closure and the post-closure period will play an important role in updating the Board and all parties. Annual reporting will also support Traditional Knowledge Monitoring. The Licence requirements for the Annual Water Licence Report and the Annual Closure and Reclamation Plan Progress Report (Schedule 8, Condition 2) are focused on operations. During active closure, Diavik should be reporting on progress implementing the closure plan. During and after active closure, Diavik should be reporting on monitoring, maintenance, and other post-closure issues. **The requirements in the Water Licence Schedules for these two annual reports should be updated and potentially reduced to one combined report**.

e. **If Diavik repeats the Human Health and Ecological Risk Assessment, Diavik should be required to engage with parties on the problem formulation.** This will help the risk assessment to better reflect culturally significant land uses and species. This engagement requirement could be achieved with an update to the Engagement Plan, a Water Licence condition, through the Final CRP, or other means.

f. Similarly, **Diavik should be required to describe how it will communicate risks after closure.** Again, the Board has a number of tools it could use to require this.

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Attachment 1

Tłı̨chǫ Government Intervention on the Diavik Water Licence Amendment (April 25, 2023)

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April 25, 2023

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

Re: Tłı̨chǫ Government Intervention for Diavik Water Licence Amendment for Pond Breaching

This is the Tłı̨chǫ Government's intervention for the Diavik water licence amendment public hearing being held by the Wek'èezhìı Land and Water Board (WLWB or the Board). The amendment is to authorize Diavik to breach collection pond dams and discharge runoff and seepage into Ek'atì (Lac de Gras) without treatment.

We have participated in the review of the Diavik Water Licence Amendment at every opportunity including all WLWB reviews and sessions. We also worked closely with Tłı̨chǫ Elders.

We gratefully acknowledge the contributions of the Tłı̨chǫ Elders in this process, who have entrusted the Tłı̨chǫ Government to communicate their words and vision.

Our recommendations are in ***bold italics*** throughout the document below**.**

In Tłı̨chǫ Unity,

Tammy Steinwand-Deschambeault
Director of Culture & Lands Protection
Tłı̨chǫ Government

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1 INTRODUCTION

Diavik has asked the Wek'èezhìı Land and Water Board (WLWB) to allow the company to breach collection pond dams and discharge seepage and runoff from the mine site into Ek'atì (Lac de Gras) without treatment. Right now, Diavik collects all seepage and runoff in ponds, pumps it to the north inlet, and treats it in the treatment plant before discharge to Ek'atì.

Seepage and runoff come from waste rock piles, processed kimberlite, roads, laydown pads, and other disturbed areas. Diavik says that breaching ponds a few years before closure (scheduled for 2026) will allow early closure performance monitoring, validation of Diavik's closure plans, and adaptive management of the next phases of their closure work.

If the WLWB allows Diavik to breach collection pond dams, Diavik will empty each pond first by pumping wastewater to the north inlet for treatment, sample the pond water, and then breach the dams. Mine site seepage and runoff would then drain into the lake during freshet, summer, and fall.

Diavik used computer models to predict what water quality will be like after the pond dams are breached. Diavik has made predictions about how safe the water will be after pond breaching:

- On the island - Diavik predicts that water in seepage and runoff on the island will be safe for wildlife and for recreational use (swimming, camping, bathing, etc.) by people. Diavik predicts that it will not be safe to use as a drinking water source.
- Mixing zones - Once the seepage and runoff arrives at the shoreline of Ek'atì, Diavik predicts it will not be acutely toxic to fish or other aquatic life and that it will remain safe for wildlife to drink at the shoreline. Diavik says mixing zones in the lake are needed to dilute runoff and seepage before it is safe for people to drink. Diavik also predicts there could be some impacts on fish and aquatic life that spend a lot of time in these mixing zones. These impacts could include less growth and less reproduction, but not death. Diavik says that 15 mixing zones will be needed around the island. Diavik predicts that 12 of these mixing zones will extend 100 to 200 meters from shore. In the other 3 mixing zones, the lake is very shallow and freezes to the bottom in winter, so Diavik says these mixing zones need to be up to 560 meters from the shore.
- Ek'atì - Diavik predicts that water in the rest of the lake will be safe for people to drink, safe for wildlife, and have no adverse impacts on fish or aquatic life.

This is the second time Diavik has asked the WLWB to amend the licence to let seepage and runoff flow straight into the lake. During the first amendment proceeding, the Tłı̨chǫ Government did not comment on whether it is acceptable to have mixing zones or if so, how big mixing zones could be. This is because Diavik said it was only asking for administrative changes to the licence to establish a framework for pond breaching, and approval to breach each pond would come later. In this second amendment, Diavik is now asking for approval to breach the ponds, so the Tłı̨chǫ Government has started to carefully consider what would be acceptable water quality after closure. Diavik has submitted a lot of new information to support this second amendment.

Diavik is asking for approval to breach all ponds, starting with two ponds during operations, and the remaining nine ponds after 2026 when operations stop. Diavik proposes to sample and analyze pondwater chemistry and give the results to the GNWT Inspector before breaching each pond.

As part of the Tłı̨chǫ Government's review of Diavik's proposal, Elders, youth, and Tłı̨chǫ Government staff participated in site visits and workshops. Tłı̨chǫ Government staff have fully participated in all steps of the WLWB's process.

2 PROTECTING WATER IN THE ʔEK'ADIÌ AREA[1]

Tłı̨chǫ Elders discussed whether ponds can be breached in our August 2022 workshop. However, at that time, information about water quality and how it would affect people, fish, and wildlife was not clear enough for Elders to meaningfully discuss the options. Diavik provided a lot more technical information about its pond breaching proposal in November 2022 with its second licence amendment application.

Tłı̨chǫ Elders have a strong wish for the island to return to the way it was before the mine was built. They speak on behalf of animals and future generations of Tłı̨chǫ citizens. Ideally, Elders do not want mixing zones where people cannot drink the water, and where fish and aquatic life may not grow or reproduce as well. At the same time, Elders recognize the reality that the island will never be the same again. Tłı̨chǫ Elders will be at the public hearing to speak directly to the Board. [2]

> *We do know there is a big change in the land, it will not be in the natural form again. New young people will eventually use the land and the lake there. We are the Elders there. We don't know if we will work on the land again, we won't be able to. While young, we made great use of the land, dog teams, everything in the traditional way, working with the Elders. Now we can't do anything else. I was very happy on the lake, on the land there. It was pristine. It was beautiful.* – Tłı̨chǫ Elder Charlie Apples, April 2023

> *"Most aren't using the land now. But don't look at it like it doesn't matter. Ancestors left pristine clean water for us, and we'd like to do that for future generations.* – Tłı̨chǫ Elder Joseph Judas, September 2022

> *Animals can't speak for themselves. We speak for them and for future generations.* – Tłı̨chǫ Elder Joe Rabesca, September 2022

[1] ʔEk'adiì refers to the big island on Lac de Gras, where Diavik Mine is located, and means fat island or island of fat.

[2] All Tłı̨chǫ Elder quotes are paraphrased (from notes taken from the English language simultaneous interpretation of discussions at workshops).

> *Forever means a long time. We would like to see future generations enjoy the land that is out there, because people are going to try. Transportation routes might change. We might need a good pristine island out there.* – Tłı̨chǫ Elder Francis Simpson, September 2022

Tłı̨chǫ Elders are aware that Diavik predicts that the only way to eliminate the mixing zones is to have a perpetual (forever) wastewater treatment plant at the site. Elders are aware of the problems with a water treatment plant. A water treatment plant would mean there would always be workers, a camp and the noise of pumps and other equipment. There would always be pipelines across the island, and fuel stored on-site. Fuel, and possible treatment chemicals, would need to be transported to the site. Waste sludge from the treatment plant would need to be disposed somewhere. And there would still likely be a mixing zone around the water treatment plant discharge.

These problems with a wastewater treatment plant are very difficult to compare to the impacts of mixing zones around the island forever. It is good that Diavik predicts that the big lake outside the mixing zones will be safe to drink, but it may be difficult to know how close to the shore people can drink. Tłı̨chǫ Elders do not want to have to worry about water quality around the island. Also, in the future, if people know there are many mixing zones where fish and people are not as safe as out in the big lake, they might avoid the area.

> *What will happen to future generations? This is our great concern. We are struggling here today. Our ancestors enjoyed the island. We have concerns with development and climate change. What kind of place will we leave for future generations?* – Tłı̨chǫ Elder Joe Lazare Zoe, April 2023

> *In the past we didn't have to worry. We could drink from the lake. We could drink from the shore. Maybe today it is not possible to do that. When we go to the area, we are cautious about drinking water. We are hoping Diavik can put it to its natural state again. It would be so wonderful.* – Tłı̨chǫ Elder Charlie Apples, April 2023

Choosing between permanent mixing zones around the island and a perpetual water treatment plant at this stage is complicated by uncertainty. The potential losses of uses are based on computer predictions that may in reality be better or worse. Also, we don't know whether the worst water quality of the year can be safely sampled. We don't know how the water quality will be when it is at its worst (likely around freshet), and whether the poorest water quality will overlap the time when people are most likely to use the site**.** Scientific and TK-based monitoring after a dam is breached will help to understand how runoff and seepage might affect Ek'atì and inform a future decision about permanent mixing zones.

Tłı̨chǫ Elders have been to the site twice in the past year and this has been very helpful for understanding closure and reclamation issues, including pond breaching. However, there are many important details to absorb and understand, and some of these details are not fully known yet. We need to see a breached pond, see where the runoff comes from, know the size and nature of the mixing zones. The lake needs to be monitored after breaching. We need more time to learn and understand what will happen, talk together, and make an informed decision for future generations.

Also, the WLWB recently approved cultural use criteria in the flooded pits where processed kimberlite is disposed. The Tłı̨chǫ Government agrees with the approved cultural use criteria.[3] However, when cultural use criteria were developed for the pits, we did not talk about other runoff/seepage mixing zones where cultural criteria might not be met. This was not our expectation during that proceeding. We want to make a completely informed decision about whether cultural use criteria can be waived inside permanent mixing zones.

We understand that Diavik does not want a permanent water treatment plant at the site, and that a core principle in the MVLWB/CIRNAC Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (2013) is no long-term active care. Despite this and the shortcomings of a water treatment plant, it should not be assumed that mixing zones around the island forever are better than a perpetual treatment plant. This decision needs to be made carefully, cooperatively, and with a full understanding of the trade-offs.

> *They are not like us, Diavik. They did not come from the land. We know the land. We know the water. We know the weather. We know the wildlife, the caribou, the ducks. We know, especially Elders know, what is best for our land, people, community."*
>
> Tłı̨chǫ Youth, Tanisha Beaverho, September 2022

3 A Path Forward

The Tłı̨chǫ Government would like to work with the company to find a good outcome for all. In this spirit, **the Tłı̨chǫ Government supports breaching one collection pond dam if certain requirements are met** (see Section 4). We would like Diavik to show us that its predictions are good. We would like there to be intensive monitoring after a pond is breached. We want to know what the scientific analysis tells us about the safety of the water and the actual size of the mixing zone, not just the computer models. By breaching a pond, the Tłı̨chǫ Government and the company can learn together, so that Tłı̨chǫ Government, together with Tłı̨chǫ Citizens and Elders, can become more comfortable deciding whether there can be permanent mixing zones after the company leaves, using both ways of knowing.

This approach is consistent with the principles the Tłı̨chǫ Government and Elders put forward during the Processed Kimberlite to Mine Workings water licence proceeding in November 2020. In our intervention for that proceeding, we outlined vital principles for maintaining confidence in cultural use of Ek'atì:

> *Elders and the Tłı̨chǫ Government will know the water is safe through both ways of knowing: from traditional knowledge based on sight, smell, and taste of the water and based on scientific water quality monitoring. There needs to be continuous collaboration and full consideration of both ways of knowing.*

[3] Although the cultural criteria were only approved recently, TG together with Tłı̨chǫ Elders recommended almost identical criteria several years ago in our PKMW Intervention.

Elders and the Tłı̨chǫ Government have identified the requirement for Tłı̨chǫ involvement and review in monitoring, to protect confidence and cultural use.

As Tłı̨chǫ Elder Louie Zoe said during that proceeding: *"If we see with our own eyes then we can talk about things. If we didn't really see it, we won't be able to [talk about it]".* The Tłı̨chǫ Government stated then and continues to believe that decisions about water quality should be made gradually, as the evidence from science and traditional knowledge emerges.

To be clear, at this stage, we accept a mixing zone under certain conditions (see Section 4) **only while the company is actively present at the site.** During operations, the company can closely monitor the runoff, seepage, mixing zone, and Ek'atì. Earth-moving equipment is readily available to quickly fill in the dam breach and resume water treatment if necessary. The time period is relatively short (compared to post-closure). It is, however, very important to recognize that Tłı̨chǫ Citizens actively drink from Ek'atì during the Ekwǫ̀ Nàxoèhdee K'è monitoring program.

It is possible that breaching a second pond during operations may help to inform a future decision about whether Diavik can breach all ponds. This is in part because Pond 7 (our recommended pond for breaching) catches water mainly from undisturbed land (91%), with the remainder being from Type 1 construction rock (8%), and a small portion from the PKC dam (1%).[4] Diavik has also proposed pre-closure breaching of Pond 2. Data gathered from a second pond may help to more confidently verify Diavik's predictions about runoff and seepage quality and the size and nature of mixing zones. For example, Pond 2 catches water from A21 rock, but Pond 7 does not. Seepage and runoff from A21 rock may dictate the size of some mixing zones. Breaching Pond 2 could help to better verify water quality predictions and mixing assumptions in the small bays around the island.

Our concern with breaching Pond 2 is a) a potential for more impacts in the lake before predictions have been verified and b) Pond 2 catches water from the North Waste Rock Storage Area which contains potentially acid-generating rock. It is not clear to us whether this rock is completely frozen. In summary, we accept an operational mixing zone for one or two dams breached under certain conditions. Tłı̨chǫ Government has not yet determined whether we prefer 15 permanent mixing zones over a permanent water treatment plant. We believe this decision can be made based on the knowledge gained from studies of the mixing zone caused by one or two dam breaches.

Recommendation 1: The Tłı̨chǫ Government recommends that, if certain requirements are met, the WLWB allow Diavik to breach one or two ponds to verify predictions and build understanding of post-closure mixing zones. The requirements - or principles - are outlined below.

[4] Part 6 of Diavik's Water Licence Amendment Application, Appendix F of Appendix X-25 (November 24, 2022)

4 PRINCIPLES FOR BREACHING A POND

To breach the ponds and create an operational mixing zone, we would like to emphasize some important principles.

1. Diavik's predictions regarding safe water uses of seepage runoff, mixing zones, and Ek'atì beyond the mixing zones must be met. These are described in the Introduction to this intervention. If monitoring results show these uses are at risk, Diavik should immediately rebuild the dam. There must be a logical, robust, system that uses monitoring results to act as quickly as possible if predictions about water use protection are wrong. See Section 5 for more about Diavik's proposed response framework.
2. Cultural use criteria must be met at the edge of the operational mixing zone and in the rest of the lake. Its very important to be aware that Tłı̨chǫ Citizens plan to continue drinking Ek'atì water during the Ekwǫ̀ Nàxoèhdee K'è program this year and in the future, and potentially during other activities.
3. Mixing zones should never reduce the quality of Diavik's closure plan, implementation of the plan, or post-closure repairs and maintenance. The Tłı̨chǫ Government wants to be confident that Diavik is doing all that it can to responsibly close the waste rock piles, tailings areas, and all parts of the mine so that post-closure water quality uses are not impaired. We want to know that Diavik did the best job it could while it was responsible for the mine site.
4. Similarly, Diavik should not breach ponds that catch runoff or seepage from areas of the site where the WLWB has not approved the closure plan, or Diavik has not fully implemented the plan. For example, Diavik should not breach ponds that collect seepage and runoff from the processed kimberlite (tailings) containment facility because the closure plan for the tailings area is neither approved nor fully implemented and may impact water quality.
5. The monitoring program must be robust and build Tłı̨chǫ Government confidence and understanding about the effects of breaching the ponds. Monitoring of the first operational mixing zone for seepage and runoff should be quite intensive, similar to a pilot project or research plan. The monitoring program should:
    - Have an objective of identifying as precisely as possible where the boundary of the mixing zone is. This is consistent with the Boards' policy that mixing zones be as small as practicable,[5] and will support future cultural use and minimize areas where uses are impaired.
    - Verify impacts on fish and aquatic life in the mixing zone and verify that there are no impacts outside the mixing zone.
    - Give a good understanding of mixing conditions in the mixing zone, including vertical and horizontal mixing, whether there is any short circuiting, and how mixing changes seasonally. A plume delineation study may help to best define the mixing zone.
    - Confirm what times of the year (e.g., freshet vs summer) water in the mixing zone does not meet aquatic life and drinking water guidelines.

[5] MVLWB/GNWT Guidelines for Effluent Mixing Zones (2017)

- Develop safe monitoring procedures and/or data analysis procedures to understand water quality when it is at its worst (for example, during freshet before the ice is off the lake).
- Monitor sediment quality in the mixing zone (including metals analysis) to verify Diavik's prediction that toxic substances won't build up in sediments.
- Where possible, analyse samples near the source (for example, the toe of a waste rock pile) and where seepage and runoff enter the lake. This will help to verify predictions about the safety of humans and wildlife on the island. It will also establish a baseline and help understand whether water gets cleaner as it makes its way to the lake.
- Sampling frequency should only be reduced with WLWB approval, based on the results of monitoring and rationale from Diavik.
- Include monitoring of cultural use criteria by Tłı̨chǫ Elders.

6. Diavik must have the ability to quickly (e.g., within days) repair the breach in the dam and begin collecting and treating runoff and seepage in response to WLWB-approved triggers.
7. The WLWB should be satisfied that Diavik's predictions about water quality and safety for people, wildlife, fish, and other aquatic life are reasonably accurate.
8. The Water Licence Inspector should verify that samples taken from the pond before breaching meet breaching criteria. Before breaching, the pond water should not be expected to exceed any effluent quality criteria or trigger any early warning action levels.
9. There may need to be licence requirements or management plan updates for any closure work (e.g., scarification) that has to be conducted after pond breaching and would generate muddy water. For example, Diavik could submit an erosion and sediment control plan for approval before starting the work, to demonstrate that total suspended solid levels would not affect the mixing zone.
10. Communication about the size, location, and quality of mixing zones will be needed, and we may wish to have signs installed at the mixing zone boundary.
11. Diavik should report what it learns from breaching a pond to the WLWB.

Recommendation 2: If these principles and any other requirements deemed necessary by the WLWB are met, the Tłı̨chǫ Government supports the breaching of Pond 7 (and potentially pond 2).

We would like to be very clear that the Tłı̨chǫ Government's acceptance of a mixing zone at Pond 7 while Diavik is present at the site in no way suggests we accept mixing zones forever, after the mine is gone. As described above, we need a better understanding of what the quality and nature of the mixing zones would be before we can make a clear final recommendation on the acceptability of long-term mixing zones remaining after mine closure. We believe that what we learn from the breaching and monitoring of one or two ponds will enable us to do this.

The Tłı̨chǫ Government will also carefully review all of the technical recommendations made by other parties, particularly the Environmental Monitoring Advisory Board (EMAB). We recognize that many important issues are raised in the EMAB intervention, and we will be following these closely.

5 REGULATING SEEPAGE AND RUNOFF

Diavik has proposed that effluent quality criteria are not needed for runoff and seepage that goes into Ek'atì. The WLWB typically sets effluent quality criteria to regulate effluent discharged to a lake. Instead of effluent quality criteria, Diavik has proposed a Surface Water Action Level Framework (SWALF). The SWALF has low, medium, and high action levels that trigger actions, which would ultimately trigger Diavik to rebuild the dams and treat runoff and seepage.

The Tłı̨chǫ Government is open to the possibility that a response framework like the SWALF could be used as a regulatory tool. In that case, the SWALF would need to protect water uses as much as effluent quality criteria would. Also, this approach would only be viable if it can be properly inspected and enforced.

If the WLWB authorizes breaching of one pond at this stage, effluent quality criteria would also be a reasonable option. If effluent quality criteria are going to be used, they should be set by following the Boards' Standard Process for Setting Effluent Quality Criteria (2023).

If the WLWB sets effluent quality criteria for one pond, a response framework will likely still be needed to pre-define triggers and actions to protect uses. The response framework would then be tested on the first pond breach, and improved, if necessary. In that case, when the WLWB renews Diavik's water licence (the licence expires in December 2025), the WLWB could again consider whether a SWALF could be used in place of effluent quality criteria. This decision would be made with the benefit of what is learned from the first dam breach. Monitoring of seepage, runoff, mixing zones, and Ek'atì after a pond is breached could help gain confidence and comfort with the SWALF and make any necessary improvements.

The SWALF proposed by Diavik is a good foundation for discussion and refinement. Some of our concerns with the SWALF as proposed are:

- *Early warnings for wildlife, recreational use, drinking water, and aquatic life.* A human health and wildlife early warning at 80% of the guideline (as suggested by Diavik) may be too high. For example, the Pond 2 runoff predictions for some parameters are less than 2% of the wildlife guideline. A measured concentration that is 80% of the guideline would be a big increase compared to what is predicted, and may mean the runoff could soon exceed guidelines. We note also that the MVLWB/GNWT Guidelines for Aquatic Effects Monitoring Programs (2019) describes a low action level as "measurable but well below significance threshold". The principles in the AEMP Guidelines are useful for evaluating the SWALF.
- *Inability to sample when water quality is at its worst.* For safety reasons (thin ice), Diavik may not be able to sample at the edge of the mixing zone during the time when they expect the worst water quality in the lake. It's not clear how best to ensure a good understanding of water quality during this period. Sampling runoff right before it enters the lake and/or in the lake near

the shore may help to address this challenge, along with a good understanding of mixing conditions.

- *High action level for human health and wildlife:* Diavik's most recently submitted SWALF includes a high action level set at the wildlife and human health guidelines, similar to the previous SWALF.[6] However, in Diavik's most recent SWALF, the high action level is at the mixing zone boundary instead of direct measurement of seepage and runoff. This means that seepage, runoff, and water in mixing zones in Ek'atì could exceed human and wildlife guidelines.
- *High action level during operations:* The high action level triggers Diavik to rebuild the dam to stop seepage and runoff from entering the lake. This action level should be set with care. If it is set too high for the operational mixing zone, there could be unacceptable risks to people, wildlife, and aquatic life. If the high action level is set too low, the opportunity to learn from the dam breach could be lost. The Boards' AEMP Guidelines may provide useful guidance about setting high action levels, as well as the potential role of responses plans.
- *High action level after closure:* For clarity, we are not prepared to recommend the trigger for a water treatment plant in post-closure. Information collected from the first pond breach and more work with Elders would help the Tłı̨chǫ Government to recommend this trigger.

We will also closely follow the technical issues about the SWALF raised in the EMAB and other interventions.

Recommendation 3: The Tłı̨chǫ Government is of the view that the WLWB has the authority to use effluent quality criteria and/or a response framework to regulate the discharge of seepage and runoff to Ek'atì. The SWALF needs some revisions before it can be approved. If the Board sets effluent quality criteria, they should be developed in accordance with the Boards' policies and guidelines.

6 Is Runoff and Seepage "Waste"?

During this proceeding, the Tłı̨chǫ Government has focused on water quality protection for people, wildlife, fish, and other aquatic life. We have also made efforts to address the practical matter of whether permanent mixing zones or a treatment plant is better. We are aware that there has also been a lot of discussion about whether runoff and seepage meet the legal definition of "waste".

At a minimum, we believe seepage and runoff from the mine is a "potential waste" because Diavik predicts that it, and water in proposed mixing zones in Ek'atì, will not meet AEMP benchmarks and will not be a safe source of drinking water. This means seepage and runoff would degrade water to the extent that it is "detrimental to its use by people or by an animal, fish or plant" (from the definition of

[6] Diavik Response to WLWB Information Requests from the Technical Session (March 21, 2023)

waste in the Waters Regulations). Based on these predictions, we believe the Board should presume that it is waste and regulate it accordingly, unless and until Diavik can rebut that presumption.

Whether or not the waste is in quantities, concentrations, and locations that we might consider "acceptable" in the circumstances is a separate question, and the one TG is focused on. When considering this, it is important to keep in mind that there will be fifteen permanent mixing zones if there is no treatment plant. Collectively these may have a greater influence on uses than a single mixing zone. We anticipate that this issue may become clearer with more information from monitoring of a breached dam.

We understand that whether seepage and runoff is a waste may influence how long the Diavik mine site may need a water licence, since the deposit of waste is one of the activities that triggers the need for a licence. That is an important big-picture issue, but it is not the question before us in this proceeding. We will be considering this matter as we move through this proceeding, and during other future proceedings. We would also like to consider this on a broader policy level with our treaty partners.

Recommendation 4: The Tłı̨chǫ Government is of the view that, at least for the time being, seepage and runoff should be regulated as a waste.

7 Other Considerations

During the rest of the proceeding, we will continue to learn new information and discuss issues. There are a few topics we may wish to further explore and elaborate on in our comments on the water licence or in our closing argument. These issues are discussed below.

7.1 Long-term Water Treatment Plant Information

When making future decisions about breaching more ponds, the Tłı̨chǫ Government may want more detail about the downsides of a water treatment plant. While some information is available in Diavik's Interim Closure and Reclamation Plan,[7] that information is an options analysis and leaves some questions unanswered.

For example, what will the size and nature of the treatment plant's mixing zone be? What will the wastewater treatment plant sludge be like and where will it go? Can noise, pipelines, and other disturbances be mitigated so that caribou don't avoid the island? How much staff presence will be necessary? Are there hazards from chemicals that need to be transported to site for the plant? How much fuel and supplies will need to be transported to site each year? This information may be necessary to make a final determination about the trade-offs of a permanent treatment plant compared to 15 permanent mixing zones around the island.

[7] ICRP Version 4.1, Appendix X-15

7.2 Financial Security

To support Tłı̨chǫ Government & the Elder's wish for future generations to safely and confidently use the island and surrounding area for hunting, fishing, camping, and more, good risk communication will be necessary. This is true whether we need to communicate risks related to 15 mixing zones, or one water treatment plant.

After closure, as the land begins to heal and wildlife and people increase their use of the area, there should be studies to understand how the land and water are healing, how people are using the area, whether there are any misperceptions about the risks, and how to share accurate risk information with Tłı̨chǫ citizens. Money should be set aside for this type of study and for communicating risk. The water licence is a potential tool for setting this money aside.

7.3 Drinking Water Mixing Zone vs Aquatic Life Mixing Zones

Diavik's proposed mixing zone sizes are dictated by effects on aquatic life. Aquatic life benchmarks are typically lower than drinking water benchmarks, which means the mixing zones for aquatic life are typically bigger than what is needed for drinking water. Feeling safe to drink the water is very important for future use. We are interested in exploring the possibility of establishing a mixing zone for drinking water. Understanding the physical boundary where water is safe to drink may be necessary for good risk communication and may be a very important consideration for deciding whether long-term treatment is needed.

7.4 Effluent Quality Criteria for Wildlife and Human Health

If the WLWB sets effluent quality criteria for the protection of aquatic life, the Tłı̨chǫ Government is interested in whether effluent quality criteria (or another type of water licence condition) are necessary to protect humans and wildlife as well. We note that in some cases, the drinking water guideline is lower than the AEMP benchmarks (e.g., antimony, manganese, molybdenum). Therefore, effluent quality criteria for aquatic life may not always protect uses by humans and wildlife.